

**CALIFORNIA
ADOPTED THE FOLLOWING:**

FINAL EXPRESS TERMS
FOR STATE AGENCY APPROVED CHANGES
TO
THE 2015 INTERNATIONAL BUILDING CODE (IBC) AND INTERNATIONAL EXISTING
BUILDING CODE (IEBC)
FOR
THE 2016 CALIFORNIA BUILDING CODE (CBC) AND CALIFORNIA EXISTING BUILDING
CODE CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 2 & 10

- THE CALIFORNIA BUILDING STANDARDS COMMISSION (BSC)
- THE DIVISION OF THE STATE ARCHITECT – ACCESS COMPLIANCE (DSA-AC)
- THE DIVISION OF THE STATE ARCHITECT – ACCESS COMPLIANCE (DSA-SS)
- THE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPEMENT (HCD)
- THE OFFICE OF STATE WIDE HEALTH PLANNING AND DEVELOPMENT (OSHDP)
- THE OFFICE OF STATE WIDE HEALTH PLANNING AND DEVELOPMENT (OSHDP)
- THE OFFICE OF THE STATE FIRE MARSHAL (SFM)

Disclaimer: All Final Express Terms for the above mentioned agencies are available and were obtained from the Building Standards Commission at the following links:

<http://www.bsc.ca.gov/Rulemaking/adoptcycle/2015CodeAdoptionCycle/ApprovedStandardsDecember2015.aspx><http://www.bsc.ca.gov/Rulemaking/adoptcycle/2015CodeAdoptionCycle/ApprovedStandardsJanuary2016.aspx>

BUILDING & EXISTING BUILDING

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**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA BUILDING STANDARDS COMMISSION**

**REGARDING PROPOSED CHANGES TO
CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2**

(The State agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A Notation: shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific. (PART 1 – ADMINISTRATIVE CODE))

LEGEND FOR EXPRESS TERMS

1. Existing California amendments or code language being modified are in italics when they appear in the model code text: All such language appears in *italics*, modified language is underlined.
2. New California amendments: All such language appears underlined and in italics.
3. Repealed text: All such language appears in ~~strikeout~~.
4. Information for the reader is shown as *[bracketed and in italics]*.

FINAL EXPRESS TERMS

ITEM 1. CBSC proposes to bring forward existing California amendments in Chapter 1, Division I, Section 1.1 General, from the 2013 California Building Code for adoption into the 2016 California Building Code with additional amendments as follows:

**CHAPTER 1
SCOPE AND ADMINISTRATION
DIVISION I
CALIFORNIA ADMINISTRATION**

**SECTION 1.1
GENERAL**

- 1.1.1 Title.** *These regulations shall be known as the California Building Code, may be cited as such and will be referred to herein as "this code." The California Building Code is Part 2 of ~~twelve~~ thirteen parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the ~~2012~~ 2015 International Building Code of the International Code Council with necessary California amendments.*
- 1.1.2 Purpose.** *The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.*

1.1.3 Scope. The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California.

1.1.3.1 Nonstate-regulated buildings, structures and applications. Except as modified by local ordinance pursuant to Section 1.1.8, the following standards in the California Code of Regulations, Title 24, Parts 2, 2.5, 3, 4, 5, 6, 9, 10 and 11 shall apply to all occupancies and applications not regulated by a state agency.

1.1.3.2 State-regulated buildings, structures and applications. The model code, state amendments to the model code, and/or state amendments where there are no relevant model code provisions shall apply to the following buildings, structures, and applications regulated by state agencies as specified in Sections 1.2 through 1.14, except where modified by local ordinance pursuant to Section 1.1.8. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the state legislature.

Note: See Preface "How to Distinguish Between Model Code Language and California Amendments" in the front of the code.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California, and regulated by the Building Standards Commission. See Section 1.2 for additional scope provisions.
2. Local detention facilities regulated by the Board of State and Community Corrections ~~Corrections Standards Authority~~. See Section 1.3 for additional scope provisions.
3. Barbering, cosmetology or electrolysis establishments, acupuncture offices, pharmacies, veterinary facilities and structural pest control locations regulated by the Department of Consumer Affairs. See Section 1.4 for additional scope provisions.
4. ~~Energy efficiency standards regulated by the~~ Section 1.5 reserved for the California Energy Commission. ~~See Section 1.5 for additional scope provisions.~~
5. Dairies and places of meat inspection regulated by the Department of Food and Agriculture. See Section 1.6 for additional scope provisions.
6. Organized camps, laboratory animal quarters, public swimming pools, radiation protection, commissaries serving mobile food preparation vehicles and wild animal quarantine facilities regulated by the Department of Public Health. See Section 1.7 for additional scope provisions.
7. Hotels, motels, lodging houses, ~~apartment houses~~ apartments, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities. See Section 1.8.2.1.1 for additional scope provisions.
8. Accommodations for persons with disabilities in buildings containing newly constructed covered multifamily dwellings, new common use spaces serving existing covered multifamily dwellings, additions to existing buildings where the addition alone meets the definition of "COVERED MULTIFAMILY DWELLING," and new common-use spaces ~~areas~~ serving new covered

multifamily dwellings, which are regulated by the Department of Housing and Community Development. See Section 1.8.2.1.2 for additional scope provisions.

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16. ~~Section 1.13 reserved for Graywater systems regulated by the Department of Water Resources. See Section 1.13 for additional scope provisions.~~

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1.1.7 Order of precedence and use.

1.1.7.1 Differences. *In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.*

1.1.7.2 Specific provisions. *Where a specific provision varies from a general provision, the specific provision shall apply.*

1.1.7.3 Conflicts. *When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title the most restrictive requirements shall prevail.*

1.1.7.3.1 Detached one-and two-family dwellings. *Detached one-and two-family dwellings, efficiency dwelling units, lodging houses, live/work units, townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures, may be designed and constructed in accordance with this code or the California Residential Code, but not both, unless the proposed structure(s) or element(s) exceed the design limitations established in the California Residential Code, and the code user is specifically directed by the California Residential Code to use this code.*

1.1.8 City, county, or city and county amendments, additions or deletions. *The provisions of this code do not limit the authority of city, county, or city and county governments to establish more restrictive and reasonably necessary differences to the provisions contained in this code pursuant to complying with Section 1.1.8.1. The effective date of amendments, additions or deletions to this code by a city, county, or city and county filed pursuant to Section 1.1.8.1 shall be the date filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code. Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.*

1.1.8.1 Findings and filings.

1. *The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical or geological conditions.*

Exception: Hazardous building ordinances and programs mitigating unreinforced masonry buildings.

2. *The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.*

3. *Findings prepared by fire protection districts shall be ratified by the local city, county or city and county and filed with the California Department of Housing and Community Development, Division*

of Codes and Standards, P. O. Box 1407, Sacramento, CA 95812-1407 or ~~1800 3rd Street, Room 260, Sacramento, CA 95814~~ 2020 West El Camino Avenue, Suite 250, Sacramento, CA 95833-1829.

1.1.8.2 Locally adopted energy standards – California Energy Code, Part 6

In addition to the provisions of Section 1.1.8.1 of this Part, the provisions of this section shall apply to a city, county, and city and county adopting local energy standards applicable to buildings and structures subject to the California Energy Code, Part 6.

Applicable provisions of Public Resources Code Section 25402.1(h)(2) and applicable provisions of Section 10-106, Chapter 10 of the California Administrative Code, Part 1 apply to locally adopted energy standards amending the California Energy Code, Part 6.

1.1.9 Effective date of this code. Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.

1.1.10 Availability of codes. At least one complete copy each of Titles 8, 19, 20, 24 and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county, or city and county shall have an up-to-date copy of the code available for public inspection. See Health and Safety Code Section 18942 (d e) (1) and (2).

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Notation:

Authority: Government Code §14617; Health and Safety Code § 16600, 18928, 18930.5, 18934.5, 18934.6, 18938 & 18940.5

References: Government Code §14617; Health and Safety Code §§16600 & 18901-18949

ITEM 2. CBSC proposes to bring forward existing California amendments in Chapter 1, Division I, Section 1.2 Building Standards Commission, from the 2013 California Building Code for adoption into the 2016 California Building Code with additional amendments as follows:

SECTION 1.2 BUILDING STANDARDS COMMISSION

1.2.1 BSC. Specific scope of application of the agency responsible for enforcement, the enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

1. State buildings for all occupancies.

Application-State buildings (all occupancies), including buildings constructed by the Trustees of the California State University (CSU) and the Regents of the University of California (UC) where no state agency has the authority to adopt building standards applicable to such buildings.

Enforcing agency-State or local agency specified by the applicable provisions of law.

Authority cited-Health and Safety Code Section 18934.5.

Reference-Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

2. University of California, California State Universities and California Community Colleges.

Application-Standards for lighting for parking lots and primary campus walkways at the University of California, California State Universities and California Community Colleges.

Enforcing agency-State or local agency specified by the applicable provisions of law.

Authority cited-Government Code Section 14617.

Reference-Government Code Section 14617.

3. Existing state-owned buildings, including those owned by the University of California and by the California State University.

Application-Building seismic retrofit standards including abating falling hazards of structural and nonstructural components and strengthening of building structures. See also Division of the State Architect.

Enforcing agency-State or local agency specified by the applicable provisions of law.
Authority cited-Health and Safety Code Section 16600.

Authority cited- Health and Safety Code Sections 16600.

Reference-Health and Safety Code Sections 16600 through 16604.

4. Unreinforced masonry-bearing wall buildings.

Application-Minimum seismic strengthening standards for buildings specified in Appendix Chapter A1 of the California Existing Building Code, except for buildings subject to building standards pursuant to Health and Safety Code (commencing) with Section 17910.

Enforcing agency-State or local agency specified the applicable provisions of law.

Authority cited-Health and Safety Code Section 18934.6-7

Reference-~~Health and Safety Code Sections 18901 through 18949.~~ Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

1.2.1.1 State building. For purposes of this code, a "state building" is a structure for which a state agency or state entity has authority to construct, alter, enlarge, replace, repair or demolish.

1.2.1.2 Enforcement. [CSU, UC, Judicial Council and California Department of Corrections and Rehabilitation ~~CDCR~~] State agencies or state entities authorized to construct state buildings may appoint a building official who is responsible to the agency for enforcement of the provisions of the California Building Standards Code.

Exception: State buildings regulated by other sections of this code remain the enforcement responsibility of the designated entities.

1.2.1.3 Enforcement. Reserved for DGS.

~~1.2.3~~ **1.2.1.4 Adopting agency identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym **BSC**.

1.2.2 BSC-CG. Specific scope of application of the agency responsible for enforcement, the enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application-All occupancies where no state agency has the authority to adopt green building standards applicable to those occupancies.

Enforcing agency-State or local agency specified by the applicable provisions of law.

Authority cited-Health and Safety Code Sections 18930.5(a), 18938, and 18940.5.

Reference-Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

1.2.2.1 Adopting agency identification. The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym **BSC-CG**.

1.2.2 1.2.3 Alternative materials, design and methods of construction and equipment. The provisions this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

~~1.2.2.1~~ **1.2.3.1 Research reports.** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

~~1.2.2.2~~ **1.2.3.2 Tests.** Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

Notation:

Authority: Government Code §14617; Health and Safety Code § 16600, 18928, 18930.5, 18934.5, 18934.6, 18938 & 18940.5

References: Government Code §14617; Health and Safety Code §§16600 & 18901-18949

ITEM 3. CBSC does not adopt Chapter 1 SCOPE AND ADMINISTRATION, but proposes to carry forward existing editorial amendments and make additional editorial amendments for code consistency.

**DIVISION II
SCOPE AND ADMINISTRATION**

***Note:** Sections adopted or amended by state agencies are specifically indicated by and agency banner, or indicated in the Matrix Adoption Table.*

Notation:

Authority: Government Code §14617; Health and Safety Code § 16600, 18928, 18930.5, 18934.5, 18934.6, 18938 & 18940.5

References: Government Code §14617; Health and Safety Code §§16600 & 18901-18949

ITEM 4. CBSC proposes to adopt 2015 IBC, Chapter 2 Definitions.

CHAPTER 2

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Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 5. CBSC proposes to adopt Chapters 3, 4, 5, 6, 7 of the 2015 IBC without amendment.

**CHAPTER 3
USE AND OCCUPANCY CLASSIFICATION**

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**CHAPTER 4
SPECIAL DETAILED REQUIREMENTS ON USE AND OCCUPANCY**

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**CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS**

...

**CHAPTER 6
TYPES OF CONSTRUCTION**

...

**CHAPTER 7
FIRE AND SMOKE PROTECTION FEATURES**

...

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 6. CBSC proposes to adopt Chapter 8 Interior Finishes of the 2015 IBC with new amendments.

**CHAPTER 8
INTERIOR FINISHES**

**SECTION 801
GENERAL**

801.1 Scope. The provisions of this chapter shall govern the use of materials used as interior finishes, trim, and decorative materials. **[BSC-CG]** See California Green Building Standards Code, Chapter 5, Division 5.5 for additional finish material pollutant control requirements.

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Notation:

Authority: Health and Safety Code §18928 & 18934.5 18940.5

Reference: Health and Safety Code §§18928, 18928.1, 18934.5, 18938(b) & 18940.5

ITEM 7. CBSC proposes to adopt Chapters 9 and 10 of the 2015 IBC without amendment.

**CHAPTER 9
FIRE PROTECTION SYSTEMS**

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**CHAPTER 10
MEANS OF EGRESS**

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Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 8. CBSC does not adopt Chapter 11 Accessibility of the 2015 IBC.

**CHAPTER 11
ACCESSIBILITY**

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 9. CBSC proposes to adopt Chapter 12 Interior Environment of the 2015 IBC with new amendments and carry forward the existing amendment to Section 1205.7 (formerly 1205.6) Campus lighting for parking facilities and primary walkways at California state universities, colleges and community colleges and its sub-sections.

**CHAPTER 12
INTERIOR ENVIRONMENT**

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**SECTION 1205
LIGHTING**

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1205.6 Light pollution reduction. [BSC-CG] See California Green Building Standards Code, Chapter 5, Division 5.1 for additional light pollution reduction requirements.

1205.6 1205.7 Campus lighting for parking facilities and primary walkways at California state universities, colleges and community colleges. [BSC] Artificial light shall be provided for parking facilities and primary walkways at California State Universities, colleges, and community colleges in accordance with provisions of this subsection. This subsection shall not apply to the University of California unless the Regents of the University of California, by resolution, make it applicable.

1205.6.1 1205.7.1 Lighting Requirements. Based on the recommendations of the most current edition of the Illumination Engineering Society lighting handbook, for the following lighting standards shall be used for all new construction of open parking facilities, covered parking facilities and primary walkways:

1. Open and covered parking facilities.
 - 1.1 Medium-level activity usage when medium usage is present.
 - 1.2 High-level activity usage when high usage is present.
2. Primary campus walkways.
 - 2.1 Medium-level activity usage when medium usage is present.
 - 2.2 High-level activity usage when high usage is present

**SECTION 1207
SOUND TRANSMISSION**

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1207.5 Acoustical control. [BSC-CG] See California Green Building Standards Code, Chapter 5, Division 5.5 for additional sound transmission requirements.

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Notation:

Authority: Government Code §14617, Health and Safety Code §18928, 18934.5 & 18940.5

Reference: Government Code §14617, Health and Safety Code §§18928, 18928.1, 18934.5, 18938(b) & 18940.5

ITEM 10. CBSC does not adopt Chapter 13 Energy Efficiency of the 2015 IBC.

**CHAPTER 13
ENERGY EFFICIENCY**

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 11. CBSC proposes to adopt Chapter 14 Exterior Walls of the 2015 IBC with amendments.

CHAPTER 14 EXTERIOR WALLS

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1403.2.1 [BSC-CG] See *California Green Building Standards Code, Chapter 5, Division 5.4 for additional weather protection requirements.*

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Notation:

Authority: Health and Safety Code §18928, 18934.5 & 18940.5

References: Health and Safety Code §§18928, 18928.1, 18934.5 & 18940.5

ITEM 12. CBSC proposes to adopt Chapter 15 Roof Assemblies and Roof Top Structures of the 2015 IBC with amendments. Carry forward the existing amendment to Section 1510.7.1 (Formerly 1509.7.1) Wind resistance.

CHAPTER 15 ROOF ASSEMBLIES AND ROOF TOP STRUCTURES

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SECTION 1510 (FORMERLY 1509) ROOFTOP STRUCTURES

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1509.7.4 1510.7.1 Wind resistance. Rooftop mounted photovoltaic panels and modules shall be designed for component and cladding wind loads in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.

Exception: [BSC] The effective wind area shall be in accordance with Chapter 16 and ASCE 7 Section 26.2.

...

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 13. CBSC adopts Chapter 16 Structural Design of the 2015 IBC with new amendments. Carry forward existing California amendments with minimal changes to Section 1613.1.2 and 1613.1.3 for state-owned buildings. Repeal Section 1613.5 and its sub-section which amended ASCE 7.

CHAPTER 16 STRUCTURAL DESIGN

SECTION 1613 EARTHQUAKE LOADS

1613.1 Scope. Every structure, and portion thereof,...

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1613.1.2. State-owned buildings. [BSC] State-owned buildings, including those of the University of California, CSU and Judicial Council, shall not be constructed where any portion of the foundation would be within a mapped area of earthquake-induced liquefaction of landsliding or within 50 feet of a mapped fault rupture hazard as established by Section 1803.7

1613.1.3 Existing state buildings. [BSC] Additions, alterations, repairs, or change of occupancy category of existing buildings shall be in accordance with the California Existing Building Code, Part 10, Chapter 34.

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~~**1613.5 [BSC] Modifications to ASCE 7.** The text of ASCE 7 shall be modified as indicated in Sections 1613.5.1 through 1613.5.2.~~

~~**1613.5.1 [BSC] Modify ASCE 7 DEFINITIONS** as follows:~~

~~**1.2 DEFINITIONS.**~~

~~**BALLASTED PHOTOVOLTAIC SYSTEM:** A roof mounted system composed of solar photovoltaic panels and supporting members that are unattached or partially attached to the roof and must rely on its weight, aerodynamics and friction to counter the effect of wind and seismic forces.~~

~~**1613.5.2 [BSC] Modify ASCE 7 Section 13.4** as follows:~~

~~**Section 13.4 NONSTRUCTURAL COMPONENT ANCHORAGE.**~~

~~Components and their supports shall be attached (or anchored) to the structure in accordance with the requirements of this section and the attachment shall satisfy the requirements for the parent material as set forth elsewhere in this standard. Component attachments shall be bolted, welded, or otherwise positively fastened without consideration of frictional resistance produced by the effects of gravity. A continuous load path of sufficient strength and stiffness between the component and the supporting structure shall be provided. Local elements of the structure including connections shall be designed and constructed for the component forces where they control the design of the elements or their connections. The component forces shall be those determined in Section 13.3.1, except that modifications to F_p and R , due to anchorage conditions need not be considered. The design documents shall include sufficient information relating to the attachments to verify compliance with the requirements of this section~~

~~**Exception:** Ballasted photovoltaic systems when designed is based on Section 13.4.7 and approved by the enforcing agency.~~

~~13.4.7. Solar PV panels or modules installed on a roof as a ballasted system need not be rigidly attached to the roof or supporting structure. Ballasted systems shall be designed and installed only on roofs with slopes 1 inch per foot or less. The ballasted system shall be designed to resist sliding and uplift resulting from lateral and vertical forces, using a coefficient of friction determined by acceptable engineering practices. In sites where the Seismic Design category is C or above, the system shall be designed to accommodate seismic displacement determined by approved analysis or shake table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for non-structural components on roofs.~~

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 14. CBSC proposes to adopt Chapter 17 Special Inspections and Tests of the 2015 IBC without new amendments. Carry forward existing California amendments to Sections 1704.2.3 and 1707.1. See Item 26.

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 15. CBSC proposes to adopt Chapter 18 Soils and Foundation of the 2015 IBC without new amendments. Carry forward existing California amendments to Section 1810.3.10.4 Seismic Reinforcement.

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 16. CBSC proposes to adopt Chapter 19 Concrete of the 2015 IBC with amendments. CBSC proposes to repeal the amendment to the 2013 CBC, Section 1905.1.8 (Formerly 1905.1.9) American Concrete Institute (ACI), Section D.3.3 and adopt the 2015 IBC Section 1905.1.8, ACI 318, Section 17.2.3 with minor amendments.

**CHAPTER 19
CONCRETE**

...

1905.1.3 ACI 318, Section 18.5 (formerly 21.4).

Modify ACI 318, (formerly Section 21.4), by adding new Section 18.5.2.2 and renumbering existing Section 18.5.2.2 and 18.5.2.3 to become 18.5.2.3 and 18.5.2.4, respectively.

18.5.2.2 - Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.

18.5.2.3 - Elements of the connection that are not designed to yield shall develop at least 1.5 S_y.

~~18.5.2.4 - Wall piers in Seismic Design Category D, E or F shall comply with Section 1905.1.4 of the California Building Code.~~

18.5.2.4 – In structures assigned to SDC D, E or F, wall piers shall be designed in accordance with 18.10.8 or 18.14 in ACI 318.

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1905.1.8 (formerly) 1905.1.9 ACI 318, Section D.3.3. ~~Modify ACI 318, Sections D.3.3.4.2, D.3.3.4.3 (d) and D.3.3.5.2 to read as follows:~~

~~D.3.3.4.2 – Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with Section D.3.3.4.4.~~

~~**Exception:** Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 and Section 1604A.8.2 of this code shall be deemed to satisfy Section D.3.3.4.3 (d).~~

~~D.3.3.4.3 (d) – The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include E , with E increased by Ω_e . The anchor design tensile strength shall be calculated from Section D.3.3.4.4.~~

~~D.3.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with Section D.6.~~

~~**Exceptions:**~~

~~1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light frame wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~

~~1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PA NDS Table 11E for lateral design values parallel to grain.~~

~~1.2. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).~~

~~1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).~~

~~1.4. Anchor bolts are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.~~

~~1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.~~

~~1.6. The sill plate is 2-inch or 3-inch nominal thickness.~~

~~2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~

~~2.1. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).~~

~~2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).~~

~~2.3. Anchors are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the track.~~

~~2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.~~

~~2.5. The track is 33 to 68 mil designation thickness.~~

~~Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.~~

~~3. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 5/8 inch [16mm] in diameter of sill plate or track to foundation or foundation stem wall need not satisfy~~

~~Section D.3.3.5.3 (a) through (e) when the design strength of the anchors is determined in accordance with Section D.6.2.1(c).~~

1905.1.8 (Formerly 1905.1.9) ACI 318, Section 17.2.3. Modify ACI 318, Sections 17.2.3.4.2, 17.2.3.4.3(d) and 17.2.3.5.2 to read as follows:

17.2.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section 17.2.3.4.3. The anchor design tensile strength shall be determined in accordance with Section 17.2.3.4.4.

Exception: Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11- or 12.14-10 and Section 1604.8.2 of this code shall be deemed to satisfy Section D.3.3.4.3 (d).

17.2.3.4.3(d) - The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include **E**, with **E** increased by Ω_0 . The anchor design tensile strength shall be calculated from Section 17.2.3.4.4.

17.2.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section 17.2.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with Section 17.5.

Exceptions:

1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with Sections 17.5.2 and 17.5.3 need not be computed and Section 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:

1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AWC NDS Table 11E for lateral design values parallel to grain.

1.2. The maximum anchor nominal diameter is $\frac{1}{8}$ inches (16 mm).

1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).

- 1.4. Anchor bolts are located a minimum of $1 \frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.
- 1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.
- 1.6. The sill plate is 2-inch or 3-inch nominal thickness.
2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with Sections 17.5.2 and 17.5.3 need not be computed and Section 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:
- 2.1. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).
- 2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).
- 2.3. Anchors are located a minimum of $1 \frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the track.
- 2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.
- 2.5. The track is 33 to 68 mil designation thickness.
- Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.
3. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to **1 inch** [16mm] in diameter of sill plate or track to foundation or foundation stem wall need not satisfy Section 17.2.3.5.3(a) through (c) when the design strength of the anchors is determined in accordance with Section 17.5.2.1(c).

Notation:

Authority: Health and Safety Code § 16600 18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, 18934.5 & 18938(b)

ITEM 17. CBSC proposes to adopt Chapters 20, 21, 22, 23, 24, 25, and 26 of the 2015 IBC without new amendments. See Item 26 for existing California amendments being carried forward.

**CHAPTER 20
ALUMINUM**

...

**CHAPTER 21
MASONRY**

...

**CHAPTER 22
STEEL**

...

**CHAPTER 23
WOOD**

...

**CHAPTER 24
GLASS AND GLAZING**

...

**CHAPTER 25
GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER**

...

**CHAPTER 26
PLASTIC**

...

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 18. CBSC does not adopt Chapters 27, 28, and 29. See Item 26 for existing California editorial amendments being carried forward.

**Chapter 27
ELECTRICAL**

...

**Chapter 28
MECHANICAL SYSTEMS**

...

**Chapter 29
PLUMBING SYSTEMS**

...

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 19. CBSC proposes to adopt Chapter 30 Elevators and Conveying Systems of the 2015 IBC without amendment.

ITEM 20. CBSC does not adopt Chapter 31; however, CBSC proposes to carry forward existing amendments to Chapter 31 Special Construction. Sections 3109.4.4 through 3109.6 contain provisions for private swimming pools (statewide). See Item 26 for existing California amendments being carried forward.

ITEM 21. CBSC proposes to adopt Chapter 32 Encroachments into the Public Right-of-Way of the 2015 IBC and carry forward existing amendment. See Item 26 for editorial amendment being carried forward.

ITEM 22. CBSC proposes to adopt Chapter 33 Safeguards during Construction of the 2015 IBC without amendment.

ITEM 23. CBSC proposes to repeal existing amendments to Chapter 34 Existing Structures as its contents were moved to the 2015 International Existing Building Code. CBSC will relocate amendments of Chapter 34, CBC, to the 2016 California Existing Building Code (CEBC), Part 10. The rulemaking for the CEBC, Part 10 will be heard by the SD/LF Code Advisory Committee.

**CHAPTER 34
RESERVED
(formerly EXISTING STRUCTURES)**

Action taken during the 2012 Code Development process removed Chapter 34, Existing Structures, from the IBC. The provisions of this chapter *and California amendments* are contained in the International *California* Building Code. See Section 101.4.7

**SECTION 3401
GENERAL**

3401.1 Scope. ~~The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing buildings and structures, including state-regulated structures in accordance with sections 3401.1.1 and 3401.1.2.~~

...

3401.1.1 Existing state-owned structures. ~~The provisions of Sections 3417 through 3422 establish minimum standards for earthquake evaluation and design for retrofit of existing state-owned structures, including buildings owned by the University of California and the California State University.~~

~~The provisions of Section 3417 through 3422 may be adopted by a local jurisdiction for earthquake evaluation and design for retrofit of existing buildings.~~

...

3401.9 Dangerous conditions. ~~[BSC] Regardless of the extent of structural or nonstructural damage, the building official shall have the authority to require the elimination of conditions deemed dangerous.~~

**SECTION 3402
DEFINITIONS**

3402.1 Definitions. The following terms are defined in Chapter 2:

~~DANGEROUS.~~

~~EXISTING STRUCTURE.~~

~~PRIMARY FUNCTION.~~

~~SUBSTANTIAL STRUCTURAL DAMAGE.~~

~~TECHNICALLY INFEASIBLE.~~

...

SECTION 3403 ADDITIONS

3403.1 General. ~~Additions to any building or structure shall comply ...~~

~~*Exception:* For state-owned buildings, including those owned by the University of California and the California State University and the judicial council, the requirements of Sections 3403.3 and 3403.4 are replaced by the requirements of Sections 3417 through 3422.~~

SECTION 3404 ALTERATIONS

3404.1 General. ~~Except as provided by Section 3401.4 ...~~

Exceptions:

~~1. An existing...~~

~~2. Handrails ...~~

~~3. For state-owned buildings, including those owned by the University of California and the California State University and the judicial council, the requirements of Sections 3404.3 through 3404.5 are replaced by the requirements of Sections 3417 through 3422.~~

SECTION 3405 REPAIRS

3405.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3405 and 3401.2. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

~~*Exception:* For state-owned buildings, including those owned by the University of California and the California State University and the judicial council, the requirements of Sections 3403.3 and 3403.4 are replaced by the requirements of Sections 3417 through 3422.~~

...

SECTION 3406 FIRE ESCAPES

3406.1 Where permitted. Fire escapes shall be permitted only as provided for in Section 2406.1.1 through 3406.1.4.

~~3406.1.1 New buildings.~~

...

SECTION 3408 CHANGE OF OCCUPANCY

3408.1 Conformance. No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancies or in a different group of occupancies, unless such building is made to comply with the requirements ...

SECTION 3417 EARTHQUAKE EVALUATION AND DESIGN FOR RETROFIT OF EXISTING BUILDINGS

3417.1 Purpose.

~~3417.1.1 Existing state-owned structures.~~ The provisions of Sections 3417 through 3423 establish minimum standards for earthquake evaluation and design for retrofit of existing state-owned structures, including buildings owned by the University of California and the California State University.

~~The provisions of Sections 3417 through 3423 may be adopted by a local jurisdiction for earthquake evaluation and design for retrofit of existing buildings.~~

...

3417.2 Scope. All modifications, structurally connected additions and/or repairs to existing structures or portions thereof shall, at a minimum, be designed and constructed to resist the effects of seismic ground motions as provided in this section. The structural system shall be evaluated by a registered design professional and, if not meeting or exceeding the minimum seismic design performance requirements of this section, shall be retrofitted in compliance with these requirements.

Exception: Those structures for which Section 3417.3 determines that assessment is not required, or for which Section 3417.4 determines that retrofit is not needed, then only the requirements of Section 3417.11 apply.

3417.3 Applicability.

3417.3.1 Existing state-owned buildings. For existing state-owned structures including all buildings owned by the University of California and the California State University, the requirements of Section 3417 apply whenever the structure is to be retrofitted, repaired or modified and any of the following apply:

- ~~1. Total construction cost, not including cost of furnishings, fixtures and equipment, or normal maintenance, for the building exceeds 25 percent of the construction cost for the replacement of the existing building.~~
~~The changes are cumulative for past modifications to the building that occurred after adoption of the 1995 California Building Code and did not require seismic retrofit.~~
- ~~2. There are changes in risk category.~~
- ~~3. The modification to the structural components increases the seismic forces in or strength requirements of any structural component of the existing structure by more than 10 percent cumulative since the original construction, unless the component has the capacity to resist the~~

~~increased forces determined in accordance with Section 3419. If the building's seismic base shear capacity has been increased since the original construction, the percent change in base shear may be calculated relative to the increased value.~~

~~4. Structural elements need repair where the damage has reduced the lateral load-resisting capacity of the structural system by more than 10 percent.~~

~~5. Changes in live or dead load increase story shear by more than 10 percent.~~

3417.4 Evaluation required. ~~If the criteria in Section 3417.3 apply to the project under consideration, the design professional of record shall provide an evaluation in accordance with Section 3417 to determine the seismic performance of the building in its current configuration and condition. If the structure's seismic performance as required by Section 3417.5 is evaluated as satisfactory and the peer reviewer(s), when Method B of Section 3421 is used, concur, then no structural retrofit is required.~~

3417.5 Minimum seismic design performance levels for structural and nonstructural components. ~~Following the Notation:s of ASCE 41, the seismic requirements for design and assessment are based upon a prescribed Earthquake Hazard Level (BSE-1, BSE-2, BSE-R or BSE-C), a specified structural performance level (S-1 through S-5) and a non-structural performance level (N-A through N-E). The minimum seismic performance criteria are given in Table 3417.5 according to the Building Regulatory Authority and the Risk Category as determined in Chapter 16 or by the regulatory authority. The building shall be evaluated at both the Level 1 and Level 2 performance levels, and the more restrictive requirements shall apply.~~

~~Basic Safety Earthquake 2 (BSE-2) in ASCE 41 shall be same as Risk Targeted Maximum Considered Earthquake (MCER) in ASCE 7. Probabilistic response spectra defining other Earthquake Hazard Levels shall be developed using site specific ground motions in accordance with ASCE 7 Section 21.2 utilizing the Next Generation Attenuation (NGA) relations used for the 2008 USGS seismic hazards maps for Western United States (WUS). When supported by data and analysis, other NGA relations, that were not used for the 2008 USGS maps, shall be permitted as additions or substitutions. No fewer than three NGA relations shall be utilized. Response spectra shall incorporate the risk coefficient C_R per ASCE 7 Section 21.2.1.1~~

~~Ground motion response history analysis shall be as set forth in ASCE 7 Chapter 16, Section 17.3 or Section 18.2.3.~~

Exception: ~~If the floor area of an addition is greater than the larger of 50 per cent of the floor area of the original building or 1,000 square feet (93 m²), then the Table 3417.5 entries for BSE-R and BSE-C are replaced by BSE-1 and BSE-2, respectively.~~

TABLE 3417.5 SEISMIC PERFORMANCE REQUIREMENTS BY BUILDING REGULATORY AUTHORITY AND RISK CATEGORY. ALL BUILDINGS NOT REGULATED BY DSA ARE ASSIGNED AS "STATE-OWNED."

		PERFORMANCE CRITERIA	
Building Regulatory Authority	Risk Category	Level 1	Level 2
State-Owned	I, II, III	BSE-R, S-3, N-D	BSE-C, S-5, N-E
State-Owned	IV	BSE-R, S-2, N-B	BSE-C, S-4, N-C
Division of the State Architect – Public schools	I	BSE-1, S-3, N-C	BSE-2, S-5, N-E
Division of the State Architect – Public schools	II, III	BSE-1, S-2, N-C	BSE-2, S-4, N-D
Division of the State Architect – Public schools	IV	BSE-1, S-2, N-C	BSE-2, S-4, N-C
Division of the State Architect – Community college	I, II, III	BSE-R, S-3, N-D	BSE-2, S-5, N-E
Division of the State Architect – Community college	IV	BSE-R, S-2, N-B	BSE-2, S-4, N-C

1. ~~ASCE 41 provides acceptance criteria (e.g. m , rotation) for Immediate Occupancy (S1), Life Safety (S3), and Collapse Prevention (S5), and specifies that values for S-2 and S-4 are to be determined by interpolation between the adjacent performance level values.~~

~~The required method of interpolation is as follows:~~

~~For level S-2, the acceptance value is $\frac{1}{3}$ of the sum of the tabulated value for Immediate Occupancy (IO level) and twice the tabulated value for the Life Safety (LS level).~~

~~For level S-4, the acceptance value is one-half the sum of the value for the LS level and the value for the Collapse Prevention (CP) level.~~

~~For nonstructural components, N-A corresponds to the IO level, N-C to the LS level, and N-D to the Hazards Reduced (HR level).~~

~~For evaluation procedures, N-B shall be the same as for N-A. Where numerical values are used, the values for N-B are one-half the sum of the appropriate IO and LS values. Where IO or CP values are not given by ASCE 41, then the LS values are permitted to be substituted.~~

2. ~~Buildings evaluated and retrofitted to meet the requirements for a new building, Chapter 16, Part 2, Title 24, in accordance with the exception in Section 3419.1, are deemed to meet the seismic performance requirements of this section.~~

3417.6 Retrofit required. ~~Where the evaluation indicates the building does not meet the required performance objectives of this section, the owner shall take appropriate steps to ensure that the building's structural system is retrofitted in accordance with the provisions of Section 3417. Appropriate steps are either: 1) undertake the seismic retrofit as part of the additions, modifications and/or repairs of the structure; or 2) provide a plan, acceptable to the building official, to complete the seismic retrofit in a timely manner. The relocation or moving of an existing building is considered to be an alteration requiring filing of the plans and specifications approved by the building official.~~

3417.7 ~~The additions, modification or repair to any existing building are permitted to be prepared in accordance with the requirements for a new building, Chapter 16, Part 2, Title 24, C.C.R., 2007 edition, applied to the entire building.~~

3417.8 ~~The requirements of ASCE 41 Chapter 9 are to apply to the use of seismic isolation or passive energy systems for the repair, modification or retrofit of an existing structure. When seismic isolation or passive energy dissipation is used, the project must have project peer review as prescribed in Section 3422.~~

3417.9 ~~Any construction required by this chapter shall include structural observation by the registered design professional who is responsible for the structural design in accordance with Section 3419.10.~~

3417.10 ~~Where Method B of Section 3421 is used or is required by Section 3419.7, the proposed method of building evaluation and design procedures must be accepted by the building official prior to the commencement of the work.~~

3417.11 Voluntary lateral force-resisting system modifications. ~~Where the exception of Section 3417.2 applies, modifications of existing structural components and additions of new structural components that are initiated for the purpose of improving the seismic performance of an existing structure and that are not required by other portions of this chapter are permitted under the requirements of Section 3419.12.~~

SECTION 3418
DEFINITIONS

~~3418.1. In addition to the definitions given in Section 3402, for the purposes of Sections 3417 through 3423, certain terms are defined as follows:~~

~~**ADDITION** means any work that increases the floor or roof area or the volume of enclosed space of an existing building, and is structurally attached to the existing building by connections that are required for transmitting vertical or horizontal loads between the addition and the existing structure.~~

~~**ALTERATION** means any change within or to an existing building, which does not increase and may decrease the floor or roof area or the volume of enclosed space.~~

~~**BSE-C RESPONSE ACCELERATION PARAMETERS** are the parameters (S_{xs} and S_{x1}) taken from 5-percent /50-year maximum direction spectral response acceleration curves or by a Site Specific Response Spectrum developed in accordance with Section 3417.5. Values for BSE-C need not be greater than those for BSE-2.~~

~~**BSE-R RESPONSE ACCELERATION PARAMETERS** are the parameters (S_{xs} and S_{x1}) taken from 20-percent /50-year maximum direction spectral response acceleration curves or by a Site Specific Response Spectrum developed in accordance with Section 3417.5. Values for BSE-R need not be greater than those for BSE-1.~~

~~**BUILDING OFFICIAL** is that individual within the agency or organization charged with responsibility for compliance with the requirements of this code. For some agencies this person is termed the "enforcement agent."~~

~~**DESIGN** is the procedure that includes both the evaluation and retrofit design of an existing component, element or structural system, and design of a new component, element or structural system.~~

~~**ENFORCEMENT AGENCY (Authority Having Jurisdiction in ASCE 41)** is the agency or organization charged with responsibility for agency or organization compliance with the requirements of this code.~~

~~**METHOD A** refers to the procedures prescribed in Section 3420.~~

~~**METHOD B** refers to the procedures allowed in Section 3421.~~

~~**MODIFICATIONS.** For this chapter, modification is taken to include repairs to structures that have been damaged.~~

~~**N-A, N-B, N-C, N-D, N-E** are seismic nonstructural component performance measures as defined in ASCE 41. N-A corresponds to the highest performance level, and N-D the lowest, while N-E is not considered.~~

~~**PEER REVIEW** refers to the procedures contained in Section 3422.~~

~~**REPAIR** as used in this chapter means the design and construction work undertaken to restore or enhance the structural and nonstructural load-resisting system participating in the lateral response and stability of a structure that has experienced damage from earthquakes or other destructive events.~~

~~**S-1, S-2, S-3, S-4, S-5, S-6** are seismic structural performance measures as defined in ASCE 41. S-1 corresponds to the highest performance level, and S-5 the lowest, while S-6 is not considered.~~

~~**SPECIFIC PROCEDURES** are the procedures listed in Section 3419.1.1.~~

~~**STRUCTURAL REPAIRS** are any changes affecting existing or requiring new structural components primarily intended to correct the effects of damage, deterioration or impending or actual failure, regardless of cause.~~

SECTION 3419 **SEISMIC CRITERIA SELECTION FOR EXISTING BUILDINGS**

~~**3419.1 Basis for evaluation and design.** This section determines what technical approach is to be used for the seismic evaluation and design for existing buildings. For those buildings or portions of buildings for which Section 3417 requires action, the procedures and limitations for the evaluation of existing buildings and design of retrofit systems and/or repair thereof shall be implemented in accordance with this section.~~

~~One of the following approaches must be used:~~

- ~~1. Method A of Section 3420;~~
- ~~2. Method B of Section 3421, with independent review of a peer reviewer as required in Section 3422;~~
~~or~~
- ~~3. For state-owned buildings only, the use of one of the specific procedures listed in Section 3419.1.1.~~

~~When Method B is chosen it must be approved by the building official, and, where applicable, by the peer reviewer. All referenced standards in ASCE 41 shall be replaced by referenced standards listed in Chapter 35 of this code.~~

~~**Exceptions:**~~

- ~~1. **[BSC]** For buildings constructed to the requirements of California Building Code, 1998 or later edition as adopted by the governing jurisdiction, that code is permitted to be used in place of those specified in Section 3419.1.~~
- ~~2. **[Reserved for DSA]**~~

~~**3419.1.1 Specific procedures.** For state-owned buildings, the following specific procedures taken from the International Existing Building Code (IEBC) Appendix A may be used, without peer review, for their respective types of construction to comply with the seismic performance requirements for Risk Category I, II or III buildings:~~

- ~~1. Seismic Strengthening Provisions for Unreinforced Masonry Bearing Wall Buildings (Chapter A1 of the IEBC).~~
- ~~2. Prescriptive Provisions for Seismic Strengthening of Cripple Walls and Sill Plate Anchorage of Light Wood Frame, Residential Buildings (Chapter A3 of the IEBC).~~
- ~~3. Earthquake Hazard Reduction in Existing Reinforced Concrete and Reinforced Masonry Wall Buildings with Flexible Diaphragms (Chapter A2 of the IEBC).~~

~~**3419.1.2** When a design project is begun under Method B the selection of the peer reviewer is subject to the approval of the building official. Following approval by the peer reviewer, the seismic criteria for the project and the planned evaluation provisions must be approved by the building official. The approved seismic criteria and evaluation provisions shall apply. Upon approval of the building official these are permitted to be modified.~~

~~3419.1.3 For state-owned and community college buildings, where unreinforced masonry is not bearing, it may be used only to resist applied lateral loads. Where unreinforced masonry walls are part of the structure they must be assessed for stability under the applicable nonstructural evaluation procedure.~~

...

~~3419.2 Existing conditions. The existing condition and properties of the entire structure must be determined and documented by thorough inspection of the structure and site, review of all available related construction documents, review of geotechnical and engineering geologic reports, and performance of necessary testing and investigation. Where samples from the existing structure are taken or in situ tests are performed, they shall be selected and interpreted in a statistically appropriate manner to ensure that the properties determined and used in the evaluation or design are representative of the conditions and structural circumstances likely to be encountered in the structure as a whole. Adjacent structures or site features that may affect the retrofit design shall be identified.~~

~~The entire load path of the seismic force-resisting system shall be determined, documented and evaluated. The load path includes all the horizontal and vertical elements participating in the structural response: such as diaphragms, diaphragm chords, diaphragm collectors, vertical elements such as walls frames, braces, foundations and the connections between the components and elements of the load path. Repaired or retrofitted elements and the standards under which the work was constructed shall be identified.~~

~~Data collection in accordance with ASCE 41 Section 2.2 shall meet the following minimum levels:~~

- ~~1. For state-owned buildings, the requirements shall be met following the data collection requirements of ASCE 41 Section 2.2.~~

....

~~Qualified test data from the original construction may be accepted, in part or in whole, by the enforcement agency to fulfill the data collection requirements.~~

Exceptions:

- ~~1. The number of samples for data collection may be adjusted with approval of the enforcement agency when it has been determined that adequate information has been obtained or additional information is required.~~
- ~~2. Welded steel moment frame connections of buildings that may have experienced potentially damaging ground motions shall be inspected in accordance with Chapters 3 and 4, FEMA 352, Recommended Post Earthquake Evaluation and Repair Criteria for Welded Moment Frame Construction for Seismic Applications (July 2000).~~

~~Where original building plans and specifications are not available, "as-built" plans shall be prepared that depict the existing vertical and lateral structural systems, exterior elements, foundations and nonstructural systems in sufficient detail to complete the design.~~

~~Data collection shall be directed and observed by the project structural engineer or design professional in charge of the design.~~

~~3419.3 Site geology and soil characteristics. Soil profile shall be assigned in accordance with the requirements of Chapter 18.~~

3419.4 Risk categories. For purposes of earthquake-resistant design, each structure shall be placed in one of the risk categories in accordance with the requirements of this code.

3419.5 Configuration requirements. Each structure shall be designated structurally regular or irregular in accordance with the requirements of ASCE 41, Sections 2.4.1.1.1. to 2.4.1.1.4.

3419.6 General selection of the design method. The requirements of Method B (Section 3421) may be used for any existing building.

3419.7 Prescriptive selection of the design method. The requirements of Method A (Section 3420) or the specific procedures for applicable building types given in Section 3419.1.1 are permitted to be used except under the following conditions, where the requirements of Method B (Section 3421) must be used.

3419.7.1 When the building contains prestressed or post-tensioned structural components (beams, columns, walls or slabs) or contains precast structural components (beams, columns, walls or flooring systems).

3419.7.2 When the building is classified as irregular in vertical or horizontal plan by application of ASCE/SEI 7 Section 12.3 and/or ASCE 41, Sections 2.4.1.1.1 to 2.4.1.1.4, unless the irregularity is demonstrated not to affect the seismic performance of the building.

Exception: If the retrofit design removes the configurational attributes that caused the building to be classified as irregular, then Section 3419.7.2 does not apply and Method A may be used.

3419.7.3 For any building that is assigned to Risk Category IV.

3419.7.4 For any building using undefined or hybrid structural systems.

3419.7.5 When seismic isolation or energy dissipation systems are used in the retrofit or repair, either as part of the existing structure or as part of the modifications.

3419.7.6 When the height of the structure exceeds 240 feet (73.152 m).

3419.8 Strength requirements. All components of the lateral force-resisting system must have the strength to meet the acceptance criteria prescribed in ASCE 41, Chapter 3, or as prescribed in the applicable Appendix A chapter of the IEBC if a specific procedure in Section 3419.1.1 is used. Any component not having this strength shall have its capacity increased by modifying or supplementing its strength so that it exceeds the demand, or the demand is reduced to less than the existing strength by making other modifications to the structural system.

Exception: A component's strength is permitted to be less than that required by the specified seismic load combinations if it can be demonstrated that the associated reduction in seismic performance of the component or its removal due to the failure does not result in a structural system that does not comply with the required performance objectives of Section 3417. If this exception is taken for a component, then it cannot be considered part of the primary lateral-load-resisting system.

3419.9 Nonstructural component requirements. Where the nonstructural performance levels required by Section 3417, Table 3417.5 are N-D or higher, mechanical, electrical and plumbing components shall comply with the provisions of ASCE 41, Chapter 11, Section 11.2.

Exception: Modifications to the procedures and criteria may be made subject to approval by the building official, and concurrence of the peer reviewer if applicable. All reports and correspondence shall also be forwarded to the building official.

3419.10 Structural observation, testing and inspection. Structural, geotechnical and construction observation, testing and inspection as used in this section shall mean meeting the requirements of Chapter 17, with a minimum allowable level of investigation corresponding to seismic design category

~~(SDC) D. At a minimum the project site will be visited by the responsible design professional to observe existing conditions and to review the construction work for general compliance with approved plans, specifications and applicable structural regulations. Such visits shall occur at significant construction stages and at the completion of the structural retrofit. Structural observation shall be provided for all structures. The plan for testing and inspection shall be submitted to the building official for review and approval with the application for permit.~~

~~**Additional requirements:** For public schools and community colleges, construction material testing, inspection and observation during construction shall also comply with Section 4-333, Part 1, Title 24.~~

~~**3419.10.1** The registered design professional, or their designee, responsible for the structural design shall be retained to perform structural observation and independently report to the owner of observations and findings as they relate to adherence to the permitted plans and good workmanship.~~

~~**3419.10.2** At the conclusion of construction, the structural observer shall submit to the enforcement agency and the owner a final written statement that the required site visits have been made, that the work, to the best of the structural observers knowledge and belief, is or is not in general conformity to the approved plans and that the observed structural deficiencies have been resolved and/or listing those that, to the best of the structural observers knowledge and belief, have not been satisfactorily corrected.~~

~~**3419.10.2.1** The requirement for structural observation shall be noted and prominently displayed on the front sheet of the approved plans and incorporated into the general notes on the approved plans.~~

~~**3419.10.2.2 Preconstruction meeting.** A preconstruction meeting is mandatory for all projects which require structural observation. The meeting shall include, but is not limited to, the registered design professional, structural observer, general contractor, affected subcontractors, the project inspector and a representative of the enforcement agency (designated alternates may attend if approved by the structural observer). The structural observer shall schedule and coordinate this meeting. The purpose of the meeting is to identify and clarify all essential structural components and connections that affect the lateral and vertical load systems and to review scheduling of the required observations for the project's structural system retrofit.~~

~~**3419.11 Temporary actions.** When compatible with the building use, and the time phasing for both use and the retrofit program, temporary shoring or other structural support is permitted to be considered. Temporary bracing, shoring and prevention of falling hazards are permitted to be used to qualify for Exception 1 in Section 3419.12 that allows inadequate capability in some existing components, as long as the required performance levels given in Section 3417 can be provided by the permanent structure. The consideration for such temporary actions shall be noted in the design documents.~~

~~**3419.12 Voluntary modifications to the lateral force resisting system.** Where modifications of existing structural components and additions of new structural components are initiated for the purpose of improving the lateral force resisting strength or stiffness of an existing structure and they are not required by other sections of this code, then they are permitted to be designed to meet an approved seismic performance criteria provided that an engineering analysis is submitted that follows:~~

- ~~1. The capacity of existing structural components required to resist forces is not reduced, unless it can be demonstrated that reduced capacity meets the requirements of Section 3419.8.~~
- ~~2. The lateral loading to or strength requirement of existing structural components is not increased beyond their capacity.~~
- ~~3. New structural components are detailed and connected to the existing structural components as required by this code for new construction.~~

4. ~~New or relocated nonstructural components are detailed and connected to existing or new structural components as required by this code for new construction.~~
5. ~~A dangerous condition is not created.~~

3419.12.1 State-owned buildings. ~~Voluntary modifications to lateral force-resisting systems conducted in accordance with Appendix A of the IEBC and the referenced standards of this code shall be permitted.~~

3419.12.1.1 Design documents. ~~When Section 3419.12 is the basis for structural modifications, the approved design documents must clearly state the scope of the seismic modifications and the accepted criteria for the design. The approved design documents must clearly have the phrase "The seismic requirements of Chapter 34 for existing buildings have not been checked to determine if these structural modifications meet CBC requirements; the modifications proposed are to a different seismic performance standard than would be required in Section 3419 if they were not voluntary as allowed in Section 3419.12."~~

...

SECTION 3420 METHOD A

3420.1 General. ~~The retrofit design shall employ the Linear Static or Linear Dynamic Procedures of ASCE 41, Section 3.3.1 or 3.3.2, and comply with the applicable general requirements of ASCE 41, Chapters 2 and 3. The earthquake hazard level and performance level given specified in Section 3417.5 for the building's risk category shall be used. Structures shall be designed for seismic forces coming from any horizontal direction.~~

Exception: ~~The ASCE 41 Simplified Rehabilitation Method of Chapter 10 may be used if the Level 1 seismic performance level is S-3 or lower, the building's structural system is one of the primary building types described in ASCE 41, Table 10-2, and ASCE 41, Table 10-1 permits its use for the building height.~~

SECTION 3421 METHOD B

3421.1 ~~The existing or retrofitted structure shall be demonstrated to have the capability to sustain the deformation response due to the specified earthquake ground motions and meet the seismic performance requirements of Section 3417. The registered design professional shall provide an evaluation of the response of the existing structure in its modified configuration and condition to the ground motions specified. If the building's seismic performance is evaluated as satisfactory and the peer reviewer(s) and the enforcement agency concurs, then no further structural modifications of the lateral load-resisting system are required.~~

~~When the evaluation indicates the building does not meet the required performance levels given in Table 3417.5 for the risk category, then a retrofit and/or repair design shall be prepared that provides a structure that meets these performance objectives and reflects the appropriate consideration of existing conditions. Any approach to analysis and design is permitted to be used, provided that the approach shall be rational, shall be consistent with the established principles of mechanics and shall use the known performance characteristics of materials and assemblages under reversing loads typical of severe earthquake ground motions.~~

Exception: ~~Further consideration of the structure's seismic performance may be waived by the enforcement agency if both the registered design professional and peer reviewer(s) conclude that the~~

~~structural system can be expected to perform at least as well as required by the provisions of this section without completing an analysis of the structure's compliance with these requirements. A detailed report shall be submitted to the responsible building official that presents the reasons and basis for this conclusion. This report shall be prepared by the registered design professional. The peer reviewer(s) shall concur in this conclusion and affirm to it in writing. The building official shall either approve this decision or require completion of the indicated work specified in this section prior to approval.~~

3421.2 ~~The approach, models, analysis procedures, assumptions on material and system behavior and conclusions shall be peer reviewed in accordance with the requirements of Section 3422 and accepted by the peer reviewer(s).~~

Exceptions:

- ~~1. The enforcement agency may perform the work of peer review when qualified staff is available within the jurisdiction.~~
- ~~2. The enforcement agency may modify or waive the requirements for peer review when appropriate.~~

3421.2.1 ~~The approach used in the development of the design shall be acceptable to the peer reviewer and the enforcement agency and shall be the same method as used in the evaluation of the building. Approaches that are specifically tailored to the type of building, construction materials and specific building characteristics may be used, if they are acceptable to the independent peer reviewer. The use of Method A allowed procedures may also be used under Method B.~~

3421.2.2 ~~Any method of analysis may be used, subject to acceptance by the peer reviewer(s) and the building official. The general requirements given in ASCE 41, Chapter 2, shall be complied with unless exceptions are accepted by the peer reviewer(s) and building official. Use of other than ASCE 41 procedures in Method B requires building official concurrence before implementation.~~

3421.2.3 ~~Prior to implementation, the procedures, methods, material assumptions and acceptance/rejection criteria proposed by the registered design professional will be peer reviewed as provided in Section 3422. Where nonlinear procedures are used, prior to any analysis, the representation of the seismic ground motion shall be reviewed and approved by the peer reviewer(s) and the building official.~~

3421.2.4 ~~The conclusions and design decisions shall be reviewed and accepted by the peer reviewer(s) and the building official.~~

SECTION 3422

PEER REVIEW REQUIREMENTS

3422.1 General. ~~Independent peer review is an objective, technical review by knowledgeable reviewer(s) experienced in the structural design, analysis and performance issues involved. The reviewer(s) shall examine the available information on the condition of the building, the basic engineering concepts employed and the recommendations for action.~~

3422.3 Qualifications and terms of employment. ~~The reviewer(s) shall be independent from the design and construction team.~~

3422.3.1 ~~The reviewer(s) shall have no other involvement in the project before, during or after the review, except in a review capacity.~~

3422.3.2 ~~The reviewer(s) shall be selected and paid by the owner and shall have technical expertise in the evaluation and retrofit of buildings similar to the one being reviewed, as determined by the enforcement agency.~~

~~3422.3.3 The reviewer (or in the case of review teams, the chair) shall be a California-licensed structural engineer who is familiar with the technical issues and regulations governing the work to be reviewed.~~

~~Exception: Other individuals with acceptable qualifications and experience may be a peer reviewer(s) with the approval of the building official.~~

~~3422.3.4 The reviewer shall serve through completion of the project and shall not be terminated except for failure to perform the duties specified herein. Such termination shall be in writing with copies to the enforcement agency, owner and the registered design professional. When a reviewer is terminated or resigns, a qualified replacement shall be appointed within 10 working days, and the reviewer shall submit copies of all reports, notes and correspondence to the responsible building official, the owner and the registered design professional within 10 working days of such termination.~~

~~3422.3.5 The peer reviewer shall have access in a timely manner to all documents, materials and information deemed necessary by the peer reviewer to complete the peer review.~~

~~3422.4 Scope of review. Review activities shall include, where appropriate, available construction documents, design criteria and representative observations of the condition of the structure, all inspection and testing reports, including methods of sampling, analytical models and analyses prepared by the registered design professional and consultants, and the retrofit or repair design. Review shall include consideration of the proposed design approach, methods, materials, details and constructability. Changes observed during construction that affect the seismic-resisting system shall be reported to the reviewer in writing for review and recommendation.~~

~~3422.5 Reports. The reviewer(s) shall prepare a written report to the owner and building official that covers all aspects of the review performed, including conclusions reached by the reviewer(s). Reports shall be issued after the schematic phase, during design development, and at the completion of construction documents but prior to submittal of the project plans to the enforcement agency for plan review. When acceptable to the building official, the requirement for a report during a specific phase of the project development may be waived.~~

~~Such reports should include, at the minimum, statements of the following:~~

- ~~1. Scope of engineering design peer review with limitations defined.~~
- ~~2. The status of the project documents at each review stage.~~
- ~~3. Ability of selected materials and framing systems to meet performance criteria with given loads and configuration.~~
- ~~4. Degree of structural system redundancy and the deformation compatibility among structural and nonstructural components.~~
- ~~5. Basic constructability of the retrofit or repair system.~~
- ~~6. Other recommendations that would be appropriate to the specific project.~~
- ~~7. Presentation of the conclusions of the reviewer identifying any areas that need further review, investigation and/or clarification.~~
- ~~8. Recommendations.~~

~~The last report prepared prior to submittal of permit documents to the enforcement agency shall include a statement indicating that the design is in conformance with the approved evaluation and design criteria~~

~~3422.6 Response and resolutions. The registered design professional shall review the report from the reviewer(s) and shall develop corrective actions and responses as appropriate. Changes observed during~~

~~construction that affect the seismic-resisting system shall be reported to the reviewer in writing for review and recommendations. All reports, responses and resolutions prepared pursuant to this section shall be submitted to the responsible enforcement agency and the owner along with other plans, specifications and calculations required. If the reviewer resigns or is terminated prior to completion of the project, then the reviewer shall submit copies of all reports, notes and correspondence to the responsible building official, the owner and the registered design professional within 10 working days of such termination.~~

~~**3422.7 Resolution of conflicts.** When the conclusions and recommendations of the peer reviewer conflict with the registered design professional's proposed design, the enforcement agency shall make the final determination of the requirement for the design.~~

Notation:

Authority: Health and Safety Code §18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, & 18934.5

ITEM 24. CBSC proposes to adopt Chapter 35 Referenced Standards of the 2015 IBC without amendments.

**CHAPTER 35
REFERENCED STANDARDS**

...

Notation:

Authority: Health and Safety Code § 16600 18928 & 18934.5

References: Health and Safety Code §§18928, 18928.1, 18934.5 & 18938(b)

ITEM 25. APPENDIX CHAPTERS

CBSC proposes NOT to adopt Appendix A from the 2015 International Building Code. Carry forward editorial code reference amendments. See Item 26.

**APPENDIX A
EMPLOYEE QUALIFICATIONS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix B from the 2015 International Building Code.

**APPENDIX B
BOARD OF APPEALS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix C from the 2015 International Building Code.

**APPENDIX C
GROUP U – AGRICULTURAL BUILDINGS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix D from the 2015 International Building Code.

**APPENDIX D
FIRE DISTRICTS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix E from the 2015 International Building Code and the contents of Appendix E is not printed.

**APPENDIX E
RESERVED**

CBSC proposes NOT to adopt Appendix F from the 2015 International Building Code.

**APPENDIX F
RODENTPROOFING**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix G from the 2015 International Building Code. Carry forward editorial code reference amendments. See Item 26.

**APPENDIX G
FLOOD-RESISTANT CONSTRUCTION**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix H from the 2015 International Building Code.

**APPENDIX H
SIGNS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix I from the 2015 International Building Code.

**APPENDIX I
PATIO COVERS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix J from the 2015 International Building Code.

**APPENDIX J
GRADING**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix K from the 2015 International Building Code.

**APPENDIX K
ADMINISTRATIVE PROVISIONS**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix L from the 2015 International Building Code.

**APPENDIX L
EARTHQUAKE RECORDING INSTRUMENTATION**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

CBSC proposes NOT to adopt Appendix M from the 2015 International Building Code.

**APPENDIX M
TSUNAMI-GENERATED FLOOD HAZARD**

The provisions contained in this appendix are not mandatory unless specifically adopted by a state agency, or referenced in the adopting ordinance.

...

Notation:

Authority: Health and Safety Code §18928 & 18934.5 18940.5

Reference: Health and Safety Code §§18928, 18928.1, 18934.5, 18938(b) & 18940.5

ITEM 26. CBSC proposes to carry forward existing CBSC amendments, non-substantive editorial and formatting amendments from the 2013 California Building Code for inclusion in the 2016 California Building Code.

CBSC does not adopt Chapter 1 SCOPE AND ADMINISTRATION, but proposes to carry forward existing editorial amendments and make additional editorial amendments for code consistency.

CHAPTER 1

DIVISION II SCOPE AND ADMINISTRATION

101.2 Scope. . . .

Exception. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with the *California Residential Code*.

101.4.1 Gas. The provisions of the *California Mechanical Code* shall apply to the installation....

101.4.2 Mechanical. The provisions of the *California Mechanical Code* shall apply to the installation....

101.4.3 Plumbing. The provisions of the *California Plumbing Code* shall apply to the installation, alteration repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and were connected to a water or sewage system and all aspects of a medical gas system. The provisions of the International Private Sewage Disposal Code shall apply to the private sewage disposal system.

101.4.4 Property Maintenance. The provisions of the International Property Maintenance Code shall apply to the existing

101.4.5 Fire Prevention. The provisions of the *California Fire Code* shall apply to the matters

101.4.6 Energy. The provisions of the *California Energy Code* shall apply to all matters

102.4 Referenced Codes and Standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Section 102.4.1 through 102.4.4.

102.4.1. Conflicts. Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

102.4.2. Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code or the *California Codes* listed in Section 101.4, the provisions of this code or the *California Code* listed in Section 101.4, as applicable, shall take precedence over the provisions in the referenced code or standard.

102.4.6 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *California Building Code* or the *California Fire Code*, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

CHAPTER 3 USE AND OCCUPANCY

307.1. High-hazard Group H. High-hazard Group H occupancy includes, . . . Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the requirements of Section 415 and the *California Fire Code*. Hazardous material stored, or used on top of

roofs or canopies shall be classified as outdoor storage or use and shall comply with the *California Fire Code*.

Exceptions: the following shall not be classified as Group H, but shall be classified as the occupancy that they most nearly resemble.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *California Fire Code*.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *California Fire Code*.
3. ...
4. ...
5. ...
6. ...
7. ...
8. ...
9. Stationary batteries utilized for facility emergency power, uninterruptible power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and ventilation is provided in accordance with the *California Mechanical Code*.
10. ...
11. Buildings and structures occupied for aerosol storage, shall be classified as Group S-1, provided that such building conform to the requirements of the *California Fire Code*.
12. ...
13. The storage of black powder, smokeless propellant and small arms primers in Group M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *California Fire Code*.
14. ...

307.1.1 Hazardous materials. Hazardous materials in any quantity shall conform to the requirements of this code, including Section 414, and the *California Fire Code*.

Table 307.1(1) MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD

[Table not shown. Amendments are to the footnotes.]

- a. ...
- b. ...
- c. ...
- d. ...
- e. ... *California Fire Code* ...
- f. ...
- g. ...
- h. ...
- i. ... *California Fire Code* ...
- j. ...
- k. ...
- l. ...
- m. ... *California Fire Code* ...
- n. ...
- o. ...
- p. The following shall not be included in determining the maximum allowable quantities:
 1. Liquid or gaseous fuel in tanks and vehicles.

2. Liquid or gaseous fuel in fuel tanks and motorized equipment operated in accordance with ~~International Fire Code~~ *California Fire Code*.
3. Gaseous fuels in piping systems and fixed appliance regulated by the International Fuel Gas Code.
4. Liquid fuels in piping systems and fixed appliances regulated by the *California Mechanical Code*.
5. Alcohol-based hand rubs classified as Class I and II liquids in dispensers that are installed in accordance with Sections 5705.5 and 5702.5.1 of the ~~International Fire Code~~ *California Fire Code*. The location of the alcohol-based hand rub (ANHR) dispensers shall be provided in the construction documents

q. . . .

Table 307.1(2) MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD

[Table not shown. Amendments are to the footnotes]

- a. . . .
- b. . . .
- c. . . .
- d. . . .
- e. . . . *California Fire Code* . . .
- f. . . . *California Fire Code*. . . .
- g. . . . *California Fire Code*.
- h. . . .
- i. . . . *California Fire Code*. . . .

310.1. Residential Group R. Residential Group R includes, among others, the use of building or structure, or a portion thereof, for sleeping purposes when not classified as and Institutional Group I or when not regulated by the *California Residential Code*.

...

**CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED
ON USE AND OCCUPANCY**

...

403.4.5 Emergency responder radio coverage. Emergency responder radio coverage shall be provided in accordance with Section 510 of the *California Fire Code*.

...

404.2 Use. The floor of the atrium shall not be used for other than low fire hazard uses and only approved materials and decorations in accordance with the *California Fire Code* shall be used in the atrium space.

**CHAPTER 10
MEANS OF EGRESS**

...

1001.3 Maintenance. Means of egress shall be maintained in accordance with the *California Building Code*.

1001.4 Fire safety and evacuation plans. Fire safety and evacuation plans shall be provided for all occupancies and buildings where required by the *California Fire Code*. Such fire safety and evacuation plans shall comply with the applicable provisions of Section 401.2 and 404 of the *California Fire Code*.

...

1006.2.2.3 (formerly 1015.5) Refrigerated rooms or spaces. Rooms or spaces having a floor area larger than 1,000 square feet (93 m²), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two exits or exit access doorways.

Travel distance shall be determined as specified in Section 1016.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an exit or exit access doorway where such rooms are not protected by an approved automatic sprinkler system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the *California Mechanical Code*.

...

CHAPTER 12 INTERIOR ENVIRONMENT

...

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the *California Mechanical Code*.

...

1203.2.1 Openings into attic.

Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of not less than 1/16 inch (1.6 mm) and not more than ¼ inch (6.4 mm) shall be permitted. Openings for ventilation having a least dimension larger than ¼ inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least dimension of not less than 1/16 inch (1.6 mm) and not more than ¼ inch (6.4 mm). Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *California Mechanical Code*.

...

1203.5.2 (formerly 1203.4.2) Contaminants exhausted. Contaminant sources in naturally ventilated spaces shall be removed in accordance with the *California Mechanical Code* and the *California Fire Code*.

...

1203.6 (formerly 1203.5) Other ventilation and exhaust systems. Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *California Mechanical Code* or the *California Fire Code* shall be provided as required by both codes.

...

1205.4.1 Controls. The control for activation of the required stairway lighting shall be in accordance with the *California Electrical Code*.

...

1206.3.3 Court drainage. The bottom of every court shall be properly graded and drained to a public sewer or other approved disposal system complying with the *California Plumbing Code*.

...

1209.3 Mechanical appliances. Access to mechanical appliances installed in under-floor areas, in attic spaces and on roofs or elevated structures shall be in accordance with the *California Mechanical Code*.

..

1210.1 Required fixtures. The number and type of plumbing fixtures provided in any occupancy shall comply with the *California Plumbing Code*.

...

CHAPTER 15 ROOF ASSEMBLIES AND ROOF TOP STRUCTURES

...

1503.4 Roof drainage. Design and installation of roof drainage systems shall comply with Section 1503 of this code and *Chapter 11* of the *California Plumbing Code*.

1503.4.1 Secondary (emergency overflow) drains or scuppers.

Where roof drains are required, secondary (emergency overflow) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. The installation and sizing of secondary emergency overflow drains, leaders and conductors shall comply with *Chapter 11* of the *California Plumbing Code*.

...

1507.16 Vegetative roofs, roof gardens and landscaped roofs. Vegetative roofs, roof gardens and landscaped roofs shall comply with the requirements of this chapter, Sections 1607.12.3 and 1607.12.3.1 and the *California Fire Code*.

CHAPTER 16 STRUCTURAL DESIGN

...

1603.1.9 Systems and components requiring special inspections for seismic resistance.

Construction documents or specifications shall be prepared for those systems and components requiring special inspection for seismic resistance as specified in Section 1705.11 by the registered design professional responsible for their design and shall be submitted for approval in accordance with ~~Section 107.1, Chapter 1, Division II~~. Reference to seismic standards in lieu of detailed drawings is acceptable.

...

TABLE 1604.5
RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

Carry forward corrected code references of International Fire Code to *California Fire Code* in Table 1604.5.

...

1612.5 Flood hazard documentation.

The following documentation shall be prepared and sealed by a registered design professional and submitted to the building official:

1. For construction in flood hazard areas not subject to high-velocity wave action:
 - 1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3, *Chapter 1, Division II*.
- ...
2. For construction in flood hazard areas subject to high-velocity wave action:
 - 2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3, *Chapter 1, Division II*.

...

CHAPTER 17
SPECIAL INSPECTIONS AND TESTS

...

1704.2.3 Statement of special inspections. The applicant shall submit a statement of special inspections in accordance with Section 107.1 *Chapter 1, Division II*, as a condition for permit issuance. This statement shall be in accordance with Section 1704.3.

...

1707.1 General. In the absence of approved rules or other approved standards, the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11 *Chapter 1, Division II*. The cost of all tests and other investigations required under the provisions of this code shall be borne by the applicant.

[BSC] In the absence of approved rules or other approved standards, the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 1.2.2, Chapter 1, Division I. The cost of all tests and other investigations required under the provisions of this code shall be borne by the applicant.

...

CHAPTER 18
SOILS AND FOUNDATIONS

...

1805.4.3 Drainage discharge. The floor base and foundation perimeter drain shall discharge by gravity or mechanical means into an approved drainage system that complies with the *California Plumbing Code*.

...

1810.3.10.4 Seismic reinforcement. For structures assigned to Seismic Design Category C... ...as an alternate system in accordance with Section 104.11, *Chapter 1, Division II*. The alternative system design, supporting documentation and test data shall be submitted to the building official for review and approval.

...

CHAPTER 19 CONCRETE

...

1905.1.2 ACI 318, 18.2.1 (formerly Section 21.1.1.)

Modify ACI 318 Sections 18.2.1.2 (formerly 21.1.1.3) and 18.2.1.6 (formerly 21.1.1.7) to read as follows:

18.2.1.2 - Structures assigned to Seismic Design Category A shall satisfy requirements of Chapters 1 through 17 and 19 through 26; Chapter 18 does not apply. Structures assigned to Seismic Design Category B, C, D, E or F also shall satisfy 18.2.1.3 through 18.2.1.7, as applicable. Except for structural elements of plain concrete complying with Section 1905.1.7 of the California Building Code, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F

...

1905.1.5 (formerly 1905.1.6) ACI 318, Section 18.13.1.1. Modify ACI 318, Section 18.13.1.1, to read as follows:

18.13.1.1 - Foundations resisting earthquake-induced forces or transferring earthquake-induced forces between a structure and ground shall comply with the requirements of Section 21.12 and other applicable provisions of ACI 318 unless modified by Chapter 18 of the California Building Code.

...

CHAPTER 21 MASONRY

...

2109.1 General. Empirically designed masonry shall conform to the requirements of Chapter 5 of TMS 402/ACI 530/ASCE 5, except where otherwise noted in this section.

2109.1.1 Limitations. . . .

Section A.1.2.2 of TMS 402/ACI 530/ASCE 5 shall be modified as follows:

A.1.2.2 Wind – Empirical requirements shall not apply to the design or construction of masonry for buildings, parts of buildings, or other structures to be located in areas where V as determined in accordance with Section 1609.3.1 of the *California Building Code* exceeds 110^{asd} mph.

...

CHAPTER 23 WOOD

...

2304.5 Framing around flues and chimneys. Combustible framing shall be a minimum of 2 inches (51 mm), but shall not be less than the distance specified in Sections 2111 and 2113 and the *California Mechanical Code*, from flues, chimneys and fireplaces, and 6 inches (152 mm) away from flue openings.

...

2308.1 General. . . . accessory structures shall comply with the *California Residential Code*.

...

CHAPTER 26 PLASTIC

...

2603.4.1.12 Interior signs. Foam plastic used for interior signs in covered mall buildings in accordance with Section 402.6.4 shall be permitted without a thermal barrier. Foam plastic signs that are not affixed to interior building surfaces shall comply with Chapter 8 of the *California Fire Code*.

...

CHAPTER 27 ELECTRICAL

2701.1 Scope. This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of *California Electrical Code*.

...

2702.1 Installation. Emergency and standby power systems required by this code or the *California Fire Code* shall be installed in accordance with this code, NFPA 110 and 111.

...

2702.2.11 Highly toxic and toxic materials. Emergency power shall be provided for occupancies with highly *toxic* or *toxic* materials in accordance with the *California Fire Code*.

2702.2.12 (formerly 2702.2.9) Membrane structures. Standby power shall be provided for auxiliary inflation systems in accordance with Section 3102.8.2. Emergency power shall be provided for exit signs in temporary tents and membrane structures in accordance with the *California Fire Code*.

2702.2.13 Pyrophoric materials. Emergency power shall be provided for occupancies with silane gas in accordance with the *California Fire Code*.

...

2703.4 (formerly 2702.3) Maintenance. Emergency and standby power systems shall be maintained and tested in accordance with the *California Fire Code*.

...

CHAPTER 28 MECHANICAL SYSTEMS

2801.1 Scope. Mechanical appliances, equipment and systems shall be constructed, installed and maintained in accordance with the *California Mechanical Code*. Masonry chimneys, fireplaces and barbecues shall comply with the *California Mechanical Code* and Chapter 21 of this code

...

CHAPTER 29 PLUMBING SYSTEMS

(Not Adopted by the State of California)
Refer to California Plumbing Code, Title 24, Part 5)

...

CHAPTER 31 SPECIAL CONSTRUCTION

...

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membranecovered cable and membrane-covered frame structures, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *California Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

...

3103.1 General.

The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the *California Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

...

3109.4.4 Private swimming pools (statewide).

These regulations are subject to local government modification. The applicable local government requirements at the time of application for a building permit should be verified. These standards become applicable commencing January 1, 1998, to a private, single-family home for which a construction permit for a new swimming pool has been issued on or after January 1, 1998.

3109.4.4.1 Definitions.

As used in this division, the following terms have the following meanings:

ANSI/APSP PERFORMANCE STANDARD means a standard that is accredited by the American National Standards Institute (ANSI) and published by the Association of Pool and Spa Professionals (APSP).

APPROVED SAFETY POOL COVER means a manually or power-operated safety pool cover that meets all of the performance standards of the American Society for Testing and Materials (ASTM), in compliance with Standard F 1346-91.

ENCLOSURE means a fence, wall or other barrier that isolates a swimming pool from access to the home.

EXIT ALARMS means devices that make audible, continuous alarm sounds when any door or window that permits access from the residence to the pool area, that is without any intervening enclosure, is opened or is left ajar. Exit alarms may be battery operated or may be connected to the electrical wiring of the building.

PUBLIC SWIMMING POOL means a swimming pool operated for the use of the general public with or without charge, or for the use of the members and guests of a private club. Public swimming pool does not include a swimming pool located on the grounds of a private single-family home.

SUCTION OUTLET means a fitting or fixture typically located at the bottom or on the sides of a swimming pool that conducts water to a recirculating pump.

SWIMMING POOL or POOL means any structure intended for swimming or recreational bathing that contains water over 18 inches (457 mm) deep. Swimming pool includes in-ground and above-ground structures and includes, but is not limited to, hot tubs, spas, portable spas and nonportable wading pools.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115921

Ab 3305, Statutes 1996, c.925

3109.4.4.2 Construction permit; safety features required.

Commencing January 1, 2007, except as provided in Section 3109.4.4.5, whenever a building permit is issued for construction of a new swimming pool or spa, or any building permit is issued for remodeling of an existing pool or spa, at a private, single-family home, it shall be equipped with at least one of the following seven drowning prevention safety features:

1. The pool shall be isolated from access to a home by an enclosure that meets the requirements of Section 3109.4.4.3.
2. The pool shall incorporate removable mesh pool fencing that meets American Society for Testing and Materials (ASTM) Specifications F 2286 standards in conjunction with a gate that is selfclosing and self-latching and can accommodate a key lockable device.
3. The pool shall be equipped with an approved safety pool cover that meets all requirements of the ASTM Specifications F 1346.
4. The residence shall be equipped with exit alarms on those doors providing direct access to the pool.

5. All doors providing direct access from the home to the swimming pool shall be equipped with a self-closing, self-latching device with a release mechanism placed no lower than 54 inches (1372 mm) above the floor.
6. Swimming pool alarms that, when placed in pools, will sound upon detection of accidental or unauthorized entrance into the water. These pool alarms shall meet and be independently certified to the ASTM Standard F 2208 "Standards Specification for Pool Alarms" which includes surface motion, pressure, sonar, laser and infrared type alarms. For purposes of this article, "swimming pool alarms" shall not include swimming protection alarm devices designed for individual use, such as an alarm attached to a child that sounds when the child exceeds a certain distance or becomes submerged in water.
7. Other means of protection, if the degree of protection afforded is equal to or greater than that afforded by any of the devices set forth in items 1-4, and have been independently verified by an approved testing laboratory as meeting standards for those devices established by the ASTM or the American Society of Testing Mechanical Engineers (ASME).

Prior to the issuance of any final approval for the completion of permitted construction or remodeling work, the local building code official shall inspect the drowning safety prevention devices required by this act and if no violations are found, shall give final approval.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115922

AB 3305 (Statutes 1996, c.925); AB 2977 (Statutes 2006, c.478); AB 382 (Statutes 2007, c.596)

3109.4.4.3 Enclosure; required characteristics.

An enclosure shall have all of the following characteristics:

1. Any access gates through the enclosure open away from the swimming pool and are self-closing with a self-latching device placed no lower than 60 inches (1524 mm) above the ground.
2. A minimum height of 60 inches (1524 mm).
3. A maximum vertical clearance from the ground to the bottom of the enclosure of 2 inches (51 mm).
4. Gaps or voids, if any, do not allow passage of a sphere equal to or greater than 4 inches (102 mm) in diameter.
5. An outside surface free of protrusions, cavities or other physical characteristics that would serve as handholds or footholds that could enable a child below the age of five years to climb over.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115923

AB 3305, Statutes 1996, c.925

3109.4.4.4 Agreements to build; notice of provisions.

Any person entering into an agreement to build a swimming pool or spa, or to engage in permitted work on a pool or spa covered by this article, shall give the consumer notice of the requirements of this article.

Pursuant to existing law, the Department of Health Services shall have available on the department's web site, commencing January 1, 2007, approved pool safety information available for consumers to download. Pool contractors are encouraged to share this information with consumers regarding the potential dangers a pool or spa poses toddlers. Additionally, pool contractors may provide the consumer with swimming pool safety materials produced from organizations such as the United States Consumer Product Safety Commission, Drowning Prevention Foundation, California Coalition for Children's Safety & Health, Safe Kids Worldwide, Association of Pool and Spa Professionals, or the American Academy of Pediatrics.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115924

AB 3305 (Statutes 1996, c.925); AB 2977 (Statutes 2006, c.478); AB 382 (Statutes 2007, c.596)

3109.4.4.5 Exempt facilities.

The requirements of this article shall not apply to any of the following:

- 1. Public swimming pools.*
- 2. Hot tubs or spas with locking safety covers that comply with the American Society for Testing Materials Emergency Performance Specification (ASTM ES 13-89).*
- 3. Any pool within the jurisdiction of any political subdivision that adopts an ordinance for swimming pool safety that includes requirements that are at least as stringent as this division.*
- 4. An apartment complex or any residential setting other than a single-family home.*

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115925

Ab 3305, (Statutes 1996, c.925); AB 2977 (Statutes 2006, c.478); AB 382 (Statutes 2007,c.596)

3109.4.4.6 Application to facilities regulated by Department of Social Services.

This division does not apply to any facility regulated by the State Department of Social Services even if the facility is also used as a private residence of the operator. Pool safety in those facilities shall be regulated pursuant to regulations adopted therefor by the State Department of Social Services.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115926

AB 3305, Statutes 1996, c.925); AB 2977 (Statutes 2006, c.478); AB 382 (Statutes 2007, c.596)

3109.4.4.7 Modification and interpretation of division.

Notwithstanding any other provision of law, this article shall not be subject to further modification or interpretation by any regulatory agency of the state, this authority being reserved exclusively to local jurisdictions, as provided for in Item 5 of Section 3109.4.4.2 and Item 3 of Section 3109.4.4.5.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115927

AB 3305 (Statutes 1996, c.925); AB 2977 (Statutes 2006, c.478); AB 382 (Statutes 2007, c.596)

3109.4.4.8 Construction requirements for building a pool or spa.

Whenever a building permit is issued for the construction a new swimming pool or spa, the pool or spa shall meet all of the following requirements:

1. The suction outlets of the pool or spa for which the permit is issued shall be equipped to provide circulation throughout the pool or spa as prescribed in Paragraphs 2 and 3.
2. The swimming pool or spa shall either have at least two circulation suction outlets per pump that shall be hydraulically balanced and symmetrically plumbed through one or more "T" fittings, and that are separated by a distance of at least three feet in any dimension between the suction outlets, or be designed to use alternatives to suction outlets including, but not limited to, skimmers or perimeter overflow systems to conduct water to the recirculation pump.
3. The circulation system shall have the capacity to provide a complete turnover of pool water, as specified in Section 3124B of Chapter 31B of the California Building Standards Code (Title 24 of the California Code of Regulations).
4. Suction outlets shall be covered with antientrapment grates, as specified in the ANSI/APSP-16 performance standard or successor standard designated by the federal Consumer Product Safety Commission, that cannot be removed except with the use of tools. Slots of openings in the grates or similar protective devices shall be of a shape, area and arrangement that would prevent physical entrapment and would not pose any suction hazard to bathers.
5. Any backup safety system that an owner of a new swimming pool or spa may choose to install in addition to the requirements set forth in subdivisions (1) through (4) above shall meet the standards as published in the document, "Guidelines for Entrapment Hazards: Making Pools and Spas Safer," Publication Number 363, March 2005, United States Consumer Products Safety Commission.
6. Whenever a building permit is for the remodel or modification of any existing swimming pool, toddler pool, or spa, the permit shall require that the suction outlet or suction outlets of the existing swimming pool, toddler pool, or spa be upgraded so as to be equipped with antientrapment grates, as specified in the ANSI/APSP-16 performance standard or a successor standard designated by the federal Consumer Product Safety Commission.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115928 AB

3305 (Statutes 1996, c.925); AB 2977 (Statutes 2006, c.478); AB 478 (Statutes 2007, c.596)

3109.5 Entrapment avoidance.

Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

3109.6 Informative documents.

1. The Legislature encourages a private entity, in consultation with the Epidemiology and Prevention for Injury Control Branch of the department, to produce an informative brochure or booklet, for consumer use, explaining the child drowning hazards of, possible safety measures for, and appropriate drowning hazard prevention measures for, home swimming pools and spas, and to donate the document to the department.
2. The Legislature encourages the private entity to use existing documents from the United States Consumer Product Safety Commission on pool safety.
3. If a private entity produces the document described in Subdivisions 1 and 2 and donates it to the department, the department shall review and approve the brochure or booklet.
4. Upon approval of the document by the department, the document shall become the property of the state and a part of the public domain. The department shall place the document on its Web site in a format that is readily available for downloading and for publication. The department shall review the document in a timely and prudent fashion and shall complete the review within 18 months of receipt of the document from a private entity.

...

**CHAPTER 31A
SYSTEMS FOR WINDOW CLEANING OR
EXTERIOR BUILDING MAINTENANCE**

See Title 8, California Code of Regulations, Division 1, Chapter 4, Subchapter 7,
General Industry Safety Orders, Group 1, Articles 5 and 6.

...

**CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION**

...

3302.3 Fire safety during construction. Fire safety during construction shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the *California Fire Code*.

...

3303.7 Fire safety during demolition. Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of Chapter 56 of the *California Fire Code*.

...

3305.1 Facilities required. Sanitary facilities shall be provided during construction, remodeling or demolition activities in accordance with the *California Plumbing Code*.

...

3309.2 Fire hazards. The provisions of this code and the *California Fire Code* shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

...

APPENDIX A EMPLOYEE QUALIFICATIONS

...

A101.2 Chief inspector.

The building official can designate supervisors to administer the provisions of the *California Building, Mechanical and Plumbing Codes* and ~~*California International*~~ Fuel Gas Code. Each supervisor shall have at least 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, five years of which shall have been in a supervisory capacity. They shall be certified through a recognized certification program for the appropriate trade.

...

SECTION A102 REFERENCED STANDARDS

IBC—15	<i>California Building Code</i>	A101.2
IMC—15	<i>California International</i> Mechanical Code	A101.2
IPC—15	<i>California International</i> Plumbing Code	A101.2
IFGC—15	<i>California International</i> Fuel Gas Code	A101.2

...

APPENDIX G FLOOD-RESISTANT CONSTRUCTION

...

G102.1 General.

This appendix, in conjunction with the *California Building Code*, provides minimum requirements for development located in flood hazard areas, including the subdivision of land; installation of utilities; placement and replacement of manufactured homes; new construction and repair, reconstruction, rehabilitation or additions to new construction; substantial improvement of existing buildings and structures, including restoration after damage, temporary structures, and temporary or permanent storage, utility and miscellaneous Group U buildings and structures, and certain building work exempt from permit under Section 105.2.

G102.2 Establishment of flood hazard areas.

Flood hazard areas are established in Section 1612.3 of the *California Building Code*, adopted by the applicable governing authority on [INSERT DATE].

...

G201.1 General.

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *California Building Code* for general definitions.

...

G301.2 Subdivision requirements. The following requirements shall apply in the case of any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within a flood hazard area:

1. The flood hazard area, including floodways and areas subject to high velocity wave action, as appropriate, shall be delineated on tentative and final subdivision plats;
2. Design flood elevations shall be shown on tentative and final subdivision plats;
3. Residential building lots shall be provided with adequate buildable area outside the floodway; and
4. The design criteria for utilities and facilities set forth in this appendix and appropriate *California Codes* shall be met.

...

G1001.1 Utility and miscellaneous Group U.

Utility and miscellaneous Group U includes buildings that are accessory in character and miscellaneous structures not classified in any specific occupancy in the *California Building Code*, including, but not limited to, agricultural buildings, aircraft hangars (accessory to a one- or two-family residence), barns, carports, fences more than 6 feet (1829 mm) high, grain silos (accessory to a residential occupancy), greenhouses, livestock shelters, private garages, retaining walls, sheds, stables and towers.

...

G1001.3 Elevation.

Utility and miscellaneous Group U buildings and structures, including substantial improvement of such buildings and structures, shall be elevated such that the lowest floor, including basement, is elevated to or above the design flood elevation in accordance with Section 1612 of the *California Building Code*.

...

SECTION G1101 REFERENCED STANDARDS

ASCE 24—13	Flood Resistance Design and Construction	G103.1, G401.3, G401.4, G701.1, G801.1, G801.6, G801.7, G901.1, G1001.4, G201
HUD 24 CFR Part 3280 (2008)	Manufactured Home Construction and Safety Standards	
IBC—15	<i>California Building Code</i>	G102.2, G1001.1, G1001.3
IRC-15	<u><i>California</i></u> International Residential Code	G501.2, G501.4 G501.5
NFPA 70—11	<u><i>California</i></u> National Electrical Code	G1001.6

APPENDIX H SIGNS

...

H102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *California Building Code* for general definitions.

...

SECTION H115 REFERENCED STANDARDS

ASTM D 635—10	Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position	H107.1.1
NFPA 70—11	National <i>California</i> Electrical Code	H106.1, H106.2
NFPA 701—10	Methods of Fire Test for Flame Propagation of Textiles and Films	H106.1.1

...

APPENDIX I PATIO COVERS

...

I102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *California Building Code* for general definitions.

...

APPENDIX J – GRADING

J102.1 Definitions.

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *California Building Code* for general definitions.

...

J105.1 General.

Inspections shall be governed by Section 110, *Chapter 1, Division II* of this code.

...

APPENDIX M TSUNAMI-GENERATED FLOOD HAZARD

...

M101.2 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *California Building Code* for general definitions.

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Notation:

Authority: Health and Safety Code §§18928 & 18934.5 18940.5

Reference: Health and Safety Code §§18928, 18928.1, 18934.5, 18938(b) & 18940.5

**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
DIVISION OF THE STATE ARCHITECT (DSA-AC)**

**REGARDING PROPOSED CHANGES TO
THE CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2**

**2016 CALIFORNIA BUILDING CODE
TRIENNIAL CODE CYCLE**

LEGEND FOR FINAL EXPRESS TERMS (combination of First 45-Day, Second 45-Day, and 15-Day changes)

1. For First 45-Day, Second 45-Day, and 15-Day changes, existing California amendments or code language being modified appears in *italics*, with modified language underlined.
2. For First 45-Day, Second 45-Day, and 15-Day changes, repealed text appears in ~~strikeout~~.

FINAL EXPRESS TERMS

**CHAPTER 1
SCOPE AND ADMINISTRATION
DIVISION I
CALIFORNIA ADMINISTRATION**

DSA-AC proposes to carry forward its adoption of existing California amendments in Chapter 1, Division I, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 1.1.00

CHAPTER 1, DIVISION I – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire California Chapter		
Adopt entire California Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
1.1		X
1.2.2		X
1.9.1 – 1.9.1.8		X

ITEM 1.1.01

SECTION 1.1

GENERAL

1.1.1 Title. These regulations shall be known as the California Building Code, may be cited as such and will be referred to herein as "this code." The California Building Code is Part 2 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the 2012 2015 International Building Code of the International Code Council with necessary California amendments.

1.1.2 Purpose. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.

1.1.3 Scope. The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California.

1.1.3.1 Nonstate-regulated buildings, structures and applications. Except as modified by local ordinance pursuant to Section 1.1.8, the following standards in the California Code of Regulations, Title 24, Parts 2, 2.5, 3, 4, 5, 6, 9, 10 and 11 shall apply to all occupancies and applications not regulated by a state agency.

1.1.3.2 State-regulated buildings, structures and applications. The model code, state amendments to the model code, and/or state amendments where there are no relevant model code provisions shall apply to the following buildings, structures, and applications regulated by state agencies as specified in Sections 1.2 through 1.14, except where modified by local ordinance pursuant to Section 1.1.8. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the state legislature.

Note: See Preface to distinguish the model code provisions from the California provisions.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California, and regulated by the Building Standards Commission. See Section 1.2 for additional scope provisions.
2. Local detention facilities regulated by the Corrections Standards Authority. See Section 1.3 for additional scope provisions.
3. Barbering, cosmetology or electrolysis establishments, acupuncture offices, pharmacies, veterinary facilities and structural pest control locations regulated by the Department of Consumer Affairs. See Section 1.4 for additional scope provisions.
4. Energy efficiency standards regulated by the California Energy Commission. See Section 1.5 for additional scope provisions.
5. Dairies and places of meat inspection regulated by the Department of Food and Agriculture. See Section 1.6 for additional scope provisions.
6. Organized camps, laboratory animal quarters, public swimming pools, radiation protection,

commissaries serving mobile food preparation vehicles and wild animal quarantine facilities regulated by the Department of Public Health. See Section 1.7 for additional scope provisions.

7. *Hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities. See Section 1.8.2.1.1 for additional scope provisions.*
8. *Accommodations for persons with disabilities in buildings containing newly constructed covered multifamily dwellings, new common use spaces serving existing covered multifamily dwellings, additions to existing buildings where the addition alone meets the definition of "COVERED MULTIFAMILY DWELLINGS," and common-use spaces serving covered multifamily dwellings which are regulated by the Department of Housing and Community Development. See Section 1.8.2.1.2 for additional scope provisions.*
9. *Permanent buildings and permanent accessory buildings or structures constructed within mobile home parks and special occupancy parks regulated by the Department of Housing and Community Development. See Section 1.8.2.1.3 for additional scope provisions.*
10. *Accommodations for persons with disabilities regulated by the Division of the State Architect. See Section 1.9.1 for additional scope provisions.*
11. *Public elementary and secondary schools, community college buildings and state-owned or state-leased essential service buildings regulated by the Division of the State Architect. See Section 1.9.2 for additional scope provisions.*
12. *Qualified historical buildings and structures and their associated sites regulated by the State Historical Building Safety Board with the Division of the State Architect. See Section 1.9.3 for additional scope provisions.*
13. *General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 1.10 for additional scope provisions.*
14. *Applications regulated by the Office of State Fire Marshal include but are not limited to the following in accordance with Section 1.11.*
 - 14.1. *Buildings or structures used or intended for use as an:*
 1. *Asylum, jail, prison*
 2. *Mental hospital, hospital, home for the elderly, children's nursery, children's home or institution, school or any similar occupancy of any capacity*
 3. *Theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education*
 4. *Small family day care homes, large family day-care homes, residential facilities and residential facilities for the elderly, residential care facilities*

5. *State institutions or other state-owned or state-occupied buildings*
6. *High rise structures*
7. *Motion picture production studios*
8. *Organized camps*
9. *Residential structures*
- 14.2. *Tents, awnings or other fabric enclosures used in connection with any occupancy*
- 14.3. *Fire alarm devices, equipment and systems in connection with any occupancy*
- 14.4. *Hazardous materials, flammable and combustible liquids*
- 14.5. *Public school automatic fire detection, alarm, and sprinkler systems*
- 14.6. *Wildland-urban interface fire areas*
15. *Public libraries constructed and renovated using funds from the California Library Construction and Renovation Bond Act of 1988 and regulated by the State Librarian. See Section 1.12 for additional scope provisions.*
16. *Graywater systems regulated by the Department of Water Resources. See Section 1.13 for additional scope provisions.*
17. *For applications listed in Section 1.9.1 regulated by the Division of the State Architect – Access Compliance, outdoor environments and uses shall be classified according to accessibility uses described in Chapters Chapter 11B.*
18. *Marine Oil Terminals regulated by the California State Lands Commission. See Section 1.14 for additional scope provisions.*

1.1.4 Appendices. Provisions contained in the appendices of this code shall not apply unless specifically adopted by a state agency or adopted by a local enforcing agency in compliance with Health and Safety Code Section 18901 et. seq. for Building Standards Law, Health and Safety Code Section 17950 for State Housing Law and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 1.1.8 of this code.

1.1.5 Referenced codes. The codes, standards and publications adopted and set forth in this code, including other codes, standards and publications referred to therein are, by title and date of publication, hereby adopted as standard reference documents of this code. When this code does not specifically cover any subject related to building design and construction, recognized architectural or engineering practices shall be employed. The National Fire Codes, standards, and the Fire Protection Handbook of the National Fire Protection Association are permitted to be used as authoritative guides in determining recognized fire prevention engineering practices.

1.1.6 Nonbuilding standards, orders and regulations. Requirements contained in the International Building Code, or in any other referenced standard, code or document, which are not building standards as defined in Health and Safety Code Section 18909, shall not be construed as part of the provisions of this code. For nonbuilding standards, orders, and regulations, see other titles of the California Code of Regulations.

1.1.7 Order of precedence and use.

1.1.7.1 Differences. In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.

1.1.7.2 Specific provisions. Where a specific provision varies from a general provision, the specific provision shall apply.

1.1.7.3 Conflicts. When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, the most restrictive requirements shall prevail.

1.1.8 City, county, or city and county amendments, additions or deletions. The provisions of this code do not limit the authority of city, county, or city and county governments to establish more restrictive and reasonably necessary differences to the provisions contained in this code pursuant to complying with Section 1.1.8.1. The effective date of amendments, additions or deletions to this code by a city, county, or a city and county filed pursuant to Section 1.1.8.1 shall be the date filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.

1.1.8.1 Findings and filings.

1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical or geological conditions.

Exception: Hazardous building ordinances and programs mitigating unreinforced masonry buildings.

2. The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.
3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development, Division of Codes and Standards, P.O. Box 1407, Sacramento, CA 95812-1407 or 2020 W. El Camino Avenue, Suite 250, Sacramento CA 95833-1829.

1.1.9 Effective date of this code. Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.

1.1.10 Availability of codes. At least one complete copy each of Titles 8, 19, 20, 24, and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county or city and county shall have an up-to-date copy of the code available for public inspection. See Health and Safety Code Section 18942(d)(1) and (2).

1.1.11 Format. This part fundamentally adopts the International Building Code by reference on a chapter-

by-chapter basis. When a specific chapter of the International Building Code is not printed in the code and is marked "Reserved" such chapter of the International Building Code is not adopted as a portion of this code. When a specific chapter of the International Building Code is marked "Not adopted by the State of California" but appears in the code, it may be available for adoption by local ordinance.

Note: Matrix Adoption Tables at the front of each chapter may aid the code user in determining which chapter or sections within a chapter are applicable to buildings under the authority of a specific state agency, but they are not to be considered regulatory.

1.1.12 Validity. *If any chapter, section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, contrary to statute, exceeding the authority of the state as stipulated by statutes or otherwise inoperative, such decision shall not affect the validity of the remaining portion of this code.*

SECTION 1.2 BUILDING STANDARDS COMMISSION

1.2.2 Alternative materials, design and methods of construction and equipment. *The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.*

SECTION 1.9 DIVISION OF THE STATE ARCHITECT

1.9.1 Division of the State Architect – Access Compliance.

General. *The purpose of this code is to ensure that barrier-free design is incorporated in all buildings, facilities, site work and other improvements to which this code applies in compliance with state law to ensure that these improvements are accessible to and usable by persons with disabilities. Additions, alterations and structural repairs in all buildings and facilities shall comply with these provisions for new buildings, except as otherwise provided and specified herein.*

The provisions of these regulations shall apply to any portable buildings leased or owned by a school district, and shall also apply to temporary and emergency buildings and facilities. Temporary buildings and facilities are not of permanent construction but are extensively used or are essential for public use for a period of time. Examples of temporary buildings or facilities covered include, but are not limited to: reviewing stands, temporary classrooms, bleacher areas, exhibit areas, temporary banking facilities, temporary health screening services or temporary safe pedestrian passageways around a construction site.

In addition, to incorporate standards at least as restrictive as those required by the federal government for barrier-free design under (1) Title III (Public Accommodations and Commercial Facilities), Subpart D (New Construction and Alteration) (see 28 C.F.R., Part 36), and (2) Title II (Public Entities), Section 35.151 (New Construction and Alterations) (see 28 C.F.R., Part 35) both from the Americans with Disabilities Act of 1990, 2004 Americans with Disabilities Act Accessibility Guidelines, as adopted by the US Department of Justice (see 36 C.F.R. Part 1191, Appendices B and D), and (3) under the Fair Housing Amendments Act of 1988. Some of these regulations may be more stringent than state law in order to meet the federal requirement.

1.9.1.1 Application. *See Government Code commencing with Section 4450.*

Publicly funded buildings, structures, sidewalks, curbs and related facilities shall be accessible to and usable by persons with disabilities as follows:

1.9.1.1.1 All buildings, structures, sidewalks, curbs and related facilities constructed in the state by the use of state, county or municipal funds, or the funds of any political subdivision of the state.

1.9.1.1.2 All buildings, structures and facilities that are leased, rented, contracted, sublet or hired by any municipal, county or state division of government, or by a special district.

1.9.1.1.3 All publicly funded buildings used for congregate residences or for one- or two-family dwelling unit purposes shall conform to the provisions applicable to living accommodations.

1.9.1.1.4 All existing publicly funded buildings and facilities when alterations, structural repairs or additions are made to such buildings or facilities. For detailed requirements on existing buildings, see Chapter 11B, Division 2, Section 11B-202.

1.9.1.1.5 With respect to buildings, structures, sidewalks, curbs and related facilities not requiring a building permit, building standards published in the California Building Standards Code relating to access for persons with disabilities and other regulations adopted pursuant to Government Code Section 4450, and in effect at the time construction is commenced, shall be applicable.

1.9.1.2 Application. See Health and Safety Code commencing with Section 19952.

All privately funded public accommodations, as defined and commercial facilities, as defined, shall be accessible to persons with disabilities as follows:

Exception: Certain types of privately funded multistory buildings do not require installation of an elevator to provide access above and below the first floor. See Chapter 11B.

1.9.1.2.1 Any building, structure, facility, complex or improved area, or portions thereof, which are used by the general public.

1.9.1.2.2 Any sanitary facilities which are made available for the public, clients or employees in such accommodations or facilities.

1.9.1.2.3 Any curb or sidewalk intended for public use that is constructed in this state with private funds.

1.9.1.2.4 All existing privately funded public accommodations when alterations, structural repairs or additions are made to such public accommodations as set forth under Chapter 11B.

1.9.1.3 Application — public housing and private housing available for public use. See Government Code Sections 4450 and 12955.1(c).

1.9.1.4 Enforcing agency.

1.9.1.4.1 The director of the Department of General Services where state funds are utilized for any project or where funds of counties, municipalities or other political subdivisions are utilized for the construction of elementary, secondary or community college projects.

1.9.1.4.2 The governing bodies where funds of counties, municipalities or other political subdivisions are utilized except as otherwise provided above.

1.9.1.4.3 *The building department of every city, county, or city and county within the territorial area of its city, county, or city and county, where private funds are utilized. "Building department" means the department, bureau or officer charged with the enforcement of laws or ordinances regulating the erection or construction, or both the erection and construction, of buildings.*

1.9.1.5 Special conditions for persons with disabilities requiring appeals action ratification. *Whenever reference is made in these regulations to this section, the findings and determinations required to be rendered by the local enforcing agency shall be subject to ratification through an appeals process.*

1.9.1.6 Authority cited. *Government Code Section 4450.*

1.9.1.7 Reference cited. *Government Code Sections 4450 through 4461, 12955.1(c) and Health and Safety Code Sections 18949.1, 19952 through 19959.*

1.9.1.8 Adopting agency identification. *The provision of this code applicable to buildings identified in this Subsection 1.9.1 will be identified in the Matrix Adoption Tables under the acronym DSA-AC.*

**CHAPTER 1
SCOPE AND ADMINISTRATION
DIVISION II
SCOPE AND ADMINISTRATION**

DSA-AC proposes to carry forward its adoption of specific model code provisions in Chapter 1, Division II, from the 2013 CA Building Code into the 2016 CA Building Code, with existing amendments.

ITEM 1.2.00

CHAPTER 1, DIVISION II – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire California Chapter		
Adopt entire California Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
101.1 – 101.4.5		X
104.11		X
111.2		X

ITEM 1.2.01

PART 1—SCOPE AND APPLICATION

**SECTION 101
GENERAL**

101.1 Title. These regulations shall be known as the Building Code of [NAME OF JURISDICTION], hereinafter referred to as “this code.”

101.2 Scope. The provisions of this code shall apply to the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with the International California Residential Code.

101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

101.3 Intent. The purpose of this code is to establish the minimum requirements to provide a reasonable level of safety, public health and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.

101.4 Referenced codes. The other codes listed in Sections 101.4.1 through 101.4.7 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

101.4.1 Gas. The provisions of the ~~International Fuel Gas~~ California Mechanical Code shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 Mechanical. The provisions of the ~~International~~ California Mechanical Code shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.4.3 Plumbing. The provisions of the ~~International~~ California Plumbing Code shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system. The provisions of the International Private Sewage Disposal Code shall apply to private sewage disposal systems.

101.4.4 Property maintenance. The provisions of the International Property Maintenance Code shall apply to existing structures and premises; equipment and facilities; light, ventilation, space heating, sanitation, life and fire safety hazards; responsibilities of owners, operators and occupants; and occupancy of existing premises and structures.

101.4.5 Fire prevention. The provisions of the ~~International~~ California Fire Code shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression, automatic sprinkler systems and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

101.4.6 Energy. The provisions of the ~~International~~ California Energy Conservation Code shall apply to all matters governing the design and construction of buildings for energy efficiency.

101.4.7 Existing buildings. The provisions of the ~~International~~ California Existing Building Code shall apply to matters governing the *repair, alteration*, change of occupancy, *addition* to and relocation of existing buildings.

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved.

SECTION 111
CERTIFICATE OF OCCUPANCY

111.2 Certificate issued. After the building official inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department of building safety, the building official shall issue a certificate of occupancy that contains the following:

1. The building permit number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the building official.
7. The edition of the code under which the permit was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3.
9. The type of construction as defined in Chapter 6.
10. The design occupant load.
11. If an automatic sprinkler system is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building permit.

CHAPTER 2 DEFINITIONS

DSA-AC proposes to carry forward its adoption of specific model code definitions and California amendments in Chapter 2, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 2.00

CHAPTER 2 – MATRIX ADOPTION TABLE

Adopting Agency	DSA-AC
Adopt entire California Chapter	
Adopt entire California Chapter as amended (amended Sections listed below)	
Adopt only those Sections that are listed below	X
Chapter / Section	
202 Access aisle	X
202 Accessibility	X
202 Accessibility function button	X
202 Accessible	X
202 Accessible element	X
202 Accessible means of egress	X
202 Accessible route	X
202 Accessible space	X
202 Adaptable	X
202 Addition (2 nd paragraph only)	X
202 Adjusted construction cost	X
202 Administrative authority	X
202 Aisle (2 nd paragraph only)	X
202 Alteration	X
202 Amusement attraction	X
202 Amusement ride	X
202 Amusement ride seat	X
202 ANSI	X
202 Approved (2 nd paragraph only) (w/o Notes)	X
202 Approved testing agency	X
202 Area of refuge	X
202 Area of sport activity	X
202 Assembly area	X
202 Assistive listening system (ALS)	X
202 Automatic door	X
202 Automatic teller machine (ATM)	X
202 Bathroom	X
202 Blended transition	X
202 Boarding pier	X
202 Boat launch ramp	X
202 Boat slip	X
202 Building (w/o notes)	X
202 Building official	X

202 Catch pool	X
202 Carriage unit	X
202 CCR	X
202 Characters	X
202 Children's use	X
202 Circulation path	X
202 Clear	X
202 Clear floor space	X
202 Closed-circuit telephone	X
202 Commercial facilities	X
202 Common use	X
202 Comply with	X
202 Cross slope	X
202 Curb cut	X
202 Curb ramp	X
202 Designated public transportation	X
202 Destination-oriented elevator	X
202 Detectable warning	X
202 Directional sign	X
202 Disability	X
202 Dormitory	X
202 Drive-up electric vehicle (EV) charger	X
202 Electric vehicle (EV)	X
202 Electric vehicle (EV) charger	X
202 Electric vehicle charging space (EVC space)	X
202 Electric vehicle charging station (EVCS)	X
202 Electric vehicle (EV) connector	X
202 Element	X
202 Elevated play component	X
202 Elevator, passenger	X
202 Employee work area	X
202 Enforcing agency	X
202 Entrance	X
202 Equivalent facilitation	X
202 Existing building or facility	X
202 Exit	X
202 Facility	X
202 Functional area	X
202 Gangway	X
202 Golf car passage	X
202 Grab bar	X
202 Grade (adjacent ground elevation)	X
202 Grade break	X
202 Ground floor	X
202 Ground level play component	X
202 Guard (or guardrail)	X
202 Hall call console	X
202 Handrail	X
202 Health care provider	X
202 Historical buildings	X
202 Housing at a place of education	X
202 If, If . . . Then	X

202 International Symbol of Accessibility	X
202 Key station	X
202 Kick plate	X
202 Kitchen or kitchenette	X
202 Lavatory	X
202 Mail boxes	X
202 Marked crossing	X
202 May	X
202 Mezzanine	X
202 Multi-bedroom housing unit	X
202 NFPA	X
202 Nosing	X
202 Occupant load	X
202 Occupiable space	X
202 Open riser	X
202 Operable part	X
202 Passenger elevator	X
202 Path of travel	X
202 Pedestrian	X
202 Pedestrian way	X
202 Permanent	X
202 Permit	X
202 Pictogram	X
202 Place of public accommodation	X
202 Platform	X
202 Platform (wheelchair) lift	X
202 Play area	X
202 Play component	X
202 Point-of-sale device	X
202 Powder room	X
202 Power-assisted door	X
202 Private building or facility	X
202 Professional office of a health care provider	X
202 Public building or facility	X
202 Public entity	X
202 Public entrance	X
202 Public housing	X
202 Public use	X
202 Public-use areas	X
202 Public way	X
202 Qualified historic building or facility	X
202 Ramp	X
202 Reasonable portion	X
202 Recommend	X
202 Remodeling	X
202 Repair	X
202 Residential dwelling unit	X
202 Restricted entrance	X
202 Riser	X
202 Running slope	X
202 Seismic mitigation	X
202 Self-service storage	X

202 Service entrance	X
202 Shall	X
202 Shopping center (or shopping mall)	X
202 Should	X
202 Sidewalk	X
202 Signage	X
202 Sign	X
202 Sink	X
202 Site	X
202 Sleeping accommodations	X
202 Soft contained play structure	X
202 Space	X
202 Specified public transportation	X
202 Stage	X
202 Stair	X
202 Stairway	X
202 Story (2 nd paragraph only)	X
202 Structural frame	X
202 Structurally impracticable	X
202 Structure	X
202 Tactile	X
202 Tactile sign	X
202 Technically infeasible	X
202 Teeing ground	X
202 Temporary	X
202 Text telephone	X
202 Transfer device	X
202 Transient lodging	X
202 Transit boarding platform	X
202 Transition plate	X
202 Tread	X
202 TTY	X
202 Unreasonable hardship	X
202 Use zone	X
202 Valuation threshold	X
202 Variable message signs (VMS)	X
202 Variable message sign (VMS) characters	X
202 Vehicular way	X
202 Walk	X
202 Wet bar	X
202 Wheelchair	X
202 Wheelchair space	X
202 Work area equipment	X
202 Workstation (2 nd paragraph only)	X

ITEM 2.01

SECTION 202 DEFINITIONS

ACCESS AISLE. [DSA-AC] *An accessible pedestrian space adjacent to or between parking spaces that provides clearances in compliance with this code.*

ACCESSIBILITY. [DSA-AC] *Accessibility is the combination of various elements in a building, facility, site, or area, or portion thereof which allows access, circulation and the full use of the building and facilities by persons with disabilities in compliance with this code.*

ACCESSIBILITY FUNCTION BUTTON. [DSA-AC] *A button on an elevator hall call console in a destination-oriented elevator system that when pressed will activate a series of visual and verbal prompts and announcements providing instruction regarding hall call console operation and direction to an assigned elevator.*

ACCESSIBLE ELEMENT. [DSA-AC] *An element specified by the regulations adopted by the Division of the State Architect-Access Compliance.*

ACCESSIBLE MEANS OF EGRESS. *A continuous and unobstructed way of egress travel from any accessible point in a building or facility to a public way.*

ACCESSIBLE SPACE. [DSA-AC] *A space that complies with the accessibility provisions of this code.*

ADAPTABLE. [DSA-AC] *Capable of being readily modified and made accessible.*

ADDITION. ...

[DSA-AC] *An expansion, extension or increase in the gross floor area or height of a building or facility.*

ADMINISTRATIVE AUTHORITY. [DSA-AC] *A governmental agency that adopts or enforces regulations and guidelines for the design, construction or alteration of buildings and facilities.*

AISLE. ...

[DSA-AC] *A circulation path between objects such as seats, tables, merchandise, equipment, displays, shelves, desks, etc., that provides clearances in compliance with this code.*

ALTERATION. ...

[DSA-AC] *A change, addition or modification in construction, change in occupancy or use, or structural repair to an existing building or facility. Alterations include, but are not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, resurfacing of circulation paths or vehicular ways, changes or rearrangement of the structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, reroofing, painting or wallpapering, or changes to mechanical and electrical systems are not alterations unless they affect the usability of the building or facility.*

AMUSEMENT ATTRACTION. [DSA-AC] *Any facility, or portion of a facility, located within an amusement park or theme park which provides amusement without the use of an amusement device. Amusement attractions include, but are not limited to, fun houses, barrels and other attractions without seats.*

AMUSEMENT RIDE. [DSA-AC] *A system that moves persons through a fixed course within a defined area for the purpose of amusement.*

AMUSEMENT RIDE SEAT. [DSA-AC] *A seat that is built-in or mechanically fastened to an amusement ride intended to be occupied by one or more passengers.*

ANSI. [DSA-AC] *The American National Standards Institute.*

APPROVED. ...

[DSA-AC] *"Approved" means meeting the approval of the enforcing agency, except as otherwise provided*

by law, when used in connection with any system, material, type of construction, fixture or appliance as the result of investigations and tests conducted by the agency, or by reason of accepted principles or tests by national authorities or technical, health or scientific organizations or agencies.

APPROVED TESTING AGENCY. [DSA-AC] Any agency, which is determined by the enforcing agency, except as otherwise provided by law, to have adequate personnel and expertise to carry out the testing of systems, materials, type of construction, fixtures or appliances.

AREA OF REFUGE. An area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation.

ASSEMBLY AREA. [DSA-AC] A building or facility, or portion thereof, used for the purpose of entertainment, educational or civic gatherings, or similar purposes. For the purposes of these requirements, assembly areas include, but are not limited to, classrooms, lecture halls, courtrooms, public meeting rooms, public hearing rooms, legislative chambers, motion picture houses, auditoria, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands or convention centers.

ASSISTIVE LISTENING SYSTEM (ALS). [DSA-AC] An amplification system utilizing transmitters, receivers and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared or direct-wired equipment.

AUTOMATIC DOOR. [DSA-AC] A door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of a momentary actuating signal. The switch that begins the automatic cycle may be a photoelectric device, floor mat or manual switch.

AUTOMATIC TELLER MACHINE (ATM). [DSA-AC] Any electronic information processing device that accepts or dispenses cash in connection with a credit, deposit or convenience account. The term does not include devices used solely to facilitate check guarantees or check authorizations, or which are used in connection with the acceptance or dispensing of cash on a person-to-person basis, such as by a store cashier.

BATHROOM. [DSA-AC] For the purposes of Chapters 11A and 11B, a room which includes a water closet (toilet), a lavatory, and a bathtub and/or a shower. It does not include single-fixture facilities or those with only a water closet and lavatory. It does include a compartmented bathroom. A compartmented bathroom is one in which the fixtures are distributed among interconnected rooms. A compartmented bathroom is considered a single unit and is subject to the requirements of Chapters 11A and 11B.

BLENDED TRANSITION. [DSA-AC] A raised pedestrian street crossing, depressed corner or similar connection between the pedestrian access route at the level of the sidewalk and the level of the pedestrian street crossing that has a grade of 5 percent or less.

BOARDING PIER. [DSA-AC] A portion of a pier where a boat is temporarily secured for the purpose of embarking or disembarking.

BOAT LAUNCH RAMP. [DSA-AC] A sloped surface designed for launching and retrieving trailered boats and other water craft to and from a body of water.

BOAT SLIP. [DSA-AC] That portion of a pier, main pier, finger pier, or float where a boat is moored for the purpose of berthing, embarking, or disembarking.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

CATCH POOL. [DSA-AC] A pool or designated section of a pool used as a terminus for water slide flumes.

CCR. [DSA-AC] The California Code of Regulations.

CHARACTERS. [DSA-AC] Letters, numbers, punctuation marks and typographic symbols.

CHILDREN'S USE. [DSA-AC] Describes spaces and elements specifically designed for use primarily by people 12 years old and younger.

CIRCULATION PATH. ...

[DSA-AC] An exterior or interior way of passage provided for pedestrian travel, including but not limited to, walks, hallways, courtyards, elevators, platform lifts, ramps, stairways and landings.

CLEAR. [DSA-AC] Unobstructed.

CLEAR FLOOR SPACE. [DSA-AC] The minimum unobstructed floor or ground space required to accommodate a single, stationary wheelchair and occupant.

CLOSED-CIRCUIT TELEPHONE. [DSA-AC] A telephone with a dedicated line such as a house phone, courtesy phone or phone that must be used to gain entry to a facility.

COMMERCIAL FACILITIES. [DSA-AC] Facilities whose operations will affect commerce and are intended for non-residential use by a private entity. Commercial facilities shall not include (1) facilities that are covered or expressly exempted from coverage under the Fair Housing Act of 1968, as amended (42 U.S.C. 3601 - 3631); (2) aircraft; or (3) railroad locomotives, railroad freight cars, railroad cabooses, commuter or intercity passenger rail cars (including coaches, dining cars, sleeping cars, lounge cars, and food service cars), any other railroad cars described in Section 242 of the Americans With Disabilities Act or covered under Title II of the Americans With Disabilities Act, or railroad rights-of-way. For purposes of this definition, "rail" and "railroad" have the meaning given the term "railroad" in Section 202(e) of the Federal Railroad Safety Act of 1970 (45 U.S.C. 431(e)).

COMMON USE. Interior or exterior circulation paths, rooms, spaces or elements that are not for public use and are made available for the shared use of two or more people.

COMPLY WITH. [DSA-AC] Comply with means to meet one or more provisions of this code.

CROSS SLOPE. [DSA-AC] The slope that is perpendicular to the direction of travel.

CURB CUT. [DSA-AC] An interruption of a curb at a pedestrian way, which separates surfaces that are substantially at the same elevation.

CURB RAMP. [DSA-AC] A sloping pedestrian way, intended for pedestrian traffic, which provides access between a walk or sidewalk and a surface located above or below an adjacent curb face.

DESIGNATED PUBLIC TRANSPORTATION. [DSA-AC] Transportation provided by a public entity (other than public school transportation) by bus, rail, or other conveyance (other than transportation by aircraft or intercity or commuter rail transportation) that provides the general public with general or special service, including charter service, on a regular and continuing basis.

DESTINATION-ORIENTED ELEVATOR. [DSA-AC] *Destination-oriented elevators are operated by the user selecting a destination floor at a hall call console located at or near an elevator landing. The destination-oriented elevator system then assigns an elevator car which transports the user to the selected destination floor. Destination-oriented elevators do not provide floor selection within elevator cars.*

DETECTABLE WARNING. ...

[DSA-AC] *A standardized surface feature built in or applied to walking surfaces or other elements to warn of hazards on a circulation path.*

DIRECTIONAL SIGN. [DSA-AC] *A publicly displayed notice which indicates by use of words or symbols a recommended direction or route of travel.*

DISABILITY. [DSA-AC] *Disability is (1) a physical or mental impairment that limits one or more of the major life activities of an individual, (2) a record of such an impairment, or (3) being regarded as having such an impairment.*

DORMITORY. *A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.*

ELEMENT. [DSA-AC] *An architectural or mechanical component of a building, facility, space or site.*

ELEVATED PLAY COMPONENT. [DSA-AC] *A play component that is approached above or below grade and that is part of a composite play structure consisting of two or more play components attached or functionally linked to create an integrated unit providing more than one play activity.*

ELEVATOR, PASSENGER. [DSA-AC] *An elevator used primarily to carry passengers.*

EMPLOYEE WORK AREA. *All or any portion of a space used only by employees and used only for work. Corridors, toilet rooms, kitchenettes and break rooms are not employee work areas.*

ENFORCING AGENCY. [DSA-AC] *Enforcing Agency is the designated department or agency as specified by statute or regulation.*

ENTRANCE. [DSA-AC] *Any access point to a building or portion of a building or facility used for the purpose of entering. An entrance includes the approach walk, the vertical access leading to the entrance platform, the entrance platform itself, vestibule if provided, the entry door or gate, and the hardware of the entry door or gate.*

EQUIVALENT FACILITATION. [DSA-AC] *The use of designs, products, or technologies as alternatives to those prescribed, resulting in substantially equivalent or greater accessibility and usability.*

Note: *In determining equivalent facilitation, consideration shall be given to means that provide for the maximum independence of persons with disabilities while presenting the least risk of harm, injury or other hazard to such persons or others.*

EXISTING BUILDING OR FACILITY. [DSA-AC] *A facility in existence on any given date, without regard to whether the facility may also be considered newly constructed or altered under this code.*

EXIT. *That portion of a means of egress system between the exit access and the exit discharge or public way. Exit components include exterior exit doors at the level of exit discharge, interior exit stairways and ramps, exit passageways, exterior exit stairways and ramps and horizontal exits.*

FACILITY. ...

[DSA-AC] All or any portion of buildings, structures, site improvements, elements, and pedestrian routes or vehicular ways located on a site.

FUNCTIONAL AREA. [DSA-AC] A room, space or area intended or designated for a group of related activities or processes.

GANGWAY. [DSA-AC] A variable-sloped pedestrian walkway that links a fixed structure or land with a floating structure. Gangways that connect to vessels are not addressed by this code.

GOLF CAR PASSAGE. [DSA-AC] A continuous passage on which a motorized golf car can operate.

GRAB BAR. [DSA-AC] A bar for the purpose of being grasped by the hand for support.

GRADE (Adjacent Ground Elevation). [DSA-AC] The lowest point of elevation of the finished surface of the ground, paving or sidewalk within the area between the building and the property line or, when the property line is more than 5 feet (1524 mm) from the building, between the building and a line 5 feet (1524 mm) from the building. See Health and Safety Code Section 19955.3(d).

GRADE BREAK. [DSA-AC] The line where two surface planes with different slopes meet.

GROUND FLOOR. [DSA-AC] The floor of a building with a building entrance on an accessible route. A building may have one or more ground floors.

GROUND LEVEL PLAY COMPONENT. [DSA-AC] A play component that is approached and exited at the ground level.

GUARD [DSA-AC] OR GUARDRAIL. A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

HALL CALL CONSOLE. [DSA-AC] An elevator call user interface exclusive to a destination-oriented elevator system that requires the user to select a destination floor prior to entering the elevator car.

HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

HEALTH CARE PROVIDER. [DSA-AC] See "Professional Office of a Health Care Provider"

HISTORIC BUILDINGS. ...

[DSA-AC] See "Qualified historical building or property," C.C.R., Title 24, Part 8.

HOUSING AT A PLACE OF EDUCATION. [DSA-AC] Housing operated by or on behalf of an elementary, secondary, undergraduate, or postgraduate school, or other place of education, including dormitories, suites, apartments, or other places of residence.

IF, IF . . . THEN. [DSA-AC] The terms "if" and "if . . . then" denotes a specification that applies only when the conditions described are present.

INTERNATIONAL SYMBOL OF ACCESSIBILITY. [DSA-AC] The symbol adopted by Rehabilitation International's 11th World Congress for the purpose of indicating that buildings and facilities are accessible to persons with disabilities.

KEY STATION. [DSA-AC] Certain rapid and light rail stations, and commuter rail stations, as defined

under criteria established by the Department of Transportation in 49 CFR 37.47 and 49 CFR 37.51, respectively.

KICK PLATE. [DSA-AC] *An abrasion-resistant plate affixed to the bottom portion of a door to prevent a trap condition and protect its surface.*

KITCHEN OR KITCHENETTE. [DSA-AC] *A room, space or area with equipment for the preparation and cooking of food.*

LAVATORY. [DSA-AC] *A fixed bowl or basin with running water and drainpipe, as in a toilet or bathing facility, for washing or bathing purposes. (As differentiated from the definition of "Sink".)*

MAIL BOXES. [DSA-AC] *Receptacles for the receipt of documents, packages, or other deliverable matter. Mail boxes include, but are not limited to, post office boxes and receptacles provided by commercial mail-receiving agencies, apartment facilities or schools.*

MARKED CROSSING. [DSA-AC] *A crosswalk or other identified path intended for pedestrian use in crossing a vehicular way.*

MAY. [DSA-AC] *May denotes an option or alternative.*

MEZZANINE. ...

[DSA-AC] *An intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than one-third of the area of the room or space in which the level or levels are located. Mezzanines have sufficient elevation that space for human occupancy can be provided on the floor below.*

MULTI-BEDROOM HOUSING UNIT. [DSA-AC] *A housing unit, intended for use by students at a place of education, with a kitchen and/or toilet and bathing rooms within the unit, such as an apartment, or dormitory. Multi-bedroom housing units are separate from one another and from common use spaces within a building.*

NFPA. [DSA-AC] *The National Fire Protection Association.*

NOSING. *The leading edge of treads of stairs and of landings at the top of stairway flights.*

OCCUPANT LOAD. *The number of persons for which the means of egress of a building or portion thereof is designed.*

OCCUPIABLE SPACE. *A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged at labor, and which is equipped with means of egress and light and ventilation facilities meeting the requirements of this code.*

OPEN RISER. [DSA-AC] *The space between two adjacent stair treads not closed by a riser.*

OPERABLE PART. [DSA-AC] *A component of an element used to insert or withdraw objects, or to activate, deactivate, or adjust the element.*

PASSENGER ELEVATOR. [DSA-AC] *See "Elevator, passenger"*

PATH OF TRAVEL. [DSA-AC] *An identifiable accessible route within an existing site, building or facility by means of which a particular area may be approached, entered and exited, and which connects a particular area with an exterior approach (including sidewalks, streets, and parking areas), an entrance to*

the facility, and other parts of the facility. When alterations, structural repairs or additions are made to existing buildings or facilities, the term "path of travel" also includes the toilet and bathing facilities, telephones, drinking fountains and signs serving the area of work.

PEDESTRIAN. [DSA-AC] *An individual who moves in walking areas with or without the use of walking assistive devices such as crutches, leg braces, wheelchairs, white cane, service animal, etc.*

PEDESTRIAN WAY. [DSA-AC] *A route by which a pedestrian may pass.*

PERMANENT. [DSA-AC] *Facilities which, are intended to be used for periods longer than those designated in this code under the definition of "Temporary."*

PERMIT. *An official document or certificate issued by the building official that authorizes performance of a specified activity.*

PICTOGRAM. [DSA-AC] *A pictorial symbol that represents activities, facilities, or concepts.*

PLACE OF PUBLIC ACCOMMODATION. [DSA-AC] *A facility operated by a private entity whose operations affect commerce and fall within at least one of the following categories:*

1. *Place of lodging, except for an establishment located within a facility that contains not more than five rooms for rent or hire and that actually is occupied by the proprietor of the establishment as the residence of the proprietor. For purposes of this code, a facility is a "place of lodging" if it is*
 - (i) *An inn, hotel, or motel; or*
 - (ii) *A facility that*
 - (A) *Provides guest rooms for sleeping for stays that primarily are short-term in nature (generally 30 days or less) where the occupant does not have the right to return to a specific room or unit after the conclusion of his or her stay; and*
 - (B) *Provides guest rooms under conditions and with amenities similar to a hotel, motel, or inn, including the following:*
 - (1) *On- or off-site management and reservations service;*
 - (2) *Rooms available on a walk-up or call-in basis;*
 - (3) *Availability of housekeeping or linen service; and*
 - (4) *Acceptance of reservations for a guest room type without guaranteeing a particular unit or room until check-in, and without a prior lease or security deposit.*
2. *A restaurant, bar, or other establishment serving food or drink;*
3. *A motion picture house, theater, concert hall, stadium, or other place of exhibition or entertainment;*
4. *An auditorium, convention center, lecture hall, or other place of public gathering;*
5. *A bakery, grocery store, clothing store, hardware store, shopping center, or other sales or rental establishment;*

6. *A Laundromat, dry-cleaner, bank, barber shop, beauty shop, travel service, shoe repair service, funeral parlor, gas station, office of an accountant or lawyer, pharmacy, insurance office, professional office of a health care provider, hospital, or other service establishment;*
7. *A terminal, depot, or other station used for specified public transportation;*
8. *A museum, library, gallery, or other place of public display or collection;*
9. *A park, zoo, amusement park, or other place of recreation;*
10. *A nursery, elementary, secondary, undergraduate, or postgraduate private school, or other place of education;*
11. *A day care center, senior citizen center, homeless shelter, food bank, adoption agency, or other social service center establishment;*
12. *A gymnasium, health spa, bowling alley, golf course, or other place of exercise or recreation;*
13. *A religious facility;*
14. *An office building; and*
15. *A public curb or sidewalk.*

PLATFORM. A raised area within a building used for worship, the presentation of music, plays or other entertainment; the head table for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round stages; and similar purposes wherein, other than horizontal sliding curtains, there are no overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. A temporary platform is one installed for not more than 30 days.

PLATFORM (WHEELCHAIR) LIFT. [DSA-AC] A hoisting and lowering mechanism equipped with a car or platform or support that serves two landings of a building or structure and is designed to carry a passenger or passengers and/or luggage or other material a vertical distance as may be allowed.

PLAY AREA. [DSA-AC] A portion of a site containing play components designed and constructed for children.

PLAY COMPONENT. [DSA-AC] An element intended to generate specific opportunities for play, socialization, or learning. Play components are manufactured or natural; and are stand-alone or part of a composite play structure.

POINT-OF-SALE DEVICE. [DSA-AC] A device used for the purchase of a good or service where a personal identification number (PIN), zip code or signature is required.

POWDER ROOM. [DSA-AC] A room containing a water closet (toilet) and a lavatory, and which is not defined as a bathroom.

POWER-ASSISTED DOOR. [DSA-AC] A door used for human passage with a mechanism that helps to open the door, or relieves the opening resistance of a door, upon the activation of a switch or a continued force applied to the door itself.

PRIVATE BUILDING OR FACILITY. [DSA-AC] A place of public accommodation or a commercial

building or facility subject to Chapter 1, Section 1.9.1.2.

PUBLIC BUILDING OR FACILITY. [DSA-AC] *A building or facility or portion of a building or facility designed, constructed, or altered by, on behalf of, or for the use of a public entity subject to Chapter 1, Section 1.9.1.1.*

PUBLIC ENTITY. [DSA-AC] *Any state or local government; any department, agency, special-purpose district, or other instrumentality of a state or local government.*

PUBLIC ENTRANCE. An entrance that is not a service entrance or a restricted entrance.

PUBLIC HOUSING. [DSA-AC] *Housing facilities owned, operated, or constructed by, for or on behalf of a public entity including but not limited to the following:*

1. *Publically owned and/or operated one- or two- family dwelling units or congregate residences;*
2. *Publically owned and/or operated buildings or complexes with three or more residential dwellings units;*
3. **Reserved.**
4. *Publically owned and/or operated homeless shelters, group homes and similar social service establishments;*
5. *Publically owned and/or operated transient lodging, such as hotels, motels, hostels and other facilities providing accommodations of a short term nature of not more than 30 days duration;*
6. *Housing at a place of education owned or operated by a public entity, such as housing on or serving a public school, public college or public university campus;*
7. *Privately owned housing made available for public use as housing.*

PUBLIC USE. [DSA-AC] *Interior or exterior rooms, spaces or elements that are made available to the public. Public use may be provided at a building or facility that is privately or publicly owned. Private interior or exterior rooms, spaces or elements associated with a residential dwelling unit provided by a public housing program or in a public housing facility are not public use areas and shall not be required to be made available to the public. In the context of public housing, public use is the provision of housing programs by, for or on behalf of a public entity.*

PUBLIC WAY. A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than 10 feet (3048 mm).

QUALIFIED HISTORIC BUILDING OR FACILITY. [DSA-AC] *A building or facility that is listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate State or local law. See C.C.R. Title 24, Part 8.*

RAMP. A walking surface that has a running slope steeper than one unit vertical in 20 units horizontal (5-percent slope).

REASONABLE PORTION. [DSA-AC] *That segment of a building, facility, area, space or condition, which would normally be necessary if the activity therein is to be accessible by persons with disabilities.*

RECOMMEND. *[DSA-AC] Does not require mandatory acceptance, but identifies a suggested action that shall be considered for the purpose of providing a greater degree of accessibility to persons with disabilities.*

REMODELING. *[DSA-AC] See "Alteration."*

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

RESIDENTIAL DWELLING UNIT. *[DSA-AC] A unit intended to be used as a residence that is primarily long-term in nature. Residential dwelling units do not include transient lodging, inpatient medical care, licensed long-term care, and detention or correctional facilities.*

RESTRICTED ENTRANCE. An entrance that is made available for common use on a controlled basis, but not public use, and that is not a service entrance.

RISER. *[DSA-AC] The upright part between two adjacent stairs treads.*

RUNNING SLOPE. *[DSA-AC] The slope that is parallel to the direction of travel. (As differentiated from the definition of "Cross Slope".)*

SELF-SERVICE STORAGE. *[DSA-AC] Building or facility designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.*

SERVICE ENTRANCE. An entrance intended primarily for delivery of goods or services.

SHALL. *[DSA-AC] Denotes a mandatory specification or requirement.*

SHOPPING CENTER (or SHOPPING MALL). *[DSA-AC] One or more sales or rental establishments or stores. A shopping center may include a series of buildings on a common site, connected by a common pedestrian access route on, above or below the ground floor, that is either under common ownership or common control or developed either as one project or as a series of related projects. For the purposes of this section, "shopping center" or "shopping mall" includes a covered mall building.*

SHOULD. *[DSA-AC] Denotes an advisory specification or recommendation.*

SIDEWALK. *[DSA-AC] A surfaced pedestrian way contiguous to a street used by the public. (As differentiated from the definition of "Walk".)*

SINK. *[DSA-AC] A fixed bowl or basin with running water and drainpipe, as in a kitchen or laundry, for washing dishes, clothing, etc. (As differentiated from the definition of "Lavatory".)*

SITE. A parcel of land bounded by a lot line or a designated portion of a public right-of-way.

SLEEPING ACCOMMODATIONS. *[DSA-AC] Rooms intended and designed for sleeping.*

SOFT CONTAINED PLAY STRUCTURE. *[DSA-AC] A play structure made up of one or more play components where the user enters a fully enclosed play environment that utilizes pliable materials, such as plastic, netting, or fabric.*

SPACE. *[DSA-AC] A definable area, such as, a room, toilet room, hall, assembly area, entrance, storage room, alcove, courtyard, or lobby.*

SPECIFIED PUBLIC TRANSPORTATION. [DSA-AC] *Transportation by bus, rail, or any other conveyance (other than aircraft) provided by a private entity to the general public, with general or special service (including charter service) on a regular and continuing basis.*

STAGE. A space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting and sound.

STAIR. A change in elevation, consisting of one or more risers.

STAIRWAY. One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

STORY. ...

[DSA-AC] *That portion of a building or facility designed for human occupancy included between the upper surface of a floor and upper surface of the floor or roof next above. A story containing one or more mezzanines has more than one floor level. If the finished floor level directly above a basement or unused under-floor space is more than six feet (1829 mm) above grade for more than 50 percent of the total perimeter or is more than 12 feet (3658 mm) above grade at any point, the basement or unused under-floor space shall be considered as a story.*

STRUCTURAL FRAME. [DSA-AC] *The columns and the girders, beams and trusses having direct connections to the columns and all other members that are essential to the stability of the building or facility as a whole.*

STRUCTURE. That which is built or constructed.

TACTILE. [DSA-AC] *An object that can be perceived using the sense of touch.*

TACTILE SIGN. [DSA-AC] *A sign containing raised characters and/or symbols and accompanying Braille.*

TEEING GROUND. [DSA-AC] *In golf, the starting place for the hole to be played.*

TEMPORARY. [DSA-AC] *Buildings and facilities intended for use at one location for not more than one year and seats intended for use at one location for not more than 90 days.*

TEXT TELEPHONE. [DSA-AC] *Machinery or equipment that employs interactive text-based communications through the transmission of coded signals across the standard telephone network. Text telephones can include, for example, devices known as TTYs (teletypewriters) or computers.*

TRANSFER DEVICE. [DSA-AC] *Equipment designed to facilitate the transfer of a person from a wheelchair or other mobility aid to and from an amusement ride seat.*

TRANSIENT LODGING. [DSA-AC] *A building or facility containing one or more guest room(s) for sleeping that provides accommodations that are primarily short-term in nature (generally 30 days or less). Transient lodging does not include residential dwelling units intended to be used as a residence, inpatient medical care facilities, licensed long-term care facilities, detention or correctional facilities, or private buildings or facilities that contain no more than five rooms for rent or hire and that are actually occupied by the proprietor as the residence of such proprietor. See also the definition of Place of Public Accommodation.*

TRANSIT BOARDING PLATFORM. [DSA-AC] *A horizontal, generally level surface, whether raised above, recessed below or level with a transit rail, from which persons embark/disembark a fixed rail*

vehicle.

TRANSITION PLATE. [DSA-AC] A sloping pedestrian walking surface located at the end(s) of a gangway.

TREAD. [DSA-AC] The horizontal part of a step.

TTY. [DSA-AC] An abbreviation for teletypewriter. Machinery that employs interactive text-based communication through the transmission of coded signals across the telephone network. TTYS may include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. TTYS are also called text telephones.

UNREASONABLE HARDSHIP. [DSA-AC] When the enforcing agency finds that compliance with the building standard would make the specific work of the project affected by the building standard infeasible, based on an overall evaluation of the following factors:

1. The cost of providing access.
2. The cost of all construction contemplated.
3. The impact of proposed improvements on financial feasibility of the project.
4. The nature of the accessibility which would be gained or lost.
5. The nature of the use of the facility under construction and its availability to persons with disabilities.

The details of any finding of unreasonable hardship shall be recorded and entered in the files of the enforcing agency.

USE ZONE. [DSA-AC] The ground level area beneath and immediately adjacent to a play structure or play equipment that is designated by ASTM F 1487 for unrestricted circulation around the play equipment and where it is predicted that a user would land when falling from or exiting the play equipment.

VALUATION THRESHOLD. [DSA-AC] An annually adjusted, dollar-amount figure used in part to determine the extent of required path of travel upgrades. The baseline valuation threshold of \$50,000 is based on the January 1981, "ENR US20 Cities" Average Construction Cost Index (CCI) of 3372.02 as published in Engineering News Record, McGraw Hill Publishing Company. The current valuation threshold is determined by multiplying the baseline valuation threshold by a ratio of the current year's January CCI to the baseline January 1981 CCI.

VARIABLE MESSAGE SIGNS (VMS). [DSA-AC] Electronic signs that have a message with the capacity to change by means of scrolling, streaming, or paging across a background.

VARIABLE MESSAGE SIGN (VMS) CHARACTERS. [DSA-AC] Characters of an electronic sign are composed of pixels in an array. High resolution VMS characters have vertical pixel counts of 16 rows or greater. Low resolution VMS characters have vertical pixel counts of 7 to 15 rows.

VEHICULAR WAY. [DSA-AC] A route provided for vehicular traffic, such as in a street, driveway, or parking facility.

WALK. [DSA-AC] An exterior prepared surface for pedestrian use, including pedestrian areas such as plazas and courts. (As differentiated from the definition of "Sidewalk".)

WET BAR. [DSA-AC] *An area or space with a counter equipped with a sink and running water but without cooking facilities.*

WHEELCHAIR. [DSA-AC] *A chair mounted on wheels to be propelled by its occupant manually or with the aid of electric power, of a size and configuration conforming to the recognized standard models of the trade.*

WHEELCHAIR SPACE. A space for a single wheelchair and its occupant.

WORKSTATION. ...

[DSA-AC] *An area defined by equipment and/or work surfaces intended for use by employees only, and generally for one or a small number of employees at a time. Examples include ticket booths; the employee side of grocery store check stands; the bartender area behind a bar; the employee side of snack bars, sales counters and public counters; guardhouses; toll booths; kiosk vending stands; lifeguard stations; maintenance equipment closets; counter and equipment areas in restaurant kitchens; file rooms; storage areas; etc.*

WORK AREA EQUIPMENT. [DSA-AC] *Any machine, instrument, engine, motor, pump, conveyor, or other apparatus used to perform work. As used in this document, this term shall apply only to equipment that is permanently installed or built-in in employee work areas. Work area equipment does not include passenger elevators and other accessible means of vertical transportation.*

ITEM 2.02

**SECTION 202
DEFINITIONS**

ACCESSIBLE. ~~A site, building, facility or portion thereof that complies with Chapter 11.~~

[DSA-AC] *A site, building, facility, or portion thereof that is approachable and usable by persons with disabilities in compliance with this code.*

ITEM 2.03

**SECTION 202
DEFINITIONS**

ACCESSIBLE ROUTE. ~~A continuous, unobstructed path that complies with Chapter 11.~~

[DSA-AC] *A continuous unobstructed path connecting accessible elements and spaces of an accessible site, building or facility that can be negotiated by a person with a disability using a wheelchair, and that is also safe for and usable by persons with other disabilities. Interior accessible routes may include corridors, hallways, floors, ramps, elevators and lifts. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts.*

ITEM 2.04

**SECTION 202
DEFINITIONS**

ADJUSTED CONSTRUCTION COST. [DSA-AC] All costs directly related to the construction of a project, including labor, material, equipment, services, utilities, contractor financing, contractor overhead and profit, and construction management costs. The costs shall not be reduced by the value of components, assemblies, building equipment or construction not directly associated with accessibility or usability. The

adjusted construction cost shall not include; project management fees and expenses, architectural and engineering fees, testing and inspection fees, and utility connection or service district fees.

ITEM 2.04.01 – RELATED CODE AMENDMENT

**CHAPTER 11B
DIVISION 1: APPLICATION AND ADMINISTRATION**

11B-106.5 Defined terms. ...

ADJUSTED CONSTRUCTION COST

ITEM 2.04.02 – RELATED CODE AMENDMENT

See related code amendment ITEM 11B.01 to

CHAPTER 11B – DIVISION 2: SCOPING REQUIREMENTS

11B-202 Existing buildings and facilities

**11B-202.4 Path of travel requirements in alterations, additions and structural repairs.
Exception 8**

ITEM 2.05

**SECTION 202
DEFINITIONS**

AREA OF SPORT ACTIVITY. That portion of an indoor or outdoor space where the play or practice of a sport occurs.

~~**[DSA-AC]** That portion of a room or space where the play or practice of a sport occurs.~~

ITEM 2.06

WITHDRAWN

ITEM 2.07

**SECTION 202
DEFINITIONS**

PROFESSIONAL OFFICE OF A HEALTH CARE PROVIDER. [DSA-AC] See Chapter 11B. A location where a person or entity, regulated by the State to provide professional services related to the physical or mental health of an individual, makes such services available to the public. The facility housing the professional office of a health care provider only includes floor levels housing at least one health care provider, or any floor level designed or intended for use by at least one health care provider.

ITEM 2.08

**SECTION 202
DEFINITIONS**

PUBLIC USE AREAS. ...

[DSA-AC] Interior or exterior rooms or spaces of a building or facility that are made available to the general public and do not include common use areas. Public use areas may be provided at a building or facility that is privately or publicly owned.

ITEM 2.09

**SECTION 202
DEFINITIONS**

~~SIGNAGE.~~ [DSA-AC] ~~Displayed verbal, symbolic, tactile, and/or pictorial information.~~

SIGN. [DSA-AC] An element composed of displayed textual, symbolic, tactile, and/or pictorial information.

ITEM 2.09.01 – RELATED CODE AMENDMENT

**CHAPTER 11B
DIVISION 1: APPLICATION AND ADMINISTRATION**

11B-106.5 Defined terms. ...

SIGN

SIGNAGE

ITEM 2.09.02 – RELATED CODE AMENDMENT

**CHAPTER 11B
DIVISION 2: SCOPING REQUIREMENTS**

11B-206.4 Entrances. ...

11B-206.4.1 Entrances and exterior ground floor exits. ...

Exceptions:

1. ...
2. Exits in excess of those required by Chapter 10, and which are more than 24 inches (610 mm) above grade shall not be required to comply with Section 11B-404. Directional signage signs shall comply with Chapter 10, Section 1007.10.

11B-216.6 Entrances. ...

Exceptions:

1. An International Symbol of Accessibility is not required at entrances to individual rooms, suites, offices, sales or rental establishments, or other such spaces when all entrances to the building or facility are accessible and persons entering the building or facility have passed through one or more entrances with signage signs complying with this section.
2. ...

11B-216.9 TTYs. ...

11B-216.9.1 Identification signs. ...

11B-216.9.2 Directional signs. Directional signs indicating the location of the nearest public TTY shall be provided at all banks of public pay telephones not containing a public TTY. In addition, where signs provide direction to public pay telephones, they shall also provide direction to public TTYs. *If a facility has no banks of telephones, the directional signage signs shall be provided at the entrance or in a building directory.* Directional signs shall comply with Section 11B-703.5 and shall include the International Symbol of TTY complying with Section 11B-703.7.2.2.

ITEM 2.09.03 – RELATED CODE AMENDMENT
CHAPTER 11B
DIVISION 4: ACCESSIBLE ROUTES

11B-404.2.9 Door and gate opening force. ...

Exceptions:

1. ...
2. ...

- d. *Signage Signs identifying the accessible entrance required by Section 11B-216.6 shall be placed on, or immediately adjacent to, each powered door. Signage Signs shall be provided in compliance with BHMA A156.10 or BHMA 156.19, as applicable.*

11B-411.2 Elevator landing requirements. ...

11B-411.2.1.6 Identification of floors served. In buildings with two or more elevator banks, each serving a different group of specific floors, hall call consoles located on floors with a building entry, including parking and transfer levels, shall be provided with signage signs complying with Sections 11B-703.2, 11B-703.3, and 11B-703.5 on the surface of or above the hall call console stating "FLOORS n1 – n2", where n1 - n2 represents the range of floors served. Characters shall be white on a black background. When the accessibility function button is pressed, the audio output shall provide a verbal announcement of the floors served by the elevator group.

ITEM 2.09.04 – RELATED CODE AMENDMENT
CHAPTER 11B
DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-502.8 Additional signage signs. An additional sign shall be posted either; 1) in a conspicuous place at each entrance to an off-street parking facility or 2) immediately adjacent to on-site accessible parking and visible from each parking space.

ITEM 2.09.05 – RELATED CODE AMENDMENT
CHAPTER 11B
DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

Table 11B-703.8.5 Pixel Count for Low Resolution VMS Signage

Character Height	Character Width Range	Stroke Width Range	Character Spacing Range
7	5-6	1	2
8	6-7	1-2	2-3

9	6-8	1-2	2-3
10	7-9	2	2-4
11	8-10	2	2-4
12	8-11	2	3-4
13	9-12	2-3	3-5
14	10-13	2-3	3-5
15	11-14	2-3	3-5

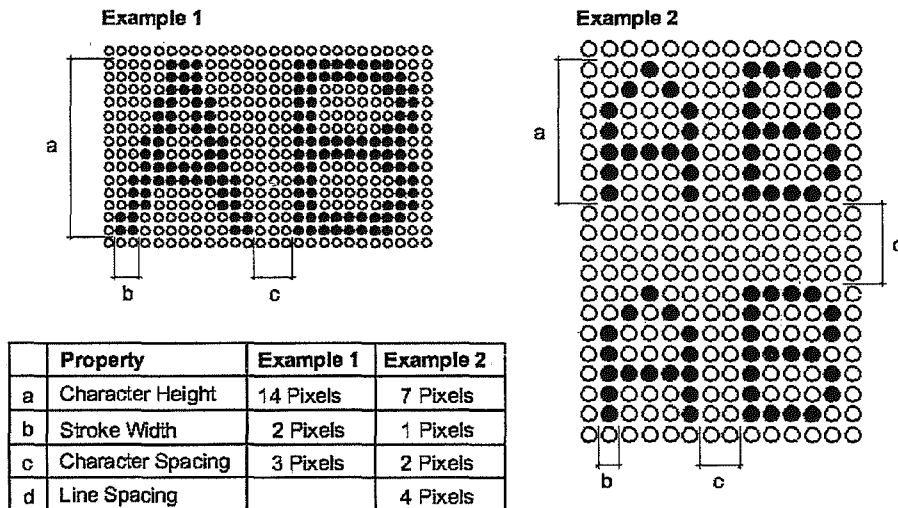


Figure 11B-703.8.5
Low Resolution VMS Signage Characters

ITEM 2.09.06 – RELATED CODE AMENDMENT
CHAPTER 11B
DIVISION 8: SPECIAL ROOMS, SPACES, AND ELEMENTS

11B-802.4 Designated aisle seats. ...

11B-802.4.2 Identification. Each designated aisle seat shall be identified by a sign or marker with the International Symbol of Accessibility complying with Section 11B-703.7.2.1. Signage Signs complying with Section 11B-703.5, notifying patrons of the availability of such seats shall be posted at the ticket office.

ITEM 2.10

SECTION 202
DEFINITIONS

TECHNICALLY INFEASIBLE, [DSA-AC] An alteration of a building or a facility, that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features that are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 4, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 4.00

CHAPTER 4 – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
406.4.1		X
412.3.5 412.3.8		X
419.7		

ITEM 4.01

SECTION 406 – MOTOR-VEHICLE-RELATED OCCUPANCIES

406.4 Public parking garages. ...

406.4.1 Clear height. The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). ~~Vehicle and pedestrian areas accommodating van-accessible parking shall comply with Section 1106.5.~~ **[DSA-AC]** *The clear height of vehicle and pedestrian areas required to be accessible shall comply with Chapter 11A or 11B, as applicable.*

ITEM 4.02

SECTION 412 – AIRCRAFT-RELATED OCCUPANCIES

412.3 Airport traffic control towers. ...

~~**412.3.5 412.3.8 Accessibility.** Airport traffic control towers need not be accessible as specified in the provisions of Chapter 11.~~ **[DSA-AC]** *In air traffic control towers, an accessible route shall not be required to serve the cab and the equipment areas on the floor immediately below the cab.*

ITEM 4.03

SECTION 419 – LIVE/WORK UNITS

419.7 Accessibility. Accessibility shall be designed in accordance with Chapter 11 for the function served Chapters 11A and/or 11B, when applicable.

CHAPTER 9 FIRE PROTECTION SYSTEMS

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 9, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 9.00

CHAPTER 9 – MATRIX ADOPTION TABLE

Adopting Agency	DSA-AC
Adopt entire Chapter	
Adopt entire Chapter as amended (amended Sections listed below)	
Adopt only those Sections that are listed below	X
Chapter / Section	
907.4.2.2	X
907.5.2.3	X
907.5.2.3.1	X
907.5.2.3.2	X
907.5.2.3.3 907.5.2.3.2	X
Table 907.5.2.3.3 907.5.2.3.2	X
907.5.2.3.4 907.5.2.3.3	X
907.5.2.3.5 907.5.2.3.4	X

ITEM 9.01

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

907.4.2 Manual fire alarm boxes.

907.4.2.2 Height. The height of the manual fire alarm boxes shall be not less than 42 inches (1067 mm) and not more than 48 inches (~~4372~~ 1219 mm) measured vertically, from the floor level to the highest point of the activating handle or lever of the box. Manual fire alarm boxes shall also comply with Section 11B-309.4.

Exception: [DSA-AC] In existing buildings there is no requirement to retroactively relocate existing manual fire alarm boxes to a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1219 mm) from the floor level to the activating handle or lever of the box.

ITEM 9.02

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

907.5.2 Alarm notification appliances.

907.5.2.3 Visible alarms. ...

907.5.2.3.1 Public use areas and common use areas. Visible alarm notification appliances shall be provided in public use areas and common use areas, *including but not limited to:*

1. Sanitary facilities including restrooms, bathrooms and shower rooms
2. Corridors
3. Music practice rooms
4. Band rooms
5. Gymnasiums
6. Multipurpose rooms
7. Occupational shops
8. Occupied rooms where ambient noise impairs hearing of the fire alarm
9. Lobbies
10. Meeting rooms
11. Classrooms

Exception: Where employee work areas have audible alarm coverage, the notification appliance circuits serving the employee work areas shall be initially designed with not less than 20-percent spare capacity to account for the potential of adding visible notification appliances in the future to accommodate hearing-impaired employee(s).

907.5.2.3.3 907.5.2.3.2 Groups I-4 and R-1 and R-2.1. ...

**TABLE 907.5.2.3.3 907.5.2.3.2
VISIBLE ALARMS**

NUMBER OF SLEEP UNITS	SLEEPING ACCOMMODATIONS WITH VISIBLE ALARMS
6 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1,000	5% of total
1,001 and over	50 plus 3 for each 100 over 1,000

[DSA-AC] Also see Chapter 11B, Section 11B-224.4 and Table 11B-224.4.

907.5.2.3.4 907.5.2.3.3 Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with Chapter 10 of ICC A117.1 NFPA 72. Such capability shall be permitted to include the potential for future interconnection of the building fire alarm system with the unit smoke alarms, replacement of audible appliances with combination audible/visible appliances, or future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.

907.5.2.3.5 907.5.2.3.4 Groups R-2.1, R-3.1 and R-4. ...

CHAPTER 10 MEANS OF EGRESS

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 10, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 10.00

CHAPTER 10 – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
1003.1 (Not SFM exception)		X
1007.1 <u>1009.1</u>		X
1007.2 <u>1009.2</u>		X
1007.2.1 <u>1009.2.1</u>		X
1007.3 <u>1009.3</u>		X
1007.4 <u>1009.4</u>		X
1007.5 <u>1009.5</u>		X
1007.5.1 <u>1009.5.1</u>		X
1007.6 <u>1009.6</u>		X
1007.6 <u>1009.6.1</u>		X
1007.6 <u>1009.6.2</u>		X
1007.6.1 <u>1009.6.3</u>		X
1007.6.2 <u>1009.6.4</u>		X
1007.6.3 <u>1009.6.5</u>		X
1007.7 <u>1009.7</u>		X
1007.7.1 <u>1009.7</u>		X
1007.7.2		X
1007.7.3 <u>1009.7.1</u>		X
1007.7.4 <u>1009.7.2</u>		X
1007.7.5 <u>1009.7.3</u>		X
1007.7.6 <u>1009.7.4</u>		X
1007.8 <u>1009.8</u>		X
1007.8.1 <u>1009.8.1</u>		X
1007.8.1.1 <u>1009.8.1.1</u>		X
1007.8.2 <u>1009.8.2</u>		X
1007.9 <u>1009.9</u>		X
1007.10 <u>1009.10</u>		X

4007.11	1009.11	X
4007.12	1009.12	X
4008	1010 (1 st paragraph below title only)	X
4008.1.9.7	1010.1.9.7 (Item 5.1 only) (Items 4, 6.3 & 6.3.1 only)	X
4009	1011 (1 st paragraph below title only)	X
4009.7.2	1011.5.2 (Exception 6 only) (Exception 4 only)	X
4009.15	1011.11 (2 nd paragraph only)	X
4010	1012 (1 st paragraph below title only)	X
4011.4	1013.4	X
4012	1014 (1 st paragraph below title only)	X
4013.2	1015.2	X
4013.3	1015.3	X
4017	1018 (1 st paragraph below title only)	X
4017.3	1018.3 (Exception only)	X
1018.3	(Exception only)	X
1018.5	(Exception only)	X
4022.9	1023.9 (2 nd paragraph only)	X

ITEM 10.01

SECTION 1003 GENERAL MEANS OF EGRESS

1003.1 Applicability. The general requirements specified in Sections 1003 through 1015 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

[DSA-AC] In addition to the requirement of this chapter, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.8.2.1.2 regulated by the Department of Housing and Community Development, or Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, as applicable.

1003.5 Elevation change. ...

Exceptions:

1. A single step with a maximum riser height of 7 inches (178 mm) is permitted for buildings with occupancies in Groups F, H, R-2, R-3, S and U at exterior doors not required to be *accessible* by Chapter 11A or 11B.
2. A stair with a single riser or with two risers and a tread is permitted at locations not required to be *accessible* by Chapter 11A or 11B, provided that the risers and treads comply with

Section 1011.5, the minimum depth of the tread is 13 inches (330 mm) and not less than one *handrail* complying with Section 1014 is provided within 30 inches (762 mm) of the centerline of the normal path of egress travel on the *stair*.

3. A step is permitted in *aisles* serving seating that has a difference in elevation less than 12 inches (305 mm) at locations not required to be *accessible* by Chapter ~~11~~ 11A or 11B, provided that the risers and treads comply with Section 1029.13 and the *aisle* is provided with a *handrail* complying with Section 1029.15.

ITEM 10.02

SECTION ~~1007~~ 1009
ACCESSIBLE MEANS OF EGRESS

~~1007.1~~ 1009.1 Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1006.2 or 1006.3 from any accessible space, each accessible portion of the space shall be served by ~~not less than two~~ accessible means of egress *in at least the same number as required by Section ~~1015.1 or 1021.1~~ 1006.2 or 1006.3. In addition to the requirements of this chapter, means of egress, which provide access to, or egress from, buildings for persons with disabilities, shall also comply with the requirements of Chapter 11A or 11B as applicable.*

Exceptions:

1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1009.3, 1009.4 or 1009.5 *and Chapter 11A or 11B, as applicable.*
3. In assembly areas with sloped or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1029.8, *and Chapter 11A or 11B, as applicable.*

~~1007.2~~ 1009.2 Continuity and components. Each required accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components:

1. Accessible routes complying with ~~Section 1104~~ Chapter 11A, Section 1110A.1 and 1120A, or Chapter 11B, Sections 11B-206 and 11B-402, as applicable.
2. Interior exit stairways complying with Sections 1009.3 and 1023, Chapter 11A, Section 1123A, or Chapter 11B, Sections 11B-210 and 11B-504, as applicable.
3. Exit access stairways complying with Sections 1009.3 and 1019.3 or 1019.4, Chapter 11A, Section 1123A, or Chapter 11B, Sections 11B-210 and 11B-504, as applicable.
4. Exterior exit stairways complying with Sections 1009.3, ~~and 1027,~~ and Chapter 11A, Section 1115A, or Chapter 11B, Sections 11B-210 and 11B-504, as applicable. ~~and serving levels other than the level of exit discharge.~~
5. Elevators complying with Section 1009.4, *and Chapter 11A, Section 1124A, or Chapter 11B, Sections 11B-206.6 and 11B-407, as applicable.*
6. Platform lifts complying with Section 1009.5 *and Chapter 11A, Section 1124A, or Chapter 11B, Sections 11B-206.7, 11B-207.2 and 11B-410 as applicable.*

7. Horizontal exits complying with Section 1026.
8. Ramps complying with Section 1012, *and Chapter 11A, Sections 1114A and 1122A, or Chapter 11B, Section 11B-405, as applicable.*
9. Areas of refuge complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving exits at the level of exit discharge.

~~1007.2.1~~ 1009.2.1 Elevators required. ...

~~1007.3~~ 1009.3 Stairways. In order to be considered part of an accessible means of egress, a stairway between stories shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from an area of refuge complying with Section 1009.6. Exit access stairways that connect levels in the same story are not permitted as part an accessible means of egress. **[DSA-AC]** *In addition, exit stairways shall comply with Chapter 11A, Section 1115A and 1123A, or Chapter 11B, Sections 11B-210 and 11B-504, as applicable.*

Exceptions:

1. Exit access stairways providing means of egress from mezzanines are permitted as part of an accessible means of egress.
2. The clear width of 48 inches (1219 mm) between handrails is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. The clear width of 48 inches (1219 mm) between handrails is not required for stairways accessed from a refuge area in conjunction with a horizontal exit.
4. Areas of refuge are not required at exit access stairways where two-way communication is provided at the elevator landing in accordance with Section 1009.8.
5. Areas of refuge are not required at stairways in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Areas of refuge are not required at stairways serving open parking garages.
7. Areas of refuge are not required for smoke-protected assembly seating areas complying with Section 1029.6.2.
8. Areas of refuge are not required at stairways in Group R-2 occupancies.
9. Areas of refuge are not required for stairways accessed from a refuge area in conjunction with a horizontal exit.

~~1009.4~~ 1009.4 Elevators. ...

~~1007.5~~ 1009.5 Platform lifts. Platform lifts shall be permitted to serve as part of an accessible means of egress where allowed as part of a required accessible route in ~~Section 1109.8 except for Item 10~~ *Chapter 11A, Section 1121A, or Chapter 11B, Sections 11B-206.7.1 through 11B-206.7.10, as applicable.* Standby power for the platform lift shall be provided in accordance with Chapter 27. **[DSA-AC]** *See Chapter 11B, Section 11B-207.2 for additional accessible means of egress requirements at platform lifts.*

~~1007.6~~ 1009.6 Areas of refuge. Every required area of refuge shall be accessible from the space it serves by an accessible means of egress. **[DSA-AC]** *Areas of refuge shall comply with the requirements of this code and shall adjoin an accessible route complying with Sections 11B-206 and 11B-402.*

~~1007.6~~ 1009.6.1 Travel distance. ...

1007.6 1009.6.2 Stairway or elevator access. ...

1007.6.1 1009.6.3 Size. Each area of refuge shall be sized to accommodate ~~one~~ *two* wheelchair space spaces that are not less than ~~of~~ 30 inches by 48 inches (762 mm by 1219 mm). *The total number of such 30-inch by 48-inch (762 mm) by 1219 mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of refuge. for each 200 occupants or portion thereof, based on the occupant load of the area of refuge and areas served by the area of refuge.* Such wheelchair spaces shall not reduce the means of egress minimum width or required capacity. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space.

***Exception:** The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48 inches (762 mm by 1219 mm) on floors where the occupant load is less than 200.*

1007.6.2 1009.6.4 Separation. ...

1007.6.3 1009.6.5 Two-way communication. ...

1007.7 1009.7 Exterior areas for assisted rescue. ...

1007.8 1009.8 Two-way communication. ...

1007.8.1 1009.8.1 System requirements. ...

1007.8.1.1 1009.8.1.1 Visible communication method. [DSA-AC] *A button complying with Sections 11B-205 and 11B-309 in the area of refuge shall activate both a light in the area of refuge indicating that rescue has been requested and a light at the central control point indicating that rescue is being requested. A button at the central control point shall activate both a light at the central control point and a light in the area of refuge indicating that the request has been received.*

1007.8.2 1009.8.2 Directions. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system. Signage shall comply with ~~the ICC A117.4 Section 11B-703.5~~ requirements for visual characters.

1007.9 1009.9 Signage. Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an area of refuge from an adjacent floor area shall be identified by a sign stating: AREA OF REFUGE.
2. Each door providing access to an exterior area for assisted rescue shall be identified by a sign stating: EXTERIOR AREA FOR ASSISTED RESCUE.

Signage shall comply with ~~the ICC A117.4 Section 11B-703.5~~ requirements for visual characters and include the International Symbol of Accessibility *complying with Section 11B-703.7.2.1*. Where exit sign illumination is required by Section 1013.3, the signs shall be illuminated. Additionally, visual characters, raised character and braille signage complying with ~~ICC A117.4 Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5 and the International Symbol of Accessibility complying with Section 11B-703.7.2.1~~ shall be located at each door to an area of refuge and exterior area for assisted rescue in accordance with Section 1011.4.

1007.40 1009.10 Directional signage. Directional signage *complying with Section 11B-703.5* indicating the location of all other means of egress and which of those are accessible means of egress shall be provided at the following:

1. At exits serving a required accessible space but not providing an approved accessible means of egress.
2. At elevator landings.
3. Within areas of refuge.

1007.44 1009.11 Instructions. In areas of refuge and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. Signage shall comply with the ICC A147.4 *Section 11B-703.5* requirements for visual characters. The instructions shall include all of the following:

1. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.
2. Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance.
3. Directions for use of the two-way communications system where provided.

1007.42 1009.12 Alarms/emergency warning systems/accessibility. ...

ITEM 10.03

SECTION 1008 1010
DOORS, GATES AND TURNSTILES

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, Sections 11B-206.5 and 11B-404, as applicable.

1008.4.4 1010.1.4 Special doors. ...

1008.4.4.1 1010.1.4.1 Revolving doors. Revolving doors shall comply with the following:

1. ...
2. ...
3. ...
4. ...
5. ...
6. ...
7. Revolving doors shall not be part of an accessible route required by Section 1009 and Chapter 11A or 11B.

1008.4.7 1010.1.7 Thresholds. ...

Exceptions:

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to $7\frac{3}{4}$ inches (197 mm) in height if all of the following apply:
 - 1.1. ...
 - 1.2. The door is not part of an accessible route as required by Chapter 11A or 11B.
 - 1.3. ...
2. ...

1008.4.9 1010.1.9 Door operations. ...

~~4008.1.9.4~~ **1010.1.9.1 Hardware.** Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 44-11A or 11B shall not require tight grasping, tight pinching or twisting of the wrist to operate.

~~4008.1.9.7~~ **1010.1.9.7 Delayed egress locks. ...**

1. ...
2. ...
3. ...
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only. *The time delay established for each egress-control device shall not be field adjustable. For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see Chapter 11B, Section 11B-404.2.9.*

Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. ...
6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:
 - 6.1. For doors that swing in the direction of egress, the sign shall read: ~~PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.~~ *"KEEP PUSHING. THIS DOOR WILL OPEN IN 15 [30] SECONDS. ALARM WILL SOUND."*
 - 6.2. For doors that swing in the opposite direction of egress, the sign shall read: ~~PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.~~ *"KEEP PULLING. THIS DOOR WILL OPEN IN 15 [30] SECONDS. ALARM WILL SOUND."*
 - 6.3. The sign shall comply with the visual character requirements in ~~ICC-A117.4 Section 11B-703.5.~~ *Sign lettering shall be at least 1 inch (25 mm) in height and shall have a stroke of not less than 1/8 inch (3.2 mm).*
 - ~~5.4~~ **6.3.1** *A tactile sign shall also be provided in Braille and raised characters, which complies with Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5.*

7. ...
8. ...

ITEM 10.04

**SECTION ~~4009~~ 1011
STAIRWAYS**

[DSA-AC] *In addition to the requirements of this section, means of egress, which provide access to, or*

egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, Sections 11B-210 and 11B-504, as applicable.

~~1009.7.2~~ 1011.5.2 Riser height and tread depth. ...

Exceptions:

1. ...
2. ...
3. ...
4. See Section 403.1 of the International California Existing Building Code for the replacement of existing stairways. **[DSA-AC]** For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see Chapter 11B, Section 11B-202.
5. ...

~~1009.15~~ 1011.11 Handrails. ...

[DSA-AC] For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see Chapter 11B, Sections 11B-504.6 and 11B-505.

ITEM 10.05

**SECTION ~~4040~~ 1012
RAMPS**

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, Section 11B-405, as applicable.

~~1040.4~~ 1012.1 Scope. ...

Exceptions:

1. ...
2. Curb ramps shall comply with ~~ICC-A117.4~~ Chapter 11A or 11B, Section 11B-406, as applicable.
3. ...

1012.6.5 Doorways. Where doorways are located adjacent to a ramp landing, maneuvering clearances required by ~~ICC-A117.4~~ for accessibility are permitted to overlap the required landing area as specified in Chapter 11A or 11B, as applicable.

1012.10 Edge protection. ...

Exceptions:

1. Edge protection is not required on ramps that are not required to have *handrails*, provided they have flared sides that comply with the ~~ICC-A117.4~~ Chapter 11A or 11B curb ramp provisions.
2. ...
3. ...

ITEM 10.06

SECTION 4044 1013
EXIT SIGNS

4044.4 1013.4 Raised character and Braille exit signs. A sign stating ~~EXIT~~ in visual characters, raised characters and braille and complying with ICC A117.1 shall be provided adjacent to each door to an area of refuge, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway and the exit discharge. Tactile exit signs shall be required at the following locations:

1. Each grade-level exterior exit door that is required to comply with Section 4044.4 1013.1, shall be identified by a tactile exit sign with the word, ~~"EXIT."~~ "EXIT".
2. Each exit door that is required to comply with Section 4044.4 1013.1, and that leads directly to a grade-level exterior exit by means of a stairway or ramp shall be identified by a tactile exit sign with the following words as appropriate:
 - 2.1. "EXIT STAIR DOWN"
 - 2.2. "EXIT RAMP DOWN"
 - 2.3. "EXIT STAIR UP"
 - 2.4. "EXIT RAMP UP"
3. Each exit door that is required to comply with Section 4044.4 1013.1, and that leads directly to a grade-level exterior exit by means of an exit enclosure or an exit passageway shall be identified by a tactile exit sign with the words, ~~"EXIT ROUTE."~~ "EXIT ROUTE".
4. Each exit access door from an interior room or area to a corridor or hallway that is required to comply with Section 4044.4 1013.1, shall be identified by a tactile exit sign with the words ~~"EXIT ROUTE."~~ "EXIT ROUTE".
5. Each exit door through a horizontal exit that is required to comply with Section 4044.4 1013.1, shall be identified by a sign with the words, ~~"TO EXIT."~~ "TO EXIT".

Raised character and Braille exit signs shall comply with Chapter 11A, Section 1143A or Chapter 11B, Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5.

ITEM 10.07

SECTION 4042 1014
HANDRAILS

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, Section 11B-505, as applicable.

ITEM 10.08

SECTION 4043 1015
GUARDS

4043.2 1015.2 Where required. ...

4013.3 1015.3 Height. Required guards shall not be less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On stairways and stepped aisles, from the line connecting the leading edges of the tread nosings.
3. On ramps and ramped aisles, from the ramp surface at the guard.

Exceptions:

- ~~1. For occupancies in Group R-3 not more than three stories above grade in height and within individual dwelling units in occupancies in Group R-2 not more than three stories above grade in height with separate means of egress, required guards shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or adjacent fixed seating.~~
- ~~2.~~ 1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
- ~~3.~~ 2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
- ~~4.~~ 3. The guard height in assembly seating areas shall comply with Section 1029.16 as applicable.
- ~~5.~~ 4. Along alternating tread devices and ship ladders, guards whose top rail also serves as a handrail, shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread nosing.

ITEM 10.09

**SECTION 4047 1018
AISLES**

[DSA-AC] *In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, Section 11B-403, as applicable.*

4017.3 1018.3 Aisles in Groups B and M. In Group B and M occupancies, the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall be not less than that required for corridors by Section 1020.2.

Exception: Nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11 Chapter 11B (see Section 11B-403) need not exceed 28 inches (711 mm) in width.

1018.5 Aisles in other than assembly spaces and Groups B and M. In other than rooms or spaces used for assembly purposes and Group B and M occupancies, the minimum clear aisle capacity shall be determined by Section 1005.1 for the occupant load served, but the width shall be not less than that required for corridors by Section 1020.2.

Exception: Nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11 Chapter 11B (see Section 11B-403) need not exceed 28 inches (711 mm) in width.

ITEM 10.10

SECTION 1022 1023
INTERIOR EXIT STAIRWAYS AND RAMPS

1022.9 1023.9 Stairway identification signs. A sign shall be provided at each floor landing in an interior exit stairway and ramp connecting more than three stories designating the floor level, the terminus of the top and bottom of the interior exit stairway and ramp and the identification of the stairway or ramp. The signage shall also state the story of, and the direction to, the exit discharge and the availability of roof access from the interior exit stairway and ramp for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. ~~In addition to the stairway identification sign, a floor level sign in visual characters, raised characters and braille complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the interior exit stairway and ramp into the corridor to identify the floor level.~~

In addition to the stairway identification sign, raised characters and Braille floor identification signs that comply with Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5 shall be located at the landing of each floor level, placed adjacent to the door on the latch side, in all enclosed stairways in buildings two or more stories in height to identify the floor level. At the exit discharge level, the sign shall include a raised five pointed star located to the left of the identifying floor level. The outside diameter of the star shall be the same as the height of the raised characters.

**CHAPTER 11A
HOUSING ACCESSIBILITY**

DSA-AC proposes to carry forward its adoption of existing California amendments in Chapter 11A, from the 2013 CA Building Code into the 2016 CA Building Code.

ITEM 11A.00

CHAPTER 11A – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
1128A		X
1129A		X
1130A		X
1131A		X
1132A		X
1133A		X
1134A		X
1135A		X
1136A		X
1150A.1		X

**CHAPTER 11B
ACCESSIBILITY TO PUBLIC BUILDINGS,
PUBLIC ACCOMMODATIONS, COMMERCIAL BUILDINGS AND PUBLICLY FUNDED
HOUSING**

DSA-AC proposes to carry forward its adoption of existing California amendments in Chapter 11B, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 11B.00

CHAPTER 11B – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire California Chapter		X
Adopt entire California Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		
Chapter / Section	Codes	

ITEM 11B.01

DIVISION 2: SCOPING REQUIREMENTS

11B-202 Existing buildings and facilities

11B-202.4 Path of travel requirements in alterations, additions and structural repairs. *When alterations or additions are made to existing buildings or facilities, an accessible path of travel to the specific area of alteration or addition shall be provided. The primary accessible path of travel shall include:*

1. *A primary entrance to the building or facility,*
2. *Toilet and bathing facilities serving the area,*
3. *Drinking fountains serving the area,*
4. *Public telephones serving the area, and*
5. *Signs.*

Exceptions:

1. ...
2. *If the following elements of a path of travel have been constructed or altered in compliance with the accessibility requirements of the immediately ~~preceeding~~ preceding edition of the California Building Code, it shall not be required to retrofit such elements to reflect the incremental changes in this code solely because of an alteration to an area served by those elements of the path of travel:*
 1. *A primary entrance to the building or facility,*
 2. *Toilet and bathing facilities serving the area,*
 3. *Drinking fountains serving the area,*
 4. *Public telephones serving the area, and*
 5. *Signs.*

3. ...
4. *Alterations solely for the purpose of barrier removal undertaken pursuant to the requirements of the Americans with Disabilities Act (Public Law 101-336, 28 C.F.R., Section 36.304) or the accessibility requirements of this code as those requirements or regulations now exist or are hereafter amended ~~consisting of~~ including, but not limited to, one or more of the following items shall be limited to the actual scope of work of the project and shall not be required to comply with Section 11B-202.4:*
1. *Installing ramps.*
 2. *Making curb cuts in sidewalks and entrance.*
 3. *Repositioning shelves.*
 4. *Rearranging tables, chairs, vending machines, display racks, and other furniture.*
 5. *Repositioning telephones.*
 6. *Adding raised markings on elevator control buttons.*
 7. *Installing flashing alarm lights.*
 8. *Widening doors.*
 9. *Installing offset hinges to widen doorways.*
 10. *Eliminating a turnstile or providing an alternative accessible route.*
 11. *Installing accessible door hardware.*
 12. *Installing grab bars in toilet stalls.*
 13. *Rearranging toilet partitions to increase maneuvering space.*
 14. *Insulating lavatory pipes under sinks to prevent burns.*
 15. *Installing a raised toilet seat.*
 16. *Installing a full-length bathroom mirror.*
 17. *Repositioning the paper towel dispenser in a bathroom.*
 18. *Creating designated accessible parking spaces.*
 19. *Removing high-pile, low-density carpeting.*
5. ...
6. ...
7. ...
8. *When the adjusted construction cost, as defined, is less than or equal to the current valuation threshold, as defined in ~~Chapter 2, Section 202~~, the cost of compliance with Section 11B-202.4 shall be limited to 20 percent of the adjusted construction cost of alterations, structural repairs or additions. When the cost of full compliance with Section 11B-202.4 would exceed 20 percent, compliance shall be provided to the greatest extent possible without exceeding 20 percent.*

When the adjusted construction cost, as defined, exceeds the current valuation threshold, as defined in ~~Chapter 2, Section 202~~, and the enforcing agency determines the cost of compliance with Section 11B-202.4 is an unreasonable hardship, as defined in ~~Chapter 2, Section 202~~, full compliance with Section 11B-202.4 shall not be required. Compliance shall be provided by equivalent facilitation or to the greatest extent possible without creating an unreasonable hardship; but in no case shall the cost of compliance be less than 20 percent of the adjusted construction cost of alterations, structural repairs or additions. The details of the finding of unreasonable hardship shall be recorded and entered into the files of the enforcing agency and shall be subject to Chapter 1, Section 1.9.1.5, Special Conditions for Persons with Disabilities Requiring Appeals Action Ratification.

For the purposes of this exception, the adjusted construction cost of alterations, structural repairs or additions shall not include the cost of alterations to path of travel elements required to comply with Section 11B-202.4.

In choosing which accessible elements to provide, priority should be given to those elements that will provide the greatest access in the following order:

- 1. An accessible entrance;*
- 2. An accessible route to the altered area;*
- 3. At least one accessible restroom for each sex or a ~~single~~ one accessible unisex (single-user or family) restroom;*
- 4. Accessible telephones;*
- 5. Accessible drinking fountains; and*
- 6. When possible, additional accessible elements such as parking, signs, storage and alarms.*

If an area has been altered without providing an accessible path of travel to that area, and subsequent alterations of that area or a different area on the same path of travel are undertaken within three years of the original alteration, the total cost of alterations to the areas on that path of travel during the preceding three-year period shall be considered in determining whether the cost of making that path of travel accessible is disproportionate.

- 9. Certain types of privately funded, multistory buildings and facilities were formerly exempt from accessibility requirements above and below the first floor under this code, but as of, April 1, 1994, are no longer exempt due to more restrictive provisions in the federal Americans with Disabilities Act. In alteration projects involving buildings and facilities previously approved and built without elevators, areas above and below the ground floor are subject to the 20-percent ~~disproportionately~~ disproportionality provisions described in Exception 8, above, even if the value of the project exceeds the valuation threshold in Exception 8. The types of buildings and facilities are:*

- 1. Office buildings and passenger vehicle service stations of three stories or more and 3,000 or more square feet (279 m²) per floor.*
- 2. Offices of physicians and surgeons.*
- 3. Shopping centers.*
- 4. Other buildings and facilities three stories or more and 3,000 or more square feet (279 m²) per floor if a reasonable portion of services sought and used by the public is available on the accessible level.*

For the general privately funded multistory building exception applicable to new construction and alterations, see Section 11B-206.2.3, Exception 1.

The elevator exception set forth in this section does not obviate or limit in any way the obligation to comply with the other accessibility requirements in this code. For example, floors above or below the accessible ground floor must meet the requirements of this section except for elevator service. If toilet or bathing facilities are provided on a level not served by an elevator, then toilet or bathing facilities must be provided on the accessible ground floor.

ITEM 11B.02

DIVISION 2: SCOPING REQUIREMENTS

11B-202 Existing buildings and facilities

11B-202.4 Path of travel requirements in alterations, additions and structural repairs. When alterations or additions are made to existing buildings or facilities, an accessible path of travel to the specific area of alteration or addition shall be provided. The primary accessible path of travel shall include:

1. A primary entrance to the building or facility,
2. Toilet and bathing facilities serving the area,
3. Drinking fountains serving the area,
4. Public telephones serving the area, and
5. Signs.

Exceptions: ...

10. The cost of compliance with Section 11B-202.4 for seismic mitigation projects shall be limited to 20 percent of the adjusted construction cost.

For the purposes of this exception the adjusted construction cost of a seismic mitigation project shall not include the cost of alterations to path of travel elements required to comply with Section 11B-202.4.

When the path of travel elements for a seismic mitigation project cannot be fully upgraded to comply with Section 11B-202.4 within the 20 percent cost limitation, the priority list of Exception 8 shall be applied.

ITEM 11B.02.01 – RELATED CODE AMENDMENT

CHAPTER 2 – DEFINITIONS SECTION 202 – Definitions

SEISMIC MITIGATION. [DSA-AC] The strengthening of structural elements of an existing building or facility to increase its capacity to resist earthquake induced seismic loads. The scope of seismic mitigation projects shall be permitted to include the disturbance and replacement of non-structural elements and systems as necessary to complete the seismic mitigation work.

ITEM 11B.02.02 – RELATED CODE AMENDMENT

CHAPTER 11B DIVISION 1: APPLICATION AND ADMINISTRATION

11B-106.5 Defined terms. ...

SEISMIC MITIGATION

ITEM 11B.03

DIVISION 2: SCOPING REQUIREMENTS

11B-208 Parking spaces

11B-208.2 Minimum Number. ...

11B-208.2.3 Residential facilities. Parking spaces provided to serve residential facilities shall comply with *Section 11B-208.2.3*.

11B-208.2.3.1 Parking for residents. Where at least one parking space is provided for each residential dwelling unit, at least one parking space complying with *Section 11B-502* shall be provided for each residential dwelling unit required to provide mobility features complying with *Sections 11B-809.2 through 11B-809.4*. Where fewer than one parking space is provided for each residential dwelling unit, parking spaces complying with Section 11B-502 shall be provided in accordance with Table 11B-208.2.

ITEM 11B.04

WITHDRAWN

ITEM 11B.04.01 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.05

DIVISION 2: SCOPING REQUIREMENTS

11B-209 Passenger drop-off and loading zones and bus stops

11B-209.1 General. Passenger drop-off and loading zones shall be provided in accordance with *Section 11B-209*.

11B-209.2 Type. Where provided, passenger drop-off and loading zones shall comply with *Section 11B-209.2*.

11B-209.2.1 Passenger drop-off and loading zones. Passenger drop-off and loading zones, except those required to comply with *Sections 11B-209.2.2 and 11B-209.2.3*, shall provide at least one passenger drop-off and loading zone complying with *Section 11B-503* in every continuous 100 linear feet (30480 mm) of drop-off and loading zone space, or fraction thereof.

11B-209.2.2 Bus loading zones. ...

11B-209.2.3 On-street bus stops. ...

11B-209.3 Medical care and long-term care facilities. At least one passenger drop-off and loading zone complying with *Section 11B-503* shall be provided at an accessible entrance to licensed medical care and licensed long-term care facilities where the period of stay may exceed twenty-four hours.

11B-209.4 Valet parking. Parking facilities that provide valet parking services shall provide at least one passenger drop-off and loading zone complying with *Section 11B-503*. *The parking requirements of Section 11B-208.1 apply to facilities with valet parking.*

11B-209.5 Mechanical access parking garages. Mechanical access parking garages shall provide at least one passenger drop-off and loading zone complying with *Section 11B-503* at vehicle drop-off and vehicle pick-up areas.

ITEM 11B.06

DIVISION 2: SCOPING REQUIREMENTS

11B-213 Toilet facilities and bathing facilities

...

11B-213.2 Toilet rooms and bathing rooms. Where toilet rooms are provided, each toilet room shall comply with *Section 11B-603*. Where bathing rooms are provided, each bathing room shall comply with *Section 11B-603*.

Exceptions:

1. In alterations where it is technically infeasible to comply with *Section 11B-603*, altering existing toilet or bathing rooms shall not be required where a single unisex (*single-user or family*) toilet room or bathing room complying with *Section 11B-213.2.1* is provided and located in the same area and on the same floor as existing inaccessible toilet or bathing rooms.
2. ...
3. ...
4. ...
5. ...

11B-213.2.1 Unisex (*single-use single-user or family*) toilet and unisex (*single-user or family*) bathing rooms. Unisex (*single-user or family*) toilet rooms shall contain not more than one lavatory, and *not more than* two water closets without urinals or one water closet and one urinal. Unisex (*single-user or family*) bathing rooms shall contain one shower or one shower and one bathtub, one lavatory, and one water closet. Doors to unisex (*single-user or family*) toilet rooms and unisex (*single-user or family*) bathing rooms shall have privacy latches.

11B-213.2.2 ...

11B-213.2.3 ...

ITEM 11B.06.01 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.06.02 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.06.03 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.07

DIVISION 2: SCOPING REQUIREMENTS

11B-213 Toilet facilities and bathing facilities

11B-213.3 Plumbing fixtures and accessories. Plumbing fixtures and accessories provided in a toilet room or bathing room required to comply with Section 11B-213.2 shall comply with Section 11B-213.3.

11B-213.3.1 Toilet compartments. Where toilet compartments are provided, at least *five percent of the toilet compartments, or five percent of the combination of toilet compartments and urinals, but no fewer than one* toilet compartment shall comply with Section 11B-604.8.1. In addition to the compartments required to comply with Section 11B-604.8.1, where six or more toilet compartments are provided, or where the combination of urinals and water closets totals six or more fixtures, *toilet compartments complying with Section 11B-604.8.2 shall be provided in the same quantity as the toilet compartments required to comply with Section 11B-604.8.1.*

ITEM 11B.08

DIVISION 2: SCOPING REQUIREMENTS

11B-216 Signs

11B-216.5 Parking. *Signs identifying parking spaces and signs within parking facilities shall comply with Section 11B-216.5.*

11B-216.5.1 Parking spaces. Parking spaces complying with Section 11B-502 shall be identified by signs complying with ~~Section~~ Sections 11B-502.6 and 11B-502.8.

Exceptions:

1. **Reserved.**
2. In residential facilities, where parking spaces are assigned to specific residential dwelling units, identification of accessible parking spaces shall not be required.

11B-216.5.2 Parking facilities. *Signs intended for use by pedestrians within parking facilities, including directional or informational signs indicating parking sections or levels, shall comply with the requirements of Section 11B-216.*

ITEM 11B.09

DIVISION 2: SCOPING REQUIREMENTS

11B-216 Signs

11B-216.5 Parking. *Signs identifying parking spaces and signs within parking facilities shall comply with Section 11B-216.5.*

11B-216.5.1 Parking spaces. Parking spaces complying with Section 11B-502 shall be identified by signs complying with Section 11B-502.6.

Exceptions:

1. **Reserved.**
2. In residential facilities, where parking spaces are assigned to specific residential dwelling units, identification of accessible parking spaces shall not be required.

11B-216.5.2 Parking facilities. Signs within parking facilities shall comply with Section 11B-216.5.2.

11B-216.5.2.1 Signs intended for use by pedestrians. *Signs intended for use by pedestrians within parking facilities, including directional or informational signs indicating parking sections or levels, shall comply with the requirements of Section 11B-216.*

11B-216.5.2.2 Additional signs. *Signs within parking facilities containing parking spaces complying with Section 11B-502 shall comply with Section 11B-502.8.*

ITEM 11B.10

DIVISION 2: SCOPING REQUIREMENTS

11B-216 Signs

11B-216.6 Entrances. *In existing buildings and facilities where not all entrances comply with Section 11B-404, entrances complying with Section 11B-404 shall be identified by the International Symbol of Accessibility complying with Section 11B-703.7.2.1. Directional signs complying with Section 11B-703.5 that indicate the location of the nearest entrance complying with Section 11B-404 shall be provided at entrances that do not comply with Section 11B-404. Directional signs complying with Section 11B-703.5, including the International Symbol of Accessibility complying with Section 11B-703.7.2.1, indicating the accessible route to the nearest accessible entrance shall be provided at junctions when the accessible route diverges from the regular circulation path.*

Exceptions:

- ~~1. An International Symbol of Accessibility is not required at entrances to individual rooms, suites, offices, sales or rental establishments, or other such spaces when all entrances to the building or facility are accessible and persons entering the building or facility have passed through one or more entrances with signage complying with this section.~~
- ~~2. An International Symbol of Accessibility is not required at entrances to machinery spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment; for example, elevator pits or elevator penthouses; mechanical, electrical or communications equipment rooms; piping or equipment catwalks; electric substations and transformer vaults; and highway and tunnel utility facilities.~~

ITEM 11B.11 - RESERVED

ITEM 11B.12

DIVISION 2: SCOPING REQUIREMENTS

11B-216 Signs

11B-216.8 Toilet rooms and bathing rooms. ~~Entrances to toilet rooms and bathing rooms shall be identified by a geometric symbol complying with Section 11B-703.7.2.6.~~ Where existing toilet rooms or bathing rooms do not comply with Section 11B-603, directional signs indicating the location of the nearest toilet room or bathing room complying with Section 11B-603 within the facility shall be provided. Signs shall comply with Section 11B-703.5 and shall include the International Symbol of Accessibility complying with Section 11B-703.7.2.1. Where existing toilet rooms or bathing rooms do not comply with Section 11B-603, the toilet rooms or bathing rooms complying with Section 11B-603 shall be identified by the International Symbol of Accessibility complying with Section 11B-703.7.2.1. Where clustered single user toilet rooms or bathing facilities are permitted to use exceptions to Section 11B-213.2, toilet rooms or bathing facilities complying with Section 11B-603 shall be identified by the International Symbol of

Accessibility complying with Section 11B-703.7.2.1 unless all toilet rooms and bathing facilities comply with Section 11B-603. Existing buildings that have been remodeled to provide specific toilet rooms or bathing rooms for public use that comply with these building standards shall have the location of and the directions to these rooms posted in or near the building lobby or entrance on a sign complying with Section 11B-703.5, including the International Symbol of Accessibility complying with Section 11B-703.7.2.1.

11B-216.8.1 Geometric Symbols. Geometric symbols complying with Section 11B-703.7.2.6 shall be provided at entrances to toilet and bathing rooms.

Exceptions:

1. Geometric symbols shall not be required at entrances to toilet and bathing rooms located within private or semi-private rooms or spaces. Such spaces include but are not limited to: patient sleeping rooms, transient lodging guest rooms, and residential dwelling units.
2. Geometric symbols shall not be required at entrances to inmate toilet rooms and bathing rooms in detention and correctional facilities where only one gender is housed.

ITEM 11B.12.01 – RELATED CODE AMENDMENT

DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

11B-703.7 Symbols of accessibility. ...

11B-703.7.2 Symbols

11B-703.7.2.6 Toilet and bathing facilities geometric symbols. ~~Doorways leading to toilet rooms and bathing rooms shall be identified by a geometric symbol complying with Section 11B-703.7.2.6. The symbol~~ Geometric symbols at entrances to toilet and bathing rooms shall be mounted at 58 inches (1473 mm) minimum and 60 inches (1524 mm) maximum above the finish floor or ground surface measured from the centerline of the symbol. Where a door is provided the symbol shall be mounted within 1 inch (25 mm) of the vertical centerline of the door.

Exception: Geometric symbols shall not be required at inmate toilet rooms and bathing rooms in detention and correctional facilities where only one gender is housed.

11B-703.7.2.6.1 Men's toilet and bathing facilities. ~~Men's toilet and bathing facilities shall be identified by an equilateral triangle, 1/4 inch (6.4 mm) thick with edges 12 inches (305 mm) long and a vertex pointing upward. An equilateral triangle, 1/4 inch (6.4 mm) thick with edges 12 inches (305 mm) long and a vertex pointing upward, shall be located at entrances to men's toilet and bathing facilities. The triangle symbol shall contrast with the door, either light on a dark background or dark on a light background.~~

11B-703.7.2.6.2 Women's toilet and bathing facilities. ~~Women's toilet and bathing facilities shall be identified by a circle, 1/4 inch (6.4 mm) thick and 12 inches (305 mm) in diameter. A circle, 1/4 inch (6.4 mm) thick and 12 inches (305 mm) in diameter, shall be located at entrances to women's toilet and bathing facilities. The circle symbol shall contrast with the door, either light on a dark background or dark on a light background.~~

11B-703.7.2.6.3 Unisex toilet and bathing facilities. ~~Unisex toilet and bathing facilities shall be identified by a circle, 1/4 inch (6.4 mm) thick and 12 inches (305 mm) in diameter with a 1/4 inch (6.4 mm) thick triangle with a vertex pointing upward superimposed on the circle and~~

within the 12-inch (305 mm) diameter. A circle, 1/4 inch (6.4 mm) thick and 12 inches (305 mm) in diameter with a 1/4 inch (6.4 mm) thick triangle with a vertex pointing upward, superimposed on and geometrically inscribed within the circle and within the 12-inch (305 mm) diameter, shall be provided at entrances to unisex toilet and bathing facilities. The vertices of the triangle shall be located 1/4 inch (6.4 mm) maximum from the edge of the circle. The triangle symbol shall contrast with the circle symbol, either light on a dark background or dark on a light background. The circle symbol shall contrast with the door, either light on a dark background or dark on a light background.

11B-703.7.2.6.4 Edges and vertices on geometric symbols. Edges shall be eased or rounded at 1/16 inch (1.59 mm) minimum, or chamfered at 1/8 inch (3.2 mm) maximum. Vertices shall be radiused between 1/8 inch (3.2 mm) minimum and 1/4 inch (6.4 mm) maximum.

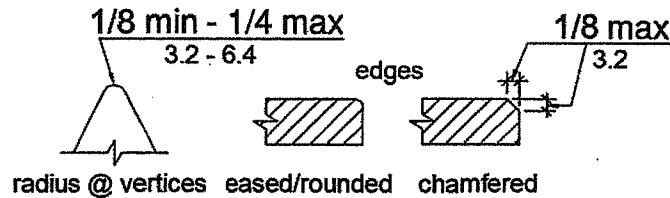


FIGURE 11B-703.7.2.6.4
EDGES AND VERTICES ON GEOMETRIC SYMBOLS

ITEM 11B.13

DIVISION 2: SCOPING REQUIREMENTS

11B-216 Signs

11B-216.13 Cleaner Air Symbol.

11B-216.13.1 Use of Cleaner Air Symbol. Use of the Cleaner Air Symbol is voluntary. Where publicly funded facilities or any facilities leased or rented by the State of California, not including concessionaires, comply with the conditions of use identified in Section 11B-216.13.3, a Cleaner Air Symbol complying with Section 11B-703.7.2.5 is permitted to be posted in compliance with Section 11B-216.3 to indicate rooms, facilities, and path of travels that are accessible to and usable by people who are adversely impacted by airborne chemicals or particulates and/or the use of electrical fixtures and/or devices.

11B-216.13.2 Removal of Cleaner Air Symbol. If the path of travel, room and/or facility identified by the Cleaner Air Symbol should temporarily or permanently cease to meet the minimum conditions of use identified in Section 11B-216.13.3, the Cleaner Air Symbol shall be removed and shall not be replaced until the minimum conditions are again met.

11B-216.13.3 Conditions of use. The Cleaner Air Symbol shall be permitted for use to identify a path of travel, and a room or a facility when the following is met:

- ~~1. Floor or wall coverings, floor or wall covering adhesives, carpets, formaldehyde-emitting particleboard cabinetry, cupboards or doors have not been installed or replaced in the previous 12 months.~~
- ~~2. Incandescent lighting provided in lieu of fluorescent or halogen lighting, and electrical systems and equipment shall be operable by or on behalf of the occupant or user of the room, facility or path of travel.~~
- ~~3. Heating, ventilation, air conditioning and their controls shall be operable by or on behalf of the occupant or user.~~
- ~~4. To maintain "cleaner air" designation only nonirritating, nontoxic products will be used in cleaning, maintenance, disinfection, pest management or for any minimal touch-ups that are essential for occupancy of the area. Deodorizers or Fragrance Emission Devices and Systems (FEDS) shall not be used in the designated area. Pest control practices for cleaner air areas shall include the use of bait stations using boric acid, sticky traps and silicon caulk for sealing cracks and crevices. Areas shall be routinely monitored for pest problems. Additional nontoxic treatment methods, such as temperature extremes for termites, may be employed in the event of more urgent problems. These pest control practices shall not be used 48 hours prior to placement of the sign, and the facility shall be ventilated with outside air for a minimum of 24 hours following use or application.~~
- ~~5. Signage shall be posted requesting occupants or users not to smoke or wear perfumes, colognes or scented personal care products. Fragranced products shall not be used in the designated cleaner air room, facility or path of travel.~~
- ~~6. A log shall be maintained on site, accessible to the public either in person or by telephone, e-mail, fax or other accessible means as requested. One or more individuals shall be designated to maintain the log. The log shall record any product or practice used in the cleaner air designated room, facility or path of travel, as well as scheduled activities, that may impact the cleaner air designation. The log shall also include the product label as well as the Material Safety Data Sheets (MSDS).~~

11B-216.14 11B-216.13 Variable message signs. ...

**ITEM 11B.13.01 – RELATED CODE AMENDMENT
DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES**

11B-703.7 Symbols of accessibility. ...

11B-703.7.2 Symbols

~~**11B-703.7.2.5 Cleaner Air Symbol. Reserved.** Rooms, facilities and paths of travel that are accessible to and usable by people who are adversely impacted by airborne chemicals or particulate(s) and/or the use of electrical fixtures and/or devices shall be identified by the Cleaner Air Symbol complying with Figure 11B-703.7.2.5. This symbol is to be used strictly for publicly funded facilities or any facilities leased or rented by state of California, not concessionaires.~~

~~The symbol, which shall include the text "Cleaner Air" as shown, shall be displayed either as a negative or positive image within a square that is a minimum of 6 inches (152 mm) on each side. The symbol may be shown in black and white or in color. When color is used, it shall be Federal Blue (Color No. 15090 Federal Standard 595B) on white, or white on Federal Blue.~~

There shall be at least a 70-percent color contrast between the background of the sign from the surface that it is mounted on.



**FIGURE 11B-703.7.2.5
CLEANER AIR SYMBOL**

ITEM 11B.14

WITHDRAWN

ITEM 11B.15

DIVISION 2: SCOPING REQUIREMENTS

11B-220 Automatic teller machines, fare machines and point-of-sale devices

11B-220.1 Automatic teller machines and fare machines. Where automatic teller machines or self-service fare vending, collection, or adjustment machines are provided *they shall comply with Section 11B-220.1*. Where bins are provided for envelopes, waste paper, or other purposes, at least one of each type shall comply with *Section 11B-811*.

11B-220.1.1 One automatic teller machine or fare machine. Where one automatic teller machine or fare machine is provided at a location, it shall comply with *Sections 11B-707.2 through 11B-707.8*.

11B-220.1.2 Two automatic teller machines or fare machines. Where two automatic teller machines or fare machines are provided at a location, one shall comply with *Sections 11B-707.2 through 11B-707.8* and one shall comply with *Sections 11B-309, 11B-707.2, 11B-707.3, 11B-707.4, 11B-707.5, 11B-707.6, 11B-707.7.2 and 11B-707.8*.

11B-220.1.3 Three or more automatic teller machines or fare machines. Where three or more automatic teller machines or fare machines are provided at a location, at least 50 percent shall comply with *Sections 11B-707.2 through 11B-707.8* and the rest shall comply with *Sections 11B-309, 11B-707.2, 11B-707.3, 11B-707.4, 11B-707.5, 11B-707.6, 11B-707.7.2 and 11B-707.8*.

ITEM 11B.15.01 – RELATED CODE AMENDMENT

DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

11B-707 Automatic teller machines, fare machines and point-of-sale devices

11B-707.1 General. Automatic teller machines, fare machines and point-of-sale devices shall comply with Section 11B-707.

11B-707.2 Clear floor or ground space. A clear floor or ground space complying with Section 11B-305 shall be provided.

Exception: Clear floor or ground space shall not be required at drive-up only automatic teller machines and fare machines.

11B-707.3 Operable parts. Operable parts shall comply with Section 11B-309. Unless a clear or correct key is provided, each operable part shall be able to be differentiated by sound or touch, without activation.

Exception: Exceptions:

1. Drive-up only automatic teller machines and fare machines shall not be required to comply with Sections 11B-309.2 and 11B-309.3.
2. Where automatic teller machines and fare machines do not require compliance with Section 11B-707.2, compliance with Sections 11B-309.2 and 11B-309.3 shall not be required.

ITEM 11B.16

DIVISION 2: SCOPING REQUIREMENTS

11B-220 Automatic teller machines, fare machines and point-of-sale devices

11B-220.2 Point-of-sale devices. Where point-of-sale devices are provided, all devices at each location shall comply with Sections 11B-309.4, 11B-707.3, and 11B-707.7.2, and 11B-707.9. In addition, point-of-sale systems that include a video touch screen or any other non-tactile keypad shall comply with either Section 11B-707.9.1.1 or 11B-707.9.1.2. Where point-of-sale devices are provided at check stands and sales and service counters required to comply with Sections 11B-227.2 and 11B-227.3, they shall comply with Section Sections 11B-707.2, 11B-707.3, 11B-707.7.2, and 11B-707.9. 11B-707.9.1, and shall also comply with Sections 11B-707.2, 11B-707.3 and 11B-707.4.

Exception: Exceptions:

1. Where a single point-of-sale device is installed for use with any type of motor fuel, it shall comply with Sections 11B-220.2 and 11B-309 11B-707.2, 11B-707.3, 11B-707.7.2, and 11B-707.9. Where more than one point-of-sale device is installed for use with a specific type of motor fuel, a minimum of two for that type shall comply with Sections 11B-220.2 and 11B-309 11B-707.2, 11B-707.3, 11B-707.7.2, and 11B-707.9. Types of motor fuel include, but are not limited to, gasoline, diesel, compressed natural gas, methanol, or ethanol or electricity.
2. Point-of-sale devices at electric vehicle charging stations required to comply with Section 11B-812 shall comply with Section 11B-812.10.3.

ITEM 11B.16.01 – RELATED CODE AMENDMENT

DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

11B-707 Automatic teller machines, fare machines and point-of-sale devices

11B-707.1 General. Automatic teller machines, fare machines and point-of-sale devices shall comply with Section 11B-707.

11B-707.2 Clear floor or ground space. A clear floor or ground space complying with Section 11B-305 shall be provided.

Exception: Clear floor or ground space shall not be required at drive-up only automatic teller machines and fare machines.

11B-707.3 Operable parts. Operable parts shall comply with Section 11B-309. Unless a clear or correct key is provided, each operable part shall be able to be differentiated by sound or touch, without activation.

Exceptions:

1. Drive-up only automatic teller machines and fare machines shall not be required to comply with Sections 11B-309.2 and 11B-309.3.
2. Where automatic teller machines and fare machines do not require compliance with 11B-707.2, compliance with 11B-309.2 and 11B-309.3 shall not be required.
3. Where point-of-sale devices do not require compliance with Section 11B-707.2, compliance with Sections 11B-309.2 and 11B-309.3 shall not be required.

ITEM 11B.16.02 – RELATED CODE AMENDMENT
DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

11B-707.9 Point-of-sale devices. Point-of-sale devices shall comply with Section 11B-707.9.

11B-707.9.1 General. ~~Where point-of-sale devices are provided, all devices at each location shall comply with Sections 11B-309.4, 11B-707.3, and 11B-707.7.2. In addition, point-of-sale Point-of-sale systems that include a video touch screen or any other non-tactile keypad shall be equipped with either of the following:~~

11B-707.9.1.1 Tactilely discernible numerical keypad. ...

11B-707.9.1.2 Other technology. ...

~~**11B-707.9.2 Point-of-sale devices at check stands and sales or service counters.** Where point-of-sale devices are provided at check stands and sales or service counters, they shall comply with Section 11B-707.9.1, and shall also comply with Sections 11B-707.2, 11B-707.3 and 11B-707.4.~~

ITEM 11B.17

DIVISION 2: SCOPING REQUIREMENTS

11B-221 Assembly areas

11B-221.2 Wheelchair spaces. Wheelchair spaces complying with Section 11B-221.2 shall be provided in assembly areas with fixed seating.

NOTE: *When required wheelchair spaces are not occupied by persons eligible for those spaces, individual, removable seats may be placed in those spaces.*

11B-221.2.4 Temporary structures. Wheelchair spaces shall not be located on, or be obstructed by, temporary platforms or other movable structures.

Exception: When an entire seating section is placed on temporary platforms or other movable structures in an area where fixed seating is not provided, in order to increase seating for an event, wheelchair spaces may be placed in that section.

~~**NOTE:** *When required wheelchair spaces are not occupied by persons eligible for those spaces, individual, removable seats may be placed in those spaces.*~~

ITEM 11B.18

DIVISION 2: SCOPING REQUIREMENTS

11B-224 Transient lodging guest rooms, housing at a place of education and social service center establishments

11B-224.7 Housing at a place of education. Housing at a place of education subject to this section shall comply with Sections 11B-224.1 through 11B-224.6 and 11B-806 for transient lodging guest rooms. For the purposes of the application of this section, the term "sleeping room" is interchangeable with "guest room" as used in the transient lodging standards.

Exceptions: ~~**Exception:**~~

- ~~1. Kitchens within housing units containing accessible sleeping rooms with mobility features (including suites and clustered sleeping rooms) or on floors containing accessible sleeping rooms with mobility features shall provide turning spaces that comply with Section 11B-809.2.2 and kitchen work surfaces that comply with Section 11B-804.3.~~
- ~~2. Multi-bedroom housing units containing accessible sleeping rooms with mobility features shall have an accessible route throughout the unit in compliance with Section 11B-809.2.~~
- ~~3. Housing facilities that are provided by or on behalf of a place of education, with residential dwelling units leased on a year round basis exclusively to graduate students or faculty, and that do not contain any public use or common use areas available for educational programming, are not subject to Section 11B-224 and shall comply with Section 11B-233.~~

11B-224.7.1 Multi-bedroom housing units with mobility features. Multi-bedroom housing units containing accessible sleeping rooms with mobility features shall have an accessible route throughout the unit in compliance with Section 11B-809.2. Kitchens, when provided, within housing units containing accessible sleeping rooms with mobility features shall comply with Section 11B-804.

11B-224.7.2 Multi-bedroom housing units with adaptable features. Multi-bedroom housing units with adaptable features shall be provided as required by Section 11B-233.3.1.2. The number of required multi-bedroom housing units with adaptable features shall be reduced by the number of multi-bedroom housing units with mobility features required by Section 11B-224.2.

ITEM 11B.19

DIVISION 2: SCOPING REQUIREMENTS

11B-233 Residential facilities.

11B-233.3 Public housing facilities. ...

11B-233.3.1.2.4. Multi-story residential dwelling units. In elevator buildings, public housing facilities with multi-story residential dwelling units shall comply with the following:

~~**Exception:** In non-elevator buildings, a minimum of 10 percent but not less than one of the ground floor multi-story residential dwelling units shall comply with Section 11B-233.3.1.2.4, calculated using the total number of multi-story residential dwelling units in buildings on a site.~~

1. The primary entry of the multi-story residential dwelling unit shall be on an accessible route. In buildings with elevators the primary entry shall be on the floor served by the elevator.
2. At least one powder room or bathroom shall be located on the primary entry level.
3. Rooms or spaces located on the primary entry level shall be served by an accessible route and comply with Chapter 11A, Division IV – Dwelling Unit Features.

~~**Exception:** In non-elevator buildings, a minimum of 10 percent but not less than one of the ground floor multi-story residential dwelling units shall comply with Section 11B-233.3.1.2.4, calculated using the total number of multi-story residential dwelling units in buildings on a site.~~

ITEM 11B.20

WITHDRAWN

ITEM 11B.21

DIVISION 2: SCOPING REQUIREMENTS

11B-233 Residential facilities.

11B-233.3 Public housing facilities. ...

11B-233.3.4 Alterations. Alterations to a public housing facility shall comply with Section 11B-233.3.4.

Exception: Where compliance with Section 11B-809.2, 11B-809.3, or 11B-809.4 for units with mobility features or Chapter 11A, Division IV for units with adaptable features is technically infeasible, or where it is technically infeasible to provide an accessible route to a residential dwelling unit, the entity shall be permitted to alter or construct a comparable residential dwelling unit to comply with Sections 11B-809.2 through 11B-809.4 or Chapter 11A, Division IV provided that the minimum number of residential dwelling units required by Sections 11B-233.3.1.1, 11B-233.3.1.2 and 11B-233.3.1.3, as applicable, is satisfied.

ITEM 11B.22

WITHDRAWN

ITEM 11B.23

DIVISION 2: SCOPING REQUIREMENTS

11B-245 Commercial facilities Public accommodations located in private residences

11B-245.1 General. ~~Commercial facilities~~ Public accommodations located in private residences shall comply with Section 11B-245.

11B-245.2 Application. When a ~~commercial facility~~ public accommodation is located in a private residence, that portion used exclusively in the operation of the ~~commercial facility~~ public accommodation or that portion used both for the ~~commercial facility~~ public accommodation and for residential purposes is covered by the new construction and alterations requirements of this chapter.

Exception: The portion of the residence used exclusively as a residence is not required to be accessible in accordance with this chapter.

ITEM 11B.24

WITHDRAWN

ITEM 11B.24.01 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.24.02 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.24.03 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.24.04 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.24.05 – RELATED CODE AMENDMENT

WITHDRAWN

ITEM 11B.25

DIVISION 4: ACCESSIBLE ROUTES

11B-403 Walking surfaces

11B-403.5 Clearances.

11B-403.5.1 Clear width. Except as provided in Sections 11B-403.5.2 and 11B-403.5.3, and unless otherwise specified, the clear width of walking surfaces shall be 36 inches (914 mm) minimum. The clear width for walking surfaces in corridors serving an occupant load of 10 or more shall be 44 inches (1118 mm) minimum. The clear width for aisles shall be 36 inches (914 mm) minimum if serving elements on only one side, and 44 inches (1118 mm) minimum if serving elements on both sides. The clear width for accessible routes to accessible toilet compartments shall be 44 inches (1118 mm) minimum except for door-opening widths and door swings.

Exceptions: Exception:

1. The clear width shall be permitted to be reduced to 32 inches (813 mm) minimum for a length of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (1219 mm) long minimum and 36 inches (914 mm) wide minimum.
2. ~~The clear width for walking surfaces in corridors serving an occupant load of 10 or more shall be 44 inches (1118 mm) minimum.~~
3. ~~The clear width for sidewalks and walks shall be 48 inches (1219 mm) minimum. When, because of right-of-way restrictions, natural barriers or other existing conditions, the enforcing agency determines that compliance with the 48-inch (1219 mm) clear sidewalk width would create an unreasonable hardship, the clear width may be reduced to 36 inches (914 mm).~~
4. ~~The clear width for aisles shall be 36 inches (914 mm) minimum if serving elements on only one side, and 44 inches (1118 mm) minimum if serving elements on both sides.~~
5. ~~The clear width for accessible routes to accessible toilet compartments shall be 44 inches (1118 mm) except for door-opening widths and door swings.~~

11B-403.5.1.1 Sidewalks and walks. The clear width for sidewalks and walks shall be 48 inches (1219 mm) minimum. In alterations where existing conditions make provision of 48 inches (1219 mm) minimum clear width infeasible, the clear width for sidewalks and walks shall be permitted to be reduced to 36 inches (914 mm) minimum for a length of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (1219 mm) long minimum and 48 inches (1219 mm) wide minimum; existing conditions include, but are not limited to, right-of-way restrictions, utility poles, street lights, and traffic signal hardware.

ITEM 11B.26

DIVISION 4: ACCESSIBLE ROUTES

11B-404 Doors, doorways, and gates

11B-404.2.9 Door and gate opening force. The force for pushing or pulling open a door or gate shall be as follows:

1. Interior hinged doors and gates: 5 pounds (22.2 N) maximum.
2. Sliding or folding doors: 5 pounds (22.2 N) maximum.
3. Required fire doors: the minimum opening force allowable by the appropriate administrative authority, not to exceed 15 pounds (66.7 N).
4. Exterior hinged doors: 5 pounds (22.2 N) maximum.

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position.

Exceptions: Exception:

1. ~~Exterior doors to machinery spaces including, but not limited to, elevator pits or elevator penthouses; mechanical, electrical or communications equipment rooms; piping or equipment catwalks; electric substations and transformer vaults; and highway and tunnel utility facilities.~~
2. When, at a single location, one of every eight exterior door leaves, ...

ITEM 11B.27

DIVISION 4: ACCESSIBLE ROUTES

11B-407 Elevators

11B-407.2.3 Hoistway signs. ...

11B-407.2.3.1 Floor designation. ...

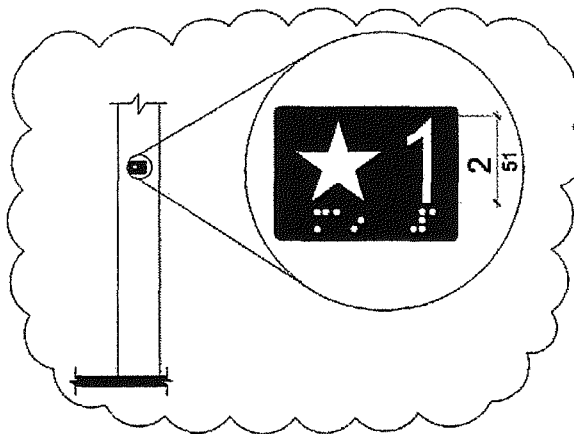


Figure 11B-407.2.3.1
Floor Designations on Jambs of Elevator Hoistway Entrance Entrances

ITEM 11B.28

DIVISION 4: ACCESSIBLE ROUTES

11B-407 Elevators

11B-407.3 Elevator door requirements. Hoistway and car doors shall comply with Section 11B-407.3.

11B-407.3.5 Door delay. Elevator doors shall remain fully open in response to a car call for 5 seconds minimum.

ITEM 11B.29

DIVISION 4: ACCESSIBLE ROUTES

11B-411 Destination-oriented elevators

11B-411.1 General. ...

11B-411.1.1 Floor designations. ...

11B-411.1.2 Car designations. Elevator cars shall be designated with a single alphabetic character. For elevators programmed to the same hall call console or group of hall call consoles, each elevator car shall be designated with a different single alphabetic character.

Exception: Elevator systems with more than 26 elevators shall be permitted to use alpha-numeric designations such as "A1".

ITEM 11B.30

DIVISION 4: ACCESSIBLE ROUTES

11B-411 Destination-oriented elevators

11B-411.2 Elevator landing requirements. ...

11B-411.2.1 Hall call consoles. ...

11B-411.2.1.2 Required features. Hall call consoles shall include a touch screen or keypad with display screen, an accessibility function button, and audio output loudspeaker.

11B-411.2.1.2.1 Keypads. ...

11B-411.2.1.2.2 Touch screen. Touch screen display shall comply with Section 11B-411.2.1.2.4. ~~The touch screen shall provide written or visual instruction on the screen as to its use.~~

11B-411.2.1.2.3 Accessibility function button. ...

11B-411.2.1.2.4 Display screen. Upon activation of the accessibility function button, the display screen shall display information on the location and use of the star (★) and minus sign (-) buttons, user input confirmation, elevator assignment characters, direction to the assigned elevator, and error messages. The display screen shall comply with Section 11B-411.2.1.2.4.

11B-411.2.1.2.4.1 Contrast. ...

11B-411.2.1.2.4.2 Size. ...

11B-411.2.1.2.4.3 Duration. ...

11B-411.2.1.2.5 Audio output. ...

ITEM 11B.31

DIVISION 4: ACCESSIBLE ROUTES

11B-411 Destination-oriented elevators

11B-411.2 Elevator landing requirements. ...

11B-411.2.1 Hall call consoles. ...

11B-411.2.1.2 Required features. Hall call consoles shall include a touch screen or keypad with display screen, an accessibility function button, and audio output loudspeaker.

11B-411.2.1.2.1 Keypads. ...

11B-411.2.1.2.2 Touch screen. ...

11B-411.2.1.2.3 Accessibility function button. ...

11B-411.2.1.2.4 Display screen. Upon activation of the accessibility function button, the display screen shall display information ~~on the location and use of the star (★) and minus sign (-) buttons, including but not limited to, operating instructions,~~ user input confirmation, elevator assignment characters, direction to the assigned elevator, and error messages. The display screen shall comply with Section 11B-411.2.1.2.4.

11B-411.2.1.2.4.1 Contrast. ...

11B-411.2.1.2.4.2 Size. ...

11B-411.2.1.2.4.3 Duration. ...

11B-411.2.1.2.5 Audio output. ...

ITEM 11B.32

DIVISION 4: ACCESSIBLE ROUTES

11B-411 Destination-oriented elevators

11B-411.2 Elevator landing requirements. ...

11B-411.2.1 Hall call consoles. ...

11B-411.2.1.2 Required features. Hall call consoles shall include a touch screen or keypad with display screen, an accessibility function button, and audio output loudspeaker.

11B-411.2.1.2.1 Keypads. ...

11B-411.2.1.2.2 Touch screen. ...

11B-411.2.1.2.3 Accessibility function button. ...

11B-411.2.1.2.4 Display screen. ...

11B-411.2.1.2.5 Audio output. Upon activation of the accessibility function button, the audio output shall provide verbal announcements, ~~including but not limited to, of operating instructions, location and use of the star (★) and minus sign (-) buttons,~~ user input confirmation, announcement of the elevator assignment characters, direction to the assigned elevator, and error messages. Audio output shall be recorded or digitized human speech, and shall be delivered through a loudspeaker. Auditory volume shall be at least 10 dB above ambient sound level, but shall not exceed 80 dB, measured 36 inches (914 mm) in front of the console. At hall call console locations where the ambient sound level varies, auditory volume shall be maintained at the required volume by an automatic gain control or shall be set at not less than 75 dB.

ITEM 11B.33

DIVISION 4: ACCESSIBLE ROUTES

11B-411 Destination-oriented elevators

11B-411.2 Elevator landing requirements. ...

11B-411.2.1 Hall call consoles. ...

11B-411.2.1.3 Arrangement. Hall call console arrangement of required features shall comply with Section 11B-411.2.1.3.

- 11B-411.2.1.3.1 Keypad call console arrangement. ...**
11B-411.2.1.3.2 Touch screen call console arrangement. ...
11B-411.2.1.3.3 Proximity of required elements. ...

11B-411.2.1.3.4 Position. Display screens and touch screens shall be positioned so glare is reduced on the screen. ~~The face of individual elements or group of individual elements that are operated by user input Keypads or buttons shall slope away from the user at 15 to 25 degrees from the vertical plane. The face of hall call console assemblies and the face of touch Touch screens shall be sloped away from the user at 7 to 25 degrees from the vertical plane. Display screens and touch screens shall be positioned so glare is reduced on the screen.~~

ITEM 11B.34

DIVISION 4: ACCESSIBLE ROUTES

11B-407 Elevators

11B-411.2.3 Signs on jambs of elevator hoistway entrances. Signs on jambs of elevator hoistway entrances shall comply with Section 11B-411.2.3.

- 11B-411.2.3.1 Floor designation signs. ...**
11B-411.2.3.2 Car designation signs. ...

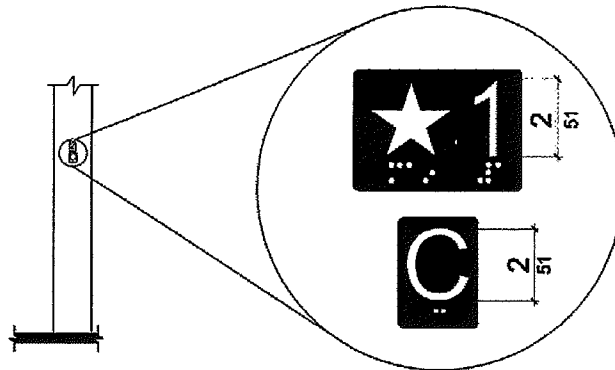


Figure 11B-411.2.3
Floor Designation and Car Designation Signs on Jambs
of Destination-Oriented Elevator Hoistway Signs Entrances

ITEM 11B.35

WITHDRAWN

ITEM 11B.36

DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-502 Parking spaces

11B-502.6 Identification. Parking space identification signs shall include the International Symbol of Accessibility complying with Section 11B-703.7.2.1 *in white on a blue background*. Signs identifying van parking spaces shall contain *additional language or an additional sign with the designation "van accessible."* Signs shall be 60 inches (1524 mm) minimum above the finish floor or ground surface measured to the bottom of the sign.

Exception: Signs located within an accessible route shall be a minimum of 80 inches (2032 mm) above the finish floor or ground surface measured to the bottom of the sign.

ITEM 11B.37

DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-502 Parking spaces

11B-502.6 Identification. Parking space identification signs shall include the International Symbol of Accessibility complying with Section 11B-703.7.2.1. Signs identifying van parking spaces shall contain *additional language or an additional sign with the designation "van accessible."* Signs shall be 60 inches (1524 mm) minimum above the finish floor or ground surface measured to the bottom of the sign.

Exception: Signs located within an ~~accessible route~~ *a circulation path* shall be a minimum of 80 inches (2032 mm) above the finish floor or ground surface measured to the bottom of the sign.

ITEM 11B.38

DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-502 Parking spaces

11B-502.6 Identification. Parking space identification signs shall include the International Symbol of Accessibility complying with Section 11B-703.7.2.1. Signs identifying van parking spaces shall contain *additional language or an additional sign with the designation "van accessible."* ~~"van accessible."~~ *"van accessible"*. Signs shall be 60 inches (1524 mm) minimum above the finish floor or ground surface measured to the bottom of the sign.

Exception: Signs located within an accessible route shall be a minimum of 80 inches (2032 mm) above the finish floor or ground surface measured to the bottom of the sign.

11B-502.6.1 Finish and size. ...

11B-502.6.2 Minimum fine. Additional language or an additional sign below the International Symbol of Accessibility shall state ~~"Minimum Fine \$250."~~ *"Minimum Fine \$250"*.

11B-502.6.3 Location. ...

11B-502.6.4 Marking. ...

ITEM 11B.39

DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-502 Parking spaces

11B-502.6 Identification. ...

11B-502.6.1 Finish and size. ...

11B-502.6.2 Minimum fine. ...

11B-502.6.3 Location. ...

11B-502.6.4 Marking. Each accessible car and van space shall have surface identification complying with either Section 11B-502.6.4.1 or 11B-502.6.4.2.

11B-502.6.4.1 The parking space shall be marked with an International Symbol of Accessibility complying with Section 11B-703.7.2.1 in white on a blue background a minimum 36 inches wide by 36 inches high (914 mm x 914 mm). The centerline of the International Symbol of Accessibility shall be a maximum of 6 inches (152 mm) from the centerline of the parking space, its sides parallel to the length of the parking space and its lower corner at, or lower side aligned with, the end of the parking space length.

11B-502.6.4.2 The parking space shall be outlined in blue or painted blue and shall be marked with an International Symbol of Accessibility complying with Section 11B-703.7.2.1 a minimum 36 inches wide by 36 inches high (914 mm x 914 mm) in white or a suitable contrasting color. The centerline of the International Symbol of Accessibility shall be a maximum of 6 inches (152 mm) from the centerline of the parking space, its sides parallel to the length of the parking space and its lower corner at, or lower side aligned with, the end of the parking space.

ITEM 11B.40

WITHDRAWN

ITEM 11B.41

DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-503 Passenger drop-off and loading zones

~~**11B-503.6 Identification.** Each passenger loading zone designated for persons with disabilities shall be identified with a reflectorized sign complying with Section 11B-703.5. It shall be permanently posted immediately adjacent to and visible from the passenger loading zone stating "Passenger Loading Zone Only" and including the International Symbol of Accessibility complying with Section 11B-703.7.2.1 in white on a dark blue background.~~

ITEM 11B.42

DIVISION 5: GENERAL SITE AND BUILDING ELEMENTS

11B-505 Handrails

11B-505.2 Where required. Handrails shall be provided on both sides of stairs and ramps.

Exceptions:

1. In assembly areas, handrails shall not be required on both sides of aisle ramps where a handrail is provided at either side or within the aisle width.
2. Curb ramps do not require handrails.

3. At door landings, handrails are not required when the ramp run is less than 6 inches (152 mm) in rise or 72 inches (1829 mm) in length.

11B-505.2.1 Orientation. *The orientation of at least one handrail shall be in the direction of the stair run, perpendicular to the direction of the stair nosing, and shall not reduce the minimum required width of the stair.*

ITEM 11B.43

DIVISION 6: PLUMBING ELEMENTS AND FACILITIES

11B-603 Toilet and bathing rooms

11B-603.2 Clearances. ...

11B-603.2.3 Door swing. Doors shall not swing into the clear floor space or clearance required for any fixture. Doors to accessible water closet compartments shall be permitted to encroach into the turning space without limitation. ~~Other than the door doors to the accessible water closet compartment compartments,~~ a door, in any position, ~~may~~ shall be permitted to encroach into the turning space by 12 inches (305 mm) maximum.

Exceptions:

1. **Reserved.**
2. Where the toilet room or bathing room is for individual use and a clear floor space complying with Section 11B-305.3 is provided within the room beyond the arc of the door swing, doors shall be permitted to swing into the clear floor space or clearance required for any fixture.

ITEM 11B.44

DIVISION 6: PLUMBING ELEMENTS AND FACILITIES

11B-603 Toilet and bathing rooms

11B-603.2 Clearances. ...

11B-603.2.3 Door swing. Doors shall not swing into the clear floor space or clearance required for any fixture. *Other than the door to the accessible water closet compartment, a door, in any position, may encroach into the turning space by 12 inches (305 mm) maximum.*

Exceptions:

1. **Reserved.**
2. Where the toilet room or bathing room is for individual use and a clear floor space complying with Section 11B-305.3 is provided within the room beyond the arc of the door swing, doors shall be permitted to swing into the clear floor space or clearance required for any fixture.
3. In residential dwelling units complying with Section 11B-233.3.1.1, doors shall be permitted to swing over the turning space without limitation.

ITEM 11B.45

DIVISION 6: PLUMBING ELEMENTS AND FACILITIES

11B-604 Water closets and toilet compartments

11B-604.9 Water closets and toilet compartments for children's use. Water closets and toilet compartments for children's use shall comply with Section 11B-604.9. When the exception in Section 11B-604.1 is used, the suggested dimensions of Table 11B-604.9 for a single age group shall be applied consistently to the installation of a water closet and all associated components.

Table 11B-604.9 Suggested Dimensions for Children's Use

Suggested Dimensions for Water Closets Serving Children Ages 3 through 12			
	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
Water Closet Centerline	12 inches (305 mm)	12 to 15 inches (305 to 381 mm)	15 to 18 inches (381 to 457 mm)
Toilet Seat Height	11 to 12 inches (279 to 305 mm)	12 to 15 inches (305 to 381 mm)	15 to 17 inches (381 to 432 mm)
Grab Bar Height	18 to 20 inches (457 to 508 mm)	20 to 25 inches (508 to 635 mm)	25 to 27 inches (635 to 686 mm)
Dispenser Height	14 inches (356 mm)	14 to 17 inches (356 to 432 mm)	17 to 19 inches (432 to 483 mm)

ITEM 11B.46

DIVISION 6: PLUMBING ELEMENTS AND FACILITIES

11B-608 Shower compartment

11B-608.6 Shower spray unit and water. A shower spray unit with a hose 59 inches (1499 mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Shower spray units shall deliver water that is 120°F (49°C) maximum.

Exception: Where subject to excessive vandalism, two fixed shower heads shall be installed permitted instead of a hand-held spray unit in facilities that are not medical care facilities, long-term care facilities, transient lodging guest rooms, or residential dwelling units. Each shower head shall be installed so it can be operated independently of the other and shall have swivel angle adjustments, both vertically and horizontally. One shower head shall be located at a height of 48 inches (1219 mm) maximum above the shower finish floor.

ITEM 11B.47

DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

11B-705 Detectable warnings and detectable directional texture

11B-705.1 Detectable warnings.

11B-705.1.1 General. ...

11B-705.1.1.1 Dome size. Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inch (22.9 mm) minimum and 0.92 inch (23.4 mm) maximum, a top diameter of 0.45 inch (11.4 mm) minimum and 0.47 inch (11.9 mm) maximum, and a height of ~~0.18 inch (4.6 mm) minimum and 0.22 inch (5.6 mm) maximum~~ 0.2 inch (5.1 mm).

ITEM 11B.48

WITHDRAWN

ITEM 11B.49

DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES

11B-707 Automatic teller machines, fare machines and point-of-sale devices

11B-707.7 Display screen. ...

11B-707.7.1 Visibility. The display screen shall be visible from a point located 40 inches (1016 mm) above the center of the clear floor space in front of the machine.

11B-707.7.1.1 Vertically mounted display screen. Where display screens are mounted vertically or ~~no more than 30 degrees~~ tipped away from the viewer ~~less than 30 degrees~~, the center line of the display screen and other display devices shall be no more than 52 inches (1321 mm) above the floor or ground surface.

11B-707.7.1.2 Angle-mounted display screen. Where display screens are mounted ~~between 30 degrees and 60 degrees~~ tipped away from the viewer 30 degrees to less than 60 degrees from vertical, the center line of the display screen and other display devices shall be no more than 44 inches (1118 mm) above the floor or ground surface.

11B-707.7.1.3 Horizontally mounted display screen. Where display screens are mounted ~~no less than 60 degrees and no more than 90 degrees (horizontal)~~ tipped away from the viewer 60 degrees to 90 degrees (horizontal) from vertical, the center line of the display screen and other display devices shall be no more than 34 inches (864 mm) above the floor or ground surface.

ITEM 11B.50

WITHDRAWN

ITEM 11B.51

DIVISION 8: SPECIAL ROOMS, SPACES, AND ELEMENTS

11B-812 Electric vehicle charging stations

11B-812.1 General. Electric vehicle charging stations (EVCS) shall comply with Section 11B-812 as required by Section 11B-228.3. Where vehicle spaces and access aisles are marked with lines, measurements shall be made from the centerline of the markings.

Exception: Where vehicle spaces or access aisles are not adjacent to another vehicle space, access aisle, or parking space, measurements shall be permitted to include the full width of the line defining the vehicle space or access aisle.

11B-812.2 Operable parts. Operable parts shall comply with Section 11B-309.

11B-812.3 Floor or ground surfaces. Vehicle spaces and access aisles serving them shall comply with Section 11B-302. Access aisles shall be at the same level as the vehicle space they serve. Changes in level, slopes exceeding 1:48, and detectable warnings shall not be permitted in vehicle spaces and access aisles.

11B-812.4 Vertical clearance. Vehicle spaces, access aisles serving them, and vehicular routes serving them shall provide a vertical clearance of 98 inches (2489 mm) minimum. Where provided, overhead cable management systems shall not obstruct required vertical clearance.

11B-812.5 Accessible routes

11B-812.5.1 Accessible route to building or facility. EVCS complying with Section 11B-812 that serve a particular building or facility shall be located on an accessible route to an entrance complying with Section 11B-206.4. Where EVCS do not serve a particular building or facility, EVCS complying with Section 11B-812 shall be located on an accessible route to an accessible pedestrian entrance of the EV charging facility.

Exception: EVCS complying with Section 11B-812 shall be permitted to be located in different EV charging facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, charging fee, and user convenience.

11B-812.5.2 Accessible route to EV charger. An accessible route complying with Section 11B-402 shall be provided between the vehicle space and the EV charger which serves it.

11B-812.5.3 Relationship to accessible routes. Vehicle spaces and access aisles shall be designed so that when the vehicle space is occupied the required clear width of adjacent accessible routes is not obstructed. A curb, wheel stop, bollards, or other barrier shall be provided if required to prevent encroachment of vehicles over the required clear width of adjacent accessible routes.

11B-812.5.4 Arrangement. Vehicle spaces and access aisles shall be designed so that persons using them are not required to travel behind vehicle spaces or parking spaces other than the vehicle space in which their vehicle has been left to charge.

Exceptions:

1. Ambulatory EVCS shall not be required to comply with Section 11B-812.5.4.
2. Vehicle spaces installed in existing facilities shall comply with Section 11B-812.5.4 to the maximum extent feasible.

11B-812.5.5 Obstructions. EVCS shall be designed so accessible routes are not obstructed by cables or other elements.

11B-812.6 Vehicle spaces. Vehicle spaces serving van accessible, standard accessible, ambulatory and drive-up EVCS shall be 216 inches (5486 mm) long minimum and shall comply with Sections 11B-812.6.1 through 11B-812.6.4 as applicable. All vehicle spaces shall be marked to define their width.

Exceptions:

1. Where the long dimension of vehicle spaces is parallel to the traffic flow in the adjacent vehicular way, the length of vehicle spaces shall be 240 inches (6096 mm) minimum.
2. Vehicle spaces at drive-up EVCS shall be 240 inches (6096 mm) long minimum and shall not be required to be marked to define their width.

11B-812.6.1 Van accessible. Vehicle spaces serving van accessible EVCS shall be 144 inches (3658 mm) wide minimum and shall have an adjacent access aisle complying with Section 11B-812.7.

11B-812.6.2 Standard accessible. Vehicle spaces serving standard accessible EVCS shall be 108 inches (2743 mm) wide minimum and shall have an adjacent access aisle complying with Section 11B-812.7.

11B-812.6.3 Ambulatory. Vehicle spaces serving ambulatory EVCS shall be 120 inches (3048 mm) wide minimum and shall not be required to have an adjacent access aisle.

11B-812.6.4 Drive-up. Vehicle spaces serving drive-up EVCS shall be 204 inches (5182 mm) wide minimum and shall not be required to have an adjacent access aisle.

11B-812.7 Access aisle. Access aisles shall adjoin an accessible route. Two vehicle spaces shall be permitted to share a common access aisle. Access aisles shall be 60 inches (1524 mm) wide minimum and shall extend the full required length of the vehicle spaces they serve.

11B-812.7.1 Location. Access aisles at vehicle spaces shall not overlap the vehicular way and may be placed on either side of the vehicle space they serve except for van accessible spaces which shall have access aisles located on the passenger side of the vehicle spaces.

11B-812.7.2 Marking. Access aisles at vehicle spaces shall be marked with a painted borderline around their perimeter. The area within the borderlines shall be marked with hatched lines a maximum of 36 inches (914 mm) on center. The color of the borderlines, hatched lines, and letters shall contrast with that of the surface of the access aisle. The blue color required for identification of access aisles for accessible parking shall not be used. Access aisle markings may extend beyond the minimum required length.

11B-812.7.3 Lettering. The words "NO PARKING" shall be painted on the surface within each access aisle in letters a minimum of 12 inches (305 mm) in height and located to be visible from the adjacent vehicular way.

11B-812.8 Identification signs. EVCS identification signs shall be provided in compliance with Section 11B-812.8.

11B-812.8.1 Four or fewer. Where four or fewer total EVCS are provided, identification with an International Symbol of Accessibility (ISA) shall not be required.

11B-812.8.2 Five to twenty-five. Where five to twenty-five total EVCS are provided, one van accessible EVCS shall be identified by an ISA complying with Section 11B-703.7.2.1. The required standard accessible EVCS shall not be required to be identified with an ISA.

11B-812.8.3 Twenty-six or more. Where twenty-six or more total EVCS are provided, all required van accessible and all required standard accessible EVCS shall be identified by an ISA complying with Section 11B-703.7.2.1.

11B-812.8.4 Ambulatory. Ambulatory EVCS shall not be required to be identified by an ISA.

11B-812.8.5 Drive-up. Drive-up EVCS shall not be required to be identified by an ISA.

11B-812.8.6 Finish and size. Identification signs shall be reflectorized with a minimum area of 70 square inches (45,161 mm²).

11B-812.8.7 Location. Required identification signs shall be visible from the EVCS it serves. Signs shall be permanently posted either immediately adjacent to the vehicle space or within the projected

vehicle space width at the head end of the vehicle space. Signs identifying van accessible vehicle spaces shall contain the designation "van accessible." Signs shall be 60 inches (1525 mm) minimum above the finish floor or ground surface measured to the bottom of the sign. Signs located within an accessible route shall be 80 inches (2032 mm) minimum above the finish floor or ground surface measured to the bottom of the sign. Signs may also be permanently posted on a wall at the interior end of the vehicle space.

11B-812.9 Surface marking. EVCS vehicle spaces shall provide surface marking stating "EV CHARGING ONLY" in letters 12 inches (305 mm) high minimum. The centerline of the text shall be a maximum of 6 inches (152 mm) from the centerline of the vehicle space and its lower corner at, or lower side aligned with, the end of the parking space length.

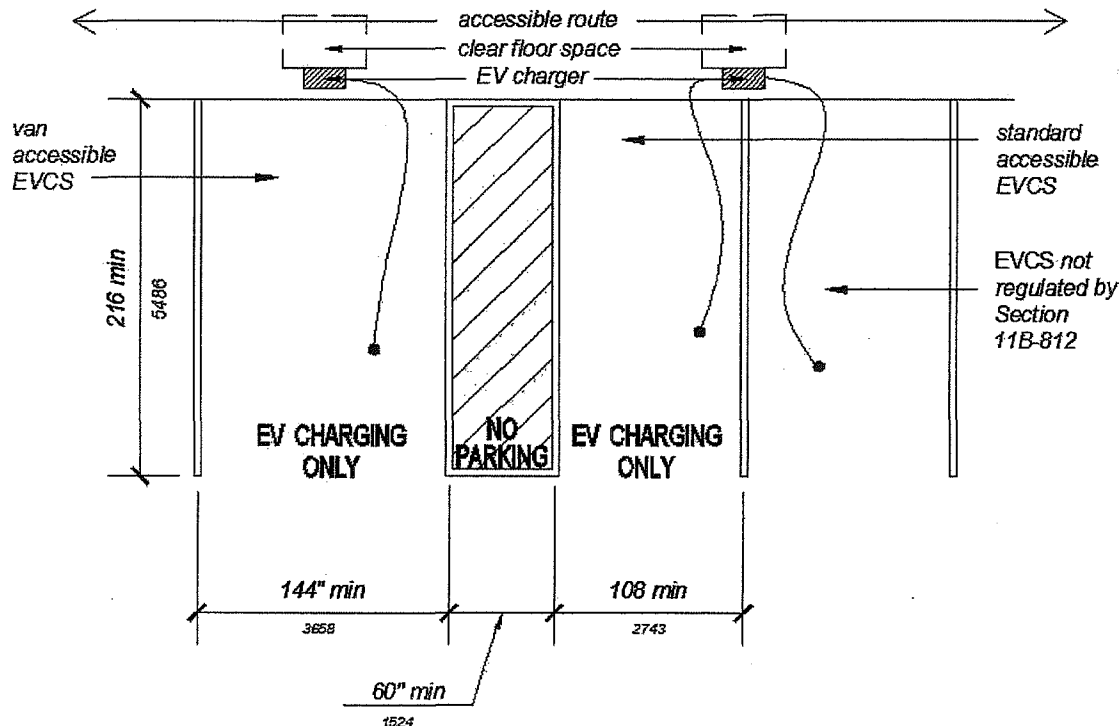


FIGURE 11B-812.9
SURFACE MARKING

11B-812.10 Electric vehicle chargers.

11B-812.10.1 General. EV chargers shall comply with Section 11B-812.10.

11B-812.10.2 Operable parts. Operable parts and charging cord storage shall comply with Section 11B-309.

11B-812.10.3 Point-of-sale devices. Where provided, point-of-sale devices shall comply with Sections 11B-707.2, 11B-707.3, 11B-707.7.2, and 11B-707.9.

11B-812.10.4 Location. *EV chargers shall be adjacent to, and within the projected width of the vehicle space being served.*

Exceptions:

- 1. EV chargers serving more than one EVCS shall be adjacent to, and within the combined projected width of the vehicle spaces being served.*
- 2. For alterations at existing facilities where an accessible route or general circulation path is not provided adjacent to the head end of the vehicle space or access aisle, the EV charger may be located within the projected width of the access aisle 36 inches (914 mm) maximum from the head end of the space.*
- 3. Where the long dimension of a vehicle space is parallel to the vehicular way, the EV charger shall be adjacent to, and 48 inches (1219 mm) maximum from the head end or foot end of the vehicle space or access aisle being served.*

ITEM 11B.51.01 – RELATED CODE AMENDMENT

**CHAPTER 2 – DEFINITIONS
SECTION 202 – Definitions**

DRIVE-UP ELECTRIC VEHICLE CHARGING STATION. *An electric vehicle charging station in which use is limited to 30 minutes maximum and is provided at a location where the electric vehicle approaches in the forward direction, stops in the vehicle space, charges the vehicle, and proceeds forward to depart the vehicle space. The arrangement of a drive-up electric vehicle charger and its associated vehicle space is similar to a gasoline filling station island.*

ELECTRIC VEHICLE (EV). *An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For the purpose of this code, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.*

ELECTRIC VEHICLE (EV) CHARGER. *Off-board charging equipment used to charge an electric vehicle.*

ELECTRIC VEHICLE CHARGING SPACE (EV Space). *A space intended for charging electric vehicles.*

ELECTRIC VEHICLE CHARGING STATION (EVCS). *One or more electric vehicle charging spaces served by an electric vehicle charger or other charging equipment. Where a multiport electric vehicle charger can simultaneously charge more than one vehicle, the number of electric vehicle charging stations shall be considered equivalent to the number of electric vehicles that can be simultaneously charged.*

ELECTRIC VEHICLE (EV) CONNECTOR. *A device that, when electrically coupled (conductive or inductive) to an electric vehicle inlet, establishes an electrical connection to the electric vehicle for the purpose of power transfer and information exchange. This device is part of the electric vehicle coupler.*

ITEM 11B.51.02 – RELATED CODE AMENDMENT

CHAPTER 11B

DIVISION 1: APPLICATION AND ADMINISTRATION

11B-106.5 Defined terms. ...

DRIVE-UP ELECTRIC VEHICLE CHARGING STATION

ELECTRIC VEHICLE (EV)

ELECTRIC VEHICLE (EV) CHARGER

ELECTRIC VEHICLE CHARGING SPACE (EV SPACE)

ELECTRIC VEHICLE CHARGING STATION (EVCS)

ELECTRIC VEHICLE (EV) CONNECTOR

ITEM 11B.51.03 – RELATED CODE AMENDMENT

CHAPTER 11B

DIVISION 2: SCOPING

11B-202 Existing buildings and facilities

11B-202.4 Path of travel requirements in alterations, additions and structural repairs. When alterations or additions are made to existing buildings or facilities, an accessible path of travel to the specific area of alteration or addition shall be provided. The primary accessible path of travel shall include:

1. A primary entrance to the building or facility,
2. Toilet and bathing facilities serving the area,
3. Drinking fountains serving the area,
4. Public telephones serving the area, and
5. Signs.

Exceptions: ...

11. Alterations solely for the purpose of installing electric vehicle charging stations (EVCS) at facilities where vehicle fueling, recharging, parking or storage is a primary function shall comply with Section 11B-202.4 to the maximum extent feasible without exceeding 20 percent of the cost of the work directly associated with the installation of EVCS.

Alterations solely for the purpose of installing EVCS at facilities where vehicle fueling, recharging, parking or storage is not a primary function shall not be required to comply with Section 11B-202.4.

ITEM 11B.51.04 – RELATED CODE AMENDMENT

**CHAPTER 11B
DIVISION 2: SCOPING**

11B-208 Parking spaces

11B-208.1 General. Where parking spaces are provided, parking spaces shall be provided in accordance with Section 11B-208. For the purposes of this section, electric vehicle charging stations are not parking spaces; see Section 11B-228.

Exception: ...

ITEM 11B.51.05 – RELATED CODE AMENDMENT

**CHAPTER 11B
DIVISION 2: SCOPING**

11B-228 Depositories, vending machines, change machines, mail boxes, and fuel dispensers, and electric vehicle charging stations

11B-228.1 General. Where provided, at least one of each type of depository, vending machine, change machine, and fuel dispenser shall comply with Section 11B-309. Electric vehicle charging stations shall comply with Section 11B-228.3.

Exception: Drive-up only depositories shall not be required to comply with Section 11B-309.

11B-228.2 Mail boxes. Where mail boxes are provided...

11B-228.3 Electric vehicle charging stations

11B-228.3.1 General. Where electric vehicle charging stations (EVCS) are provided, EVCS shall be provided in accordance with Section 11B-228.3.

11B-228.3.1.1 Existing facilities. Where new EVCS are added to a facility with existing EVCS, the requirements of Section 11B-812 shall apply only to the new EVCS installed. Alterations to existing EVCS shall comply with Section 11B-228.3.

11B-228.3.1.2 Operable parts. Where EV chargers are provided, operable parts on all EV chargers shall comply with Section 11B-309.4.

11B-228.3.2 Minimum number. EVCS complying with Section 11B-812 shall be provided in accordance with Section 11B-228.3.2. Where EVCS are provided in more than one facility on a site, the number of EVCS complying with Section 11B-228.3.2 provided on the site shall be calculated according to the number required for each facility. Where an EV charger can simultaneously charge more than one vehicle, the number of EV chargers provided shall be considered equivalent to the number of electric vehicles that can be simultaneously charged.

Exceptions:

- 1. EVCS not available to the general public and intended for use by a designated vehicle or driver shall not be required to comply with Section 11B-228.3.2. Examples include, but are not limited to, EVCS serving public or private fleet vehicles and EVCS assigned to an employee.**

2. In public housing facilities, EVCS intended for use by an EV owner or operator at their residence shall not be required to comply with Section 11B-228.3.2.

11B-228.3.2.1 Public use or common use EVCS. Where EVCS are provided for public use or common use, EVCS complying with Section 11B-812 shall be provided in accordance with Table 11B-228.3.2.1. Where new EVCS are installed in facilities with existing EVCS, the "Total Number of EVCS at a Facility" in Table 11B-228.3.2.1 shall include both existing and new EVCS.

Exception: All drive-up EVCS shall comply with Section 11B-812.

**TABLE 11B-228.3.2.1
ELECTRIC VEHICLE CHARGING STATIONS FOR
PUBLIC USE AND COMMON USE**

Total Number of EVCS at a Facility¹	Minimum Number (by type) of EVCS Required to Comply with Section 11B-812¹		
	<u>Van Accessible</u>	<u>Standard Accessible</u>	<u>Ambulatory</u>
<u>1 to 4</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>5 to 25</u>	<u>1</u>	<u>1</u>	<u>0</u>
<u>26 to 50</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>51 to 75</u>	<u>1</u>	<u>2</u>	<u>2</u>
<u>76 to 100</u>	<u>1</u>	<u>3</u>	<u>3</u>
<u>101 and over</u>	<u>1, plus 1 for each 300, or fraction thereof, over 100</u>	<u>3, plus 1 for each 60, or fraction thereof, over 100</u>	<u>3, plus 1 for each 50, or fraction thereof, over 100</u>

Notes:

1. Where an EV charger can simultaneously charge more than one vehicle, the number of EVCS provided shall be considered equivalent to the number of electric vehicles that can be simultaneously charged.

ITEM 11B.51.06 – RELATED CODE AMENDMENT

**CHAPTER 11B
DIVISION 3: BUILDING BLOCKS**

11B-309 Operable parts

11B-309.1 General. Operable parts shall comply with Section 11B-309.

11B-309.2 Clear floor space. A clear floor or ground space complying with Section 11B-305 shall be provided.

11B-309.3 Height. Operable parts shall be placed within one or more of the reach ranges specified in Section 11B-308.

11B-309.4 Operation. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum.

Exception: Gas pump nozzles and electric vehicle connectors shall not be required to provide operable parts that have an activating force of 5 pounds (22.2 N) maximum.

**CHAPTER 16
STRUCTURAL DESIGN**

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 16, from the 2013 CA Building Code into the 2016 CA Building Code.

ITEM 16.00

CHAPTER 16 – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
1607.8.2		X

ITEM 16.01

**SECTION 1607
LIVE LOADS**

1607.8 Loads on handrails, guards, grab bars, shower seats, dressing room bench seats and vehicle barriers. ...

1607.8.2 Grab bars, shower seats and dressing room bench seats. Grab bars, shower seats and dressing room bench seat systems shall be designed to resist a single concentrated load of 250 pounds (1.11 kN) applied in any direction at any point on the grab bar or seat so as to produce the maximum load effects. **[DSA-AC]** See Chapter 11A, Section 1127A.4, and Chapter 11B, Sections 11B-609.8, 11B-610.4 and 11B-903.6, for grab bars, shower seats and dressing room bench seats, as applicable.

CHAPTER 16A STRUCTURAL DESIGN

DSA-AC proposes to carry forward its adoption of existing California amendments in Chapter 16A, from the 2013 CA Building Code into the 2016 CA Building Code.

ITEM 16A.00

CHAPTER 16A -- MATRIX ADOPTION TABLE

Adopting Agency	DSA-AC
Adopt entire Chapter	
Adopt entire Chapter as amended (amended Sections listed below)	
Adopt only those Sections that are listed below	X
Chapter / Section	
1607A.8.2	X

ITEM 16A.01

SECTION 1607A LIVE LOADS

1607A.8 Loads on handrails, guards, grab bars, shower seats, dressing room bench seats and vehicle barriers. ...

1607A.8.2 Grab bars, shower seats and dressing room bench seats. Grab bars, shower seats and dressing room bench seat systems shall be designed to resist a single concentrated load of 250 pounds (1.11 kN) applied in any direction at any point on the grab bar or seat so as to produce the maximum load effects. **[DSA-AC]** See Chapter 11A, Section 1127A.4, and Chapter 11B, Sections 11B-609.8, 11B-610.4 and 11B-903.6, for grab bars, shower seats and dressing room bench seats, as applicable.

**CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS**

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 30, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 30.00

CHAPTER 30 – MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
3001.1 w/ Exception		X
3001.3		X

ITEM 30.01

**SECTION 3001
GENERAL**

3001.1 Scope. This chapter governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.

~~**Exception: [DSA-AC]** For accessibility requirements for platform lifts and elevators, see California Code of Regulations, Title 8 and Title 24, Part 2, Sections 1124A, Sections 11B-206.6, 11B-206.7, 11B-407 and 11B-410.~~

3001.3 Accessibility. Passenger elevators and platform (wheelchair) lifts required to be accessible or to serve as part of an accessible means of egress shall comply with Sections 1009 and 1109.7 by Chapter 11A or 11B shall conform to Section 1009 and either Chapter 11A for applications listed in Section 108.2.1.2 regulated by the Department of Housing and Community Development or Chapter 11B for applications listed in Section 1.9.1 regulated by the Division of the State Architect—Access Compliance.

**CHAPTER 31
SPECIAL CONSTRUCTION**

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 31, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 31.00

CHAPTER 31 – MATRIX ADOPTION TABLE

Adopting Agency	DSA-AC
Adopt entire Chapter	
Adopt entire Chapter as amended (amended Sections listed below)	
Adopt only those Sections that are listed below	X
Chapter / Section	
3104.2, Exc 2	X

ITEM 31.01

**SECTION 3104
PEDESTRIAN WALKWAYS AND TUNNELS**

3104.2 Separate structures. Buildings connected by pedestrian walkways or tunnels shall be considered to be separate structures.

Exceptions:

1. ...
2. For purposes of calculating the number of Type B units required by Chapter 11, structurally connected buildings and buildings with multiple wings shall be considered one structure.
[DSA-AC] For purposes of accessibility *in residential facilities* as required by Chapter 11A and Chapter 11B, structurally connected buildings, buildings connected by stairs, walkways, or roofs, and buildings with multiple wings shall be considered one structure.

**CHAPTER 31B
PUBLIC POOLS**

DSA-AC proposes to carry forward its adoption of existing California amendments in Chapter 31B, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 31B.00

CHAPTER 31B – MATRIX ADOPTION TABLE

Adopting Agency	DSA-AC
Adopt entire Chapter	
Adopt entire Chapter as amended (amended Sections listed below)	
Adopt only those Sections that are listed below	X
Chapter / Section	
<u>3101B (last paragraph only)</u>	<u>X</u>
<u>3114B.1 w/ Exception 2 only</u>	<u>X</u>

ITEM 31B.01

**SECTION 3101B
SCOPE**

The provisions of this chapter shall apply to the construction, installation, renovation, alteration, addition, relocation, replacement or use of any public pool and to its ancillary facilities, mechanical equipment and related piping. Public pools include those located in or designated as the following: commercial building, hotel, motel, resort, recreational vehicle or mobile home park, campground, apartment house, condominium, townhouse, homeowner association, club, community building or area, public or private school, health club or establishment, water park, swim school, medical facility, bed and breakfast, licensed day-care facility, recreation and park district and municipal pools.

Note: Existing law limits application of building standards. Please see Health and Safety Code Sections 18938.5 and 116050.

[DSA-AC] Refer to Chapter 11B for accessibility provisions applicable to public accommodations, commercial buildings and public housing.

**CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION**

DSA-AC proposes to carry forward its adoption of specific model code provisions and California amendments in Chapter 33, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 33.00

CHAPTER 33 — MATRIX ADOPTION TABLE

Adopting Agency		DSA-AC
Adopt entire Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
3306.2		X

ITEM 33.01

**SECTION 3306
PROTECTION OF PEDESTRIANS**

3306.2 Walkways. A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be accessible in accordance with ~~Chapter 11~~ *Chapter 11A or 11B as applicable*, and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m²).

CHAPTER 35
REFERENCED STANDARDS

DSA-AC proposes to carry forward its adoption of specific model code provisions and existing California amendments in Chapter 35, from the 2013 CA Building Code into the 2016 CA Building Code, with further amendment as indicated.

ITEM 35.00

CHAPTER 35 – MATRIX ADOPTION TABLE

Adopting Agency	DSA-AC
Adopt entire Chapter	
Adopt entire Chapter as amended (amended Sections listed below)	
Adopt only those Sections that are listed below	X
Chapter / Section	
ANSI	
ANSI S3.41	X
ANSI /SDI C-2012	X
ASME	
ASME A17.1-13 / CAS B44-2013	X
ASME A18.1-2008	X
ASTM	
ASTM F1292-99	X
ASTM F 1292-04	X
ASTM F 1487-01	X
ASTM F 1951-99	X
BHMA	
BHMA A156.10-2011	X
BHMA A156.19-2013	X
NFPA	
NFPA 72-13	X

ITEM 35.01

CHAPTER 35
REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in *Chapter 1, Administration, Division 1, Sections 1.1.5 and 1.1.7, and in Chapter 1, Administration, Division II, Section 102.4.*

ASME	American Society of Mechanical Engineers Two Park Avenue New York, NY 10016-5990
-------------	--

Standard reference number	Title	Referenced in code section number
ASME/A17.1-13 CSA B44-2013	Safety Code for Elevators and Escalators	907.3.3, 911.1.5, 1009.4, 11B-407.1, 11B-407.1.1, 11B-407.4.9, 11B-408.1, 11B-409.1, 11B-411.1, 11B-810.9, 1607.9.1, 3001.2, 3001.4, 3002.5, 3003.2, 3007.1, 3008.1.3, 3008.7.1
A18.1-2008	Safety Standard for Platform Lifts and Stairway Chairlifts	1109.8, 11B-410.1

ASTM ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
F 1292-99	Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment	11B-1008.2.6.2
F 1292-04	Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment	11B-1008.2.6.2
F 1487-01	Standard Consumer Safety Performance Specification For Playground Equipment for Public Use	202-USE ZONE
F 1951-99	Standard Specification for Determination of Accessibility Of Surface Systems Under and Around Playground Equipment	11B-1008.2.6.1

BHMA Builders Hardware Manufacturers' Association
355 Lexington Avenue, 17th Floor
New York, NY 10017-6603

Standard reference number	Title	Referenced in code section number
A 156.10-2011	Power Operated Pedestrian Doors	11B-404.2.9, 11B-404.3, 1010.1.4.2
A 156.19-2013	Standard for Power Assist and Low Energy Operated Doors	11B-404.2.9, 11B-404.3, 11B-408.3.2.1, 11B-409.3.1, 1010.1.4.2

NFPA National Fire Protection Association

1 Batterymarch Park
Quincy, MA 02169-7471

Standard reference number	Title	Referenced in code section number
72-13	National Fire Alarm Code, as amended*.....	407.4.4.3, 407.4.4.5, 407.4.4.5.1 901.6, 903.4.1, 904.3.5, 907.2, 907.2.6, 907.2.11, 907.2.13.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2, 907.5.2.2, 907.5.2.2.5, 907.5.2.3.5, 907.6, 907.6.1, 907.6.2, 907.6.6, 907.7, 907.7.1, 907.7.2, 907.2.9.3, 911.1.5, 2702.2.4, 3005.5, 3007.7

****NFPA 72, As Amended by the State fire Marshal***

Notation

Authority: Government Code Section 4450.

References: Government Code Sections 4450 through 4461, 12955.1(c) and 14679; Health and Safety Code Sections 18949.1, 19952 through 19959; and Vehicle Code Section 22511.8.

**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
DIVISION OF THE STATE ARCHITECT - STRUCTURAL SAFETY (DSA-SS AND DSA-
SS/CC)

REGARDING PROPOSED CHANGES TO
CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2**

The Division of the State Architect (DSA) proposes to adopt the 2015 edition of the International Building Code (IBC 2015) of International Code Council for codification and effectiveness in the 2016 edition of the California Building Code as presented on the following pages, including any necessary amendments. DSA further proposes to:

- Adopt new building standards that are not addressed by the 2015 model code proposed for adoption.
- Adopt new necessary amendments to the 2015 model code proposed for adoption.
- Relocate existing adopted and necessary amendments of the current model code into the format of the 2015 model code proposed for adoption. These amendments with editorial changes only are outside the rulemaking and are not subject to public comments. All amendments shown highlighted are existing and are not part of the rulemaking.

LEGEND FOR FINAL EXPRESS TERMS (combination of 45-day and 15-day changes)

1. For 45-day and 15-Day changes, existing California amendments or code language being modified appears in *italics*, with modified language underlined.
2. For 45-day and 15-Day changes, repealed text appears in ~~strikeout~~.

Note:

Following each chapter of the proposed regulations is a notation that cites specific statute(s) that authorizes the adoption of these regulations and statute that allows for regulations to clarify the subject matter being implemented, interpreted or made specific by the authority statute(s).

EXPRESS TERMS

**CHAPTER 1
SCOPE AND ADMINISTRATION**

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter			

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

with amendments listed below			
Adopt only those sections listed below	X	X	
Division I			
1.1	X	X	
<u>1.9.2</u>	<u>X</u>	<u>X</u>	
1.9.2.1	X	-	
1.9.2.1.1	X	-	
1.9.2.1.2	X	-	
1.9.2.1.3	X	-	
1.9.2.2	-	X	
1.9.2.2.1	-	X	
1.9.2.2.2	-	X	
1.9.2.2.3	-	X	
1.9.2.2.4	-	X	
1.9.3		X	
Division II			
102.1	X	X	
102.2-102.4	X	X	
102.4.1	X	X	
102.4.3	X	X	
102.4.4	X	X	
102.5	X	X	
104.9	X	X	
104.10	X	X	
104.11	X	X	
106.1	X	X	
106.1.1	X	X	

All existing amendments that are not revised below shall continue without any change.

DIVISION I
CALIFORNIA ADMINISTRATION

SECTION 1.1

GENERAL

1.1.1 Title.

These regulations shall be known as the California Building Code, may be cited as such and will be referred to herein as "this code." The California Building Code is Part 2 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the 2012 International Building Code of the International Code Council with necessary California amendments.

1.1.2 Purpose.

The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.

1.1.3 Scope.

The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California.

1.1.3.1 Nonstate-regulated buildings, structures and applications.

Except as modified by local ordinance pursuant to Section 1.1.8, the following standards in the California Code of Regulations, Title 24, Parts 2, 2.5, 3, 4, 5, 6, 9, 10 and 11 shall apply to all occupancies and applications not regulated by a state agency.

1.1.3.2 State-regulated buildings, structures and applications.

The model code, state amendments to the model code, and/or state amendments where there are no relevant model code provisions shall apply to the following buildings, structures, and applications regulated by state agencies as specified in Sections 1.2 through 1.14, except where modified by local ordinance pursuant to Section 1.1.8. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the state legislature.

Note: See Preface to distinguish the model code provisions from the California provisions.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California, and regulated by the Building Standards Commission. See Section 1.2 for additional scope provisions.
2. Local detention facilities regulated by the Corrections Standards Authority. See Section 1.3 for additional scope provisions.
3. Barbering, cosmetology or electrolysis establishments, acupuncture offices, pharmacies, veterinary facilities and structural pest control locations regulated by the Department of Consumer Affairs. See Section 1.4 for additional scope provisions.
4. Energy efficiency standards regulated by the California Energy Commission. See Section 1.5 for additional scope provisions.

5. *Dairies and places of meat inspection regulated by the Department of Food and Agriculture. See Section 1.6 for additional scope provisions.*
6. *Organized camps, laboratory animal quarters, public swimming pools, radiation protection, commissaries serving mobile food preparation vehicles and wild animal quarantine facilities regulated by the Department of Public Health. See Section 1.7 for additional scope provisions.*
7. *Hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities. See Section 1.8.2.1.1 for additional scope provisions.*
8. *Accommodations for persons with disabilities in buildings containing newly constructed covered multifamily dwellings, new common use spaces serving existing covered multifamily dwellings, additions to existing buildings where the addition alone meets the definition of "COVERED MULTIFAMILY DWELLING," and common-use spaces serving covered multifamily dwellings, which are regulated by the Department of Housing and Community Development. See Section 1.8.2.1.2 for additional scope provisions.*
9. *Permanent buildings and permanent accessory buildings or structures constructed within mobile-home parks and special occupancy parks regulated by the Department of Housing and Community Development. See Section 1.8.2.1.3 for additional scope provisions.*
10. *Accommodations for persons with disabilities regulated by the Division of the State Architect. See Section 1.9.1 for additional scope provisions.*
11. *Public elementary and secondary schools, community college buildings and state-owned or state-leased essential service buildings regulated by the Division of the State Architect. See Section 1.9.2 for additional scope provisions.*
12. *Qualified historical buildings and structures and their associated sites regulated by the State Historical Building Safety Board with the Division of the State Architect. See Section 1.9.3 for additional scope provisions.*
13. *General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 1.10 for additional scope provisions.*
14. *Applications regulated by the Office of the State Fire Marshal include, but are not limited to, the following in accordance with Section 1.11:*
 - 14.1. *Buildings or structures used or intended for use as an:*
 1. *Asylum, jail, prison*
 2. *Mental hospital, hospital, home for the elderly, children's nursery, children's home or institution, school or any similar occupancy of any capacity*
 3. *Theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of*

amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education

4. *Small family day-care homes, large family day-care homes, residential facilities and residential facilities for the elderly, residential care facilities*
5. *State institutions or other state-owned or state-occupied buildings*
6. *High rise structures*
7. *Motion picture production studios*
8. *Organized camps*
9. *Residential structures*
- 14.2. *Tents, awnings or other fabric enclosures used in connection with any occupancy*
- 14.3. *Fire alarm devices, equipment and systems in connection with any occupancy*
- 14.4. *Hazardous materials, flammable and combustible liquids*
- 14.5. *Public school automatic fire detection, alarm and sprinkler systems*
- 14.6. *Wildland-urban interface fire areas*
15. *Public libraries constructed and renovated using funds from the California Library Construction and Renovation Bond Act of 1988 and regulated by the State Librarian. See Section 1.12 for additional scope provisions.*
16. *Graywater systems regulated by the Department of Water Resources. See Section 1.13 for additional scope provisions.*
17. *For applications listed in Section 1.9.1 regulated by the Division of the State Architect—Access Compliance, outdoor environments and uses shall be classified according to accessibility uses described in Chapters 11B.*
18. *Marine Oil Terminals regulated by the California State Lands Commission. See Section 1.14 for additional scope provisions.*

1.1.4 Appendices.

Provisions contained in the appendices of this code shall not apply unless specifically adopted by a state agency or adopted by a local enforcing agency in compliance with Health and Safety Code Section 18901 et. seq. for Building Standards Law, Health and Safety Code Section 17950 for State Housing Law and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 1.1.8 of this code.

1.1.5 Referenced codes.

The codes, standards and publications adopted and set forth in this code, including other codes, standards and publications referred to therein are, by title and date of publication, hereby adopted as standard reference documents of this code. When this code does not specifically cover any subject related to building design and construction, recognized architectural or engineering practices shall be employed. The National Fire Codes, standards, and the Fire Protection Handbook of the National Fire Protection Association are permitted to be used as authoritative guides in determining recognized fire

prevention engineering practices.

1.1.6 Nonbuilding standards, orders and regulations.

Requirements contained in the California Building Code, or in any other referenced standard, code or document, which are not building standards as defined in Health and Safety Code Section 18909, shall not be construed as part of the provisions of this code. For nonbuilding standards, orders and regulations, see other titles of the California Code of Regulations.

1.1.7 Order of precedence and use.

1.1.7.1 Differences.

In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.

1.1.7.2 Specific provisions.

Where a specific provision varies from a general provision, the specific provision shall apply.

1.1.7.3 Conflicts.

When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, the most restrictive requirements shall prevail.

1.1.8 City, county, or city and county amendments, additions or deletions.

The provisions of this code do not limit the authority of city, county, or city and county governments to establish more restrictive and reasonably necessary differences to the provisions contained in this code pursuant to complying with Section 1.1.8.1. The effective date of amendments, additions or deletions to this code by a city, county, or city and county filed pursuant to Section 1.1.8.1 shall be the date filed. However, in no case shall the amendments additions or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.

1.1.8.1 Findings and filings.

1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical or geological conditions.

Exception: Hazardous building ordinances and programs mitigating unreinforced masonry buildings.

2. The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.
3. Findings prepared by fire protection districts shall be ratified by the local city, county or city and county and filed with the California Department of Housing and Community Development, Division of Codes and Standards, P.O. Box 1407, Sacramento, CA 95812-1407 or 1800 3rd Street, Room 260, Sacramento, CA 95811.

1.1.9 Effective date of this code.

Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.

1.1.10 Availability of codes.

At least one complete copy each of Titles 8, 19, 20, 24 and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county, or city and county shall have an up-to-date copy of the code available for public inspection. See Health and Safety Code Section 18942(d)(1) and (2).

1.1.11 Format.

This part fundamentally adopts the International Building Code by reference on a chapter-by-chapter basis. When a specific chapter of the International Building Code is not printed in the code and is marked "Reserved", such chapter of the International Building Code is not adopted as a portion of this code. When a specific chapter of the International Building Code is marked "Not adopted by the State of California" but appears in the code, it may be available for adoption by local ordinance.

Note: Matrix Adoption Tables at the front of each chapter may aid the code user in determining which chapter or sections within a chapter are applicable to buildings under the authority of a specific state agency, but they are not to be considered regulatory.

1.1.12 Validity.

If any chapter, section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, contrary to statute, exceeding the authority of the state as stipulated by statutes or otherwise inoperative, such decision shall not affect the validity of the remaining portion of this code.

...

1.9.2 Division of the State Architect—Structural Safety.

1.9.2.1 DSA-SS Division of the State Architect-Structural Safety.

Application—Public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings.

Enforcing agency—The Division of the State Architect- Structural Safety (DSA-SS) has been delegated the responsibility and authority by the Department of General Services to review and approve the design and observe the construction of public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings.

Authority cited—Education Code Sections 17310 and 81142 and Health and Safety Code Section 16022.

Reference—Education Code Sections 17280 through 17317, and 81130 through 81147 and Health and Safety Code Sections 16000 through 16023.

1.9.2.1.1 Applicable administrative standards.

1. Title 24, Part 1, California Code of Regulations:

- 1.1. Sections 4-301 through 4-355, Group 1, Chapter 4, for public elementary and secondary schools and community colleges.
- 1.2. Sections 4-201 through 4-249, Chapter 4, for state-owned or state-leased essential services buildings.

2. Title 24, Part 2, California Code of Regulations: [applies to public elementary and secondary schools, community colleges and state-owned or state-leased essential services building(s)]:

2.1. Sections 1.1 and 1.9.2.1 of Chapter 1, Division I.

2.2. Sections 102.1, 102.2, 102.3, 102.4, 102.5, 104.9, 104.10, 104.11 and 106.1 of Chapter 1, Division II.

1.9.2.1.2 Applicable building standards.

California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9, 10, 11 and 12, California Code of Regulations, for school buildings, community colleges and state-owned or state-leased essential service buildings.

The provisions of Title 24, Part 2, as adopted and amended by the Division of the State Architect—Structural Safety, shall apply to the applications listed in Section 1.9.2.1.

The Division of the State Architect—Structural Safety adopts the following building standards in Title 24, Part 2:

Chapters 2 through 10, 12, 14, 15, 16A, 17A, 18A, 19A, 20, 21A, 22A, 23, 24, 25, 26, 30, 31, 32, 33, ~~34, and 35, and Appendix J.~~

1.9.2.1.3 Amendments.

Division of the State Architect—Structural Safety amendments in this code appear preceded with the acronym [DSA-SS].

Exceptions:

1. Chapters 16A, 17A, 18A, 19A, 21A, and 22A—Amendments appearing in these chapters without an acronym have been co-adopted by DSA-SS and OSHPD.
2. ~~Chapter 34, Sections 3417-3423—DSA-SS adopts these sections without the use of the DSA-SS acronym.~~

1.9.2.1.4 Reference to other chapters.

Where reference is made within this code to sections in Chapters 16, 17, 18, 19, 21, and 22, the respective sections in Chapters 16A, 17A, 18A, 19A, 21A, and 22A shall apply instead.

1.9.2.2 DSA-SS/CC Division of the State Architect-Structural Safety/Community Colleges

Application—Community Colleges. The Division of the State Architect has been delegated the authority by the Department of General Services to promulgate alternate building standards for application to community colleges, which a community college may elect to use in lieu of standards promulgated by DSA-SS in accordance with Section 1.9.2.1.

Enforcing agency—Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC)

The Division of the State Architect has been delegated the authority by the Department of General Services to review and approve the design and oversee construction of community colleges electing to use the alternative building standards as provided in this section.

Authority cited—Education Code Section 81053.

Reference—Education Code Sections 81052, 81053, and 81130 through 81147.

1.9.2.2.1 Applicable administrative standards.

1. Title 24, Part 1, California Code of Regulations:

1.1. Sections 4-301 through 4-355, Group 1, Chapter 4.

2. Title 24, Part 2, California Code of Regulations:

2.1. Sections 1.1 and 1.9.2 of Chapter 1, Division I.

2.2. Sections 102.1, 102.2, 102.3, 102.4, 102.5, 104.9, 104.10, 104.11, and 106.1 of Chapter 1, Division II.

1.9.2.2.2 Applicable building standards.

California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9, 10, 11, and 12, California Code of Regulations.

The Division of the State Architect-Structural Safety/Community Colleges [DSA-SS/CC] adopts the following building standards in Title 24, Part 2:

Chapters 2 through 10, 12, 14, 15, 16, 17A, 18A, 19, 20, 21, 22, 23, 24, 25, 26, 30, 31, 32, 33, 34, and 35, and Appendix J.

1.9.2.2.3 Amendments.

Division of the State Architect—Structural Safety/Community Colleges amendments in this code appear preceded with the acronym **[DSA-SS/CC]**.

Exceptions:

1. Chapters 17A, and 18A—Amendments appearing in these chapters without an acronym have been co-adopted by DSA-SS, DSASS/CC, and OSHPD.

~~2. Chapter 34, Sections 3417-3423—DSA-SS/CC adopts these sections without the use of the DSA-SS/CC acronym.~~

1.9.2.2.4 Reference to other chapters.

Where reference is made within this code to sections in Chapters 17 and 18, the respective sections in Chapters 17A and 18A shall apply instead.

...

DIVISION II
SCOPE AND ADMINISTRATION

...

SECTION 102
APPLICABILITY

...

[A] 102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.4.1 and ~~102.4.2~~ through 102.4.4.

...

102.4.3 Code References. *[DSA-SS & DSA-SS/CC] All reference to International Codes or other similar codes in referenced standards shall be replaced by equivalent provisions in the California Building Standards Codes.*

102.4.4 Reference in Standards. *[DSA-SS & DSA-SS/CC] All references listed in reference standards shall be replaced by referenced standards listed in Chapter 35 of this code, where applicable, and shall include all amendments to the reference standards in this code.*

...

SECTION 104
DUTIES AND POWERS OF BUILDING OFFICIAL

...

[A] 104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons why the alternative was not *approved*. *[DSA-SS &*

DSA-SS/CC] Alternative system shall satisfy ASCE 7 Section 1.3, unless more restrictive requirements are established by this code for an equivalent system.

[DSA-SS & DSA-SS/CC] Alternative systems shall also satisfy the California Administrative Code, Section 4-304.

...

SECTION 106 FLOOR AND ROOF DESIGN LOADS

[A] 106.1 Live loads posted. In commercial, institutional or industrial buildings, for each floor or portion thereof designed for live loads exceeding 50 psf (2.40 kN/m²), such design live loads shall be conspicuously posted by the owner or owner's authorized agent in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.

106.1.1 Snow Load Posting. *[DSA-SS & DSA-SS/CC] Snow loads used in design shall be posted as for live loads.*

...

(All existing amendments that are not revised above shall continue without any change.)

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 2

DEFINITIONS

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments

Adopt entire chapter			
Adopt entire chapter with amendments listed below	X	X	
Adopt only those sections listed below			
Active Equipment/Component	X	X	
<u>Approved Agency</u>	<u>X</u>	<u>X</u>	
Diaphragm, Rigid	X	X	
Enforcement Agent	X	X	
Next Generation Attenuation (NGA)	X	X	
Retrofit	X	X	
Rugged Equipment	X	X	
Significant Loss of Function	X	X	
<u>Torque-controlled post-installed anchor</u>	<u>X</u>	<u>X</u>	

All existing California amendments that are not revised below shall continue without change.

...

SECTION 202 DEFINITIONS

...

ACTIVE EQUIPMENT/COMPONENT. *[DSA-SS, DSA-SS/CC] Equipment/Component containing moving or rotating parts, electrical parts such as switches or relays, or other internal components that are sensitive to earthquake forces and critical to the function of the equipment.*

...

[A] APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests or furnishing inspection services, where such agency has been approved by the building official.

[DSA-SS, DSA-SS/CC] This term is synonymous with "laboratory of record" as referenced in Section 4-335 of the California Administrative Code.

...

Diaphragm, rigid. ~~[DSA-SS, DSA-SS/CC] A diaphragm is rigid for the purpose of distribution of story shear and torsional moment where so indicated in Section 12.3.1 of ASCE 7.~~

...

ENFORCEMENT AGENT. ~~[DSA-SS, DSA-SS/CC] That individual within the agency or organization charged with responsibility for agency or organization compliance with the requirements of this Code. Used interchangeably with Building Official and Code Official.~~

...

NEXT GENERATION ATTENUATION (NGA). ~~[DSA-SS, DSA-SS/CC] Attenuation relations used for the 2008 United States Geological Survey (USGS) seismic hazards maps (for the Western United States) or their equivalent as determined by the enforcement agency.~~

...

RETROFIT. ~~[DSA-SS, DSA-SS/CC] The construction of any new element or system, or the alteration of any existing element or system required to bring an existing building, or portion thereof, conforming to earlier code requirements, into conformance with standards of the currently effective California Building Standards Code.~~

...

RUGGED EQUIPMENT. ~~[DSA-SS, DSA-SS/CC] Rugged equipment refers to an amplexness of construction that gives such equipment the ability to survive earthquake strong motions without significant loss of function.~~

...

SIGNIFANT LOSS OF FUNCTION. ~~[DSA-SS, DSA-SS/CC] Significant loss of function for equipment or components means the equipment or component cannot be restored to its original function by competent technicians after a design earthquake because the equipment or component require parts that are not normally stocked by the owner or not readily available.~~

...

TORQUE-CONTROLLED POST-INSTALLED ANCHOR. ~~[DSA-SS, DSA-SS/CC] A post-installed anchor that is set by the expansion of one or more sleeves or other elements against the sides of the drilled hole through the application of torque, which pulls the cone(s) into the expansion sleeve(s); after setting, tensile loading can cause additional expansion (follow-up expansion).~~

~~All existing amendments that are not revised above shall continue without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 3
USE AND OCCUPANCY CLASSIFICATION**

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 6 – TYPES OF CONSTRUCTION

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 8 – INTERIOR FINISHES

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 9 – FIRE PROTECTION SYSTEMS

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 10 – MEANS OF EGRESS

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 12 – INTERIOR ENVIRONMENT

Adopt and/or codify entire chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 14

EXTERIOR WALLS

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	X	X	
Adopt only those sections listed below			
<i>1405.1.1</i>	X	X	
<i>1410 1411</i>	X	X	

All existing California amendments that are not revised below shall continue without change.

...

SECTION 1405
INSTALLATION OF WALL COVERINGS

...

1405.1.1 Additional requirements. [DSA-SS & DSA-SS/CC] In addition to the requirements of Sections 1405.6, 1405.7, 1405.8, 1405.9, and 1405.10, the installation of anchored or adhered veneer shall comply with applicable provisions of Section ~~1410~~ 1411.

...

SECTION ~~1410~~ 1411 [DSA-SS & DSA-SS/CC]

ADDITIONAL REQUIREMENTS FOR ANCHORED AND ADHERED VENEER.

1411.1 ~~1410.1~~ General. In no case shall veneer be considered as part of the backing in computing strength or deflection nor shall it be considered a part of the required thickness of the backing.

Veneer shall be anchored in a manner which will not allow relative movement between the veneer and the wall.

Anchored or adhered veneer shall not be used on overhead horizontal surfaces.

1411.2 ~~1410.2~~ Adhered veneer. Units of tile, masonry, stone or terra cotta which exceed 5/8 inch (16 mm) in thickness shall be applied as for anchored veneer where used over exit ways or more than 20 feet (6096 mm) in height above adjacent ground elevation.

1411.2.1 ~~1410.2.1~~ Bond strength and tests. Veneer shall develop a bond to the backing in accordance with TMS 402, Section ~~6.3.2.4~~ 12.3.2.4.

Not less than two shear tests shall be performed for the adhered veneer between the units and the supporting element. At least one shear test shall be performed at each building for each 5,000 square feet (465 m²) of floor area or fraction thereof.

~~All existing amendments that are not revised above shall continue without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 15

ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter			
Adopt entire chapter with amendments listed below	X	X	
Adopt only those sections listed below			
<i>1507.3.10</i>	X	X	
<i>1507.7.8</i>	X	X	
1509.7.1 <i>1510.7.1 Exception</i>	X	X	
1512-1513	X	X	

~~All existing California amendments that are not revised below shall continue without change.~~

...

SECTION 1507

REQUIREMENTS FOR ROOF COVERINGS

...

1507.3.10 Additional requirements. [DSA-SS & DSA-SS/CC] In addition to the requirements of 1507.3.6 and 1507.3.7, the installation of clay and concrete tile roof coverings shall comply with seismic anchorage provisions of Section 1513. ~~1512.~~

...

1507.7.8 Additional requirements. [DSA-SS & DSA-SS/CC] In addition to the requirements of Sections ~~1507.7.5~~, the installation of slate shingle roof coverings shall comply with the requirements of Sections 1507.3.6 and 1507.3.7, and the seismic anchorage provisions of Section ~~1512~~1513.

...

1509.7.1 1510.7.1 Wind resistance. Rooftop-mounted photovoltaic panels and modules shall be designed for component and cladding wind loads in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.

Exception: *[DSA-SS, DSA-SS/CC] The effective wind area shall be in accordance with Chapter 16 and ASCE 7 Section 26.2.*

...

**SECTION 1513 ~~1512~~ [DSA-SS & DSA-SS/CC]
SEISMIC ANCHORAGE OF SLATE SHINGLE, CLAY
AND CONCRETE TILE ROOF COVERINGS**

1513.1 ~~1512.1~~ Fasteners. Nails shall be long enough to penetrate into the sheathing 3/4 inch (19 mm). Where sheathing is less than 3/4 inch (19 mm) in thickness, nails shall be driven into supports, unless nails with ring shanks are used.

All fasteners shall be corrosion resistant and fabricated of copper, stainless steel, or brass, or shall have a hot dipped galvanized coating not less than 1.0 ounce of zinc per square foot (305 gm/m²).

Nails for slate shingles and clay or concrete tile shall be copper, brass or stainless steel with gage and length per common ferrous nails.

1513.2 ~~1512.2~~ Wire. Wire for attaching slate shingles and clay or concrete tile shall be copper, brass or stainless steel capable of supporting four times the weight of tile.

Wire supporting a single tile or shingle shall not be smaller than 1/16 inch (1.6 mm) in diameter. Continuous wire ties supporting more than one tile shall not be smaller than 0.084 inch (2 mm) in diameter.

1513.3 ~~1512.3~~ Metal strips. Metal strips for attaching slate shingles and clay or concrete tile shall be copper, brass or stainless steel capable of supporting four times the weight of tile.

1513.4 ~~1512.4~~ Clay or concrete tiles. Clay or concrete tile shall be installed in accordance with Table 1507.3.7 and as described herein.

1. On wood roofs or roofs of other material to which wood strips are secured, every cover or top tile when fastened with nails shall be nailed directly into 1-1/4 inches (32 mm) sound grain soft wood strips of sufficient height to support the tile.

Pan or bottom tiles shall be nailed directly to the roof sheathing or to wood strips. Wood strips shall be secured to the roof by nails spaced not over 12 inches (305 mm) apart.

2. *On concrete roofs, wires shall be secured in place by wire loops embedded into the concrete not less than 2 inches (51 mm). The wire loops shall be spaced not more than 36 inches (914 mm) on center parallel to the eaves, and spaced vertically to allow for the minimum 3 inches (76 mm) lapping of the tile.*

3. *Where continuous ties of twisted wire, interlocking wires or metal strips extending from the ridge to eave are used to attach tile, the ties shall be attached to the roof construction at the ridge, eave, and at intervals not exceeding 10 feet 0 inch (3048 mm) on center. The ties within 2 feet 0 inch (610 mm) of the rake shall be attached at intervals of 5 feet 0 inch (1524 mm).*

Attachment for continuous ties shall be nails, screws, staples or approved clips of the same material as the ties and shall not be subjected to withdrawal forces. Attachments for continuous ties shall have an allowable working stress shear resistance of not less than twice the dead weight of the tile tributary to the attachment, but not less than 300 pounds (136 kg).

4. *Tile with projecting anchor lugs at the bottom of the tiles shall be held in position by means of 1-inch by 2-inch (25mm by 51mm) wood stripping nailed to the roof sheathing over the underlay.*
5. *Clay or concrete tile on roofs with slopes exceeding 24 units vertical in 12 units horizontal (200 percent slope) shall be attached as required for veneer in Chapter 14. The nose of all tiles shall be securely fastened.*
6. *Clay or concrete tile shall have a minimum of two fasteners per tile. Tiles that are 8 inches (203 mm) in width or less are permitted to be fastened at the center of the head with one fastener per tile.*
7. *Interlocking clay or concrete tile shall have a minimum of one nail near center of head or two wire ties per tile.*

1513.5 ~~4512.5~~ Slate shingles. *Slate shingles on roofs with slopes exceeding 24 units vertical in 12 units horizontal (200 percent slope) shall be attached as required for veneer in accordance with Chapter 14.*

All existing amendments that are not revised above shall continue without any change.

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 16
STRUCTURAL DESIGN

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below		X	
Adopt only those sections listed below			
1601.1.1		X	
1601.1.2		X	
1601.1.3		X	
1601.1.4		X	
1601.2		X	
1601.3		X	
1616		X	

All existing California amendments that are not revised below shall continue without change.

SECTION 1601
GENERAL

1601.1 Scope. The provisions of this chapter shall govern the structural design of buildings, structures and portions thereof regulated by this code.

1601.1.1 Application. [DSA-SS/CC] *The scope of application of Chapter 16 is as follows:*

Community college buildings regulated by the Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC), as listed in Section 1.9.2.2.

1601.1.2 Identification of amendments. [DSA-SS/CC]

Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC) amendments appear in this chapter preceded with the appropriate acronym, as follows:

Division of the State Architect - Structural Safety/Community Colleges: [DSA-SS/CC] - For community college buildings listed in Section 1.9.2.2

1601.1.3 Reference to other chapters. [DSA-SS/CC]

Where reference within this chapter is made to sections in Chapters 17 and 18, the provisions in Chapters 17A and 18A respectively shall apply instead.

1601.1.4 Amendments. [DSA-SS/CC] See Section 1616 for additional requirements.

1601.2 Enforcement agency approval. [DSA-SS/CC] *In addition to requirements of the California Administrative Code and the California Building Code, any aspect of project design, construction, quality assurance or quality control programs for which this code requires approval by the Registered & Design & Professional (RDP), are also subject to approval by the enforcement agency.*

...

SECTION 1616
ADDITIONAL REQUIREMENTS FOR COMMUNITY COLLEGES [DSA-SS/CC]

1616.1 Construction documents.

1616.1.1 Additional requirements for construction documents are included in Sections 4-210 and 4-317 of the California Administrative Code (Part 1, Title 24, C.C.R).

1616.1.2 Connections. Connections that resist design seismic forces shall be designed and detailed on the design drawings.

1616.1.3 Construction procedures. Where unusual erection or construction procedures are considered essential by the project structural engineer or architect in order to accomplish the intent of the design or influence the construction design, such procedure shall be indicated on the plans or in the specifications.

1616.2 General design requirements.

1616.2.1 Lateral load deflections.

1616.2.1.1 Horizontal diaphragms. The maximum span-width depth ratio for any roof or floor diaphragm consisting of steel and composite steel slab decking or concrete shall be based on not exceed those given in Table 4.2.4 of AF & PA SDPWS for wood sheathed diaphragms. For other diaphragms, test data and design calculations acceptable to the enforcement agency shall be submitted and approved for span width ratios.

1616.2.1.2 Veneers. The deflection shall not exceed $l/600$ for veneered walls, anchored veneers and adhered veneers over 1 inch (25 mm) thick, including the mortar backing.

1616.2.1.3 Risk Category of buildings and other structures. Risk Category IV includes structures as defined in the California Administrative Code, Section 4-207 and all structures required for their continuous operation or access/egress.

1616.2.1.4 Analysis. Structural analysis shall explicitly include consideration of stiffness of diaphragm in accordance with ASCE 7 Section 12.3.1. A diaphragm is rigid for the purpose of distribution of story shear and torsional moment where so indicated in Section 12.3.1 of ASCE 7.

1616.2.2 Structural walls. For anchorage of concrete or masonry walls to roof and floor diaphragms, the out-of plane strength design force shall not be less than 280 lb/linear ft (4.09 kN/m) of wall.

1616.3 Load combinations.

1616.3.1 Stability. When checking stability under the provisions of Section 1605.1.1 using allowable stress design, the factor of safety for soil bearing values shall not be less than the overstrength factor of the structures supported.

1616.4 Roof dead loads. The design dead load shall provide for the weight of at least one additional roof covering in addition to other applicable loadings if the new roof covering is permitted to be applied over the original roofing without its removal, in accordance with Section 1511. 4540.

1616.5 Live loads.

1616.5.1 Modifications to Table 1607.1.

1616.5.1.1 Item 4. Assembly areas. The following minimum loads for stage accessories apply:

1. Gridirons and fly galleries: 75 pounds per square foot uniform live load.
2. Loft block wells: 250 pounds per lineal foot vertical load and lateral load.
3. Head block wells and sheave beams: 250 pounds per lineal foot vertical load and lateral load. Head block wells and sheave beams shall be designed for all tributary loft block well loads. Sheave blocks shall be designed with a safety factor of five.
4. Scenery beams where there is no gridiron: 300 pounds per lineal foot vertical load and lateral load.
5. Ceiling framing over stages shall be designed for a uniform live load of 20 pounds per square foot. For members supporting a tributary area of 200 square feet or more, this additional load may be reduced to 15 pounds per square foot (0.72 kN/m²).

1616.5.1.2 Item 24. Reviewing stands, grandstands and bleachers. The minimum uniform live load for a press box floor or accessible roof with railing is 100 psf.

1616.5.1.3 Item 35. Yards and terraces, pedestrians. Item 35 applies to pedestrian bridges and walkways that are not subjected to uncontrolled vehicle access.

1616.5.1.4 Item 36. Storage racks and wall-hung cabinets. The minimum vertical design live load shall be as follows:

Paper media:

12-inch-deep (305 mm) shelf - 33 pounds per lineal foot (482 N/m)
15-inch-deep (381 mm) shelf - 41 pounds per lineal foot (598 N/m), or 33 pounds per cubic foot (5183 N/m³) per total volume of the rack or cabinet, whichever is less.

Film media:

18-inch-deep (457 mm) shelf - 100 pounds per lineal foot (1459 N/m), or 50 pounds per cubic foot (7853 N/m³) per total volume of the rack or cabinet, whichever is less.

Other media:

20 pounds per cubic foot (311 N/m³) or 20 pounds per square foot (958 Pa), whichever is less, but not less than actual loads.

1616.5.2 Uncovered open-frame roof structures. Uncovered open-frame roof structures shall be designed for a vertical live load of not less than 10 pounds per square foot (0.48 kN/m²) of the total area encompassed by the framework.

1616.6 Determination of snow loads. The ground snow load or the design snow load for roofs shall conform with the adopted ordinance of the city, county, or city and county in which the project site is located, and shall be approved by DSA.

1616.7 Wind loads.

1616.7.1 Story drift for wind loads. The calculated story drift due to wind pressures with ultimate design wind speed, V_{ult} , shall not exceed 0.008 times the story height for buildings less than 65 feet (19,812 mm) in height or 0.007 times the story height for buildings 65 feet (19,812mm) or greater in height.

Exception: This story drift limit need not be applied for single-story open structures buildings in Risk Category I and II.

1616.8 Establishment of flood hazard areas. Flood hazard maps shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency's Flood Insurance Study (FIS) adopted by the local authority having jurisdiction where the project is located, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto.

1616.9 Earthquake loads.

1616.9.1 Seismic design category. The seismic design category for a structure shall be determined in accordance with Section 1613.

1616.9.2 Definitions. In addition to the definitions in Section 1613.2, the following words and terms shall, for the purposes of this section, have the meanings shown herein.

ACTIVE EARTHQUAKE FAULT. A fault that has been the source of earthquakes or is recognized as a potential source of earthquakes, including those that have exhibited surface displacement within Holocene time (about 11,000 years) as determined by California Geological Survey (CGS) under the Alquist-Priolo Earthquake Fault Zoning Act, those included as type A or type B faults for the U.S. Geological Survey (USGS) National Seismic Hazard Maps, and faults considered to have been active in Holocene time by an authoritative source, federal, state or local governmental agency.

~~**BASE.** The level at which the horizontal seismic ground motions are considered to be imparted to the structure or the level at which the structure as a dynamic vibrator is supported. This level does not necessarily coincide with the ground level.~~

DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT. Distance measured from the nearest point of the building to the closest edge of an Alquist-Priolo Earthquake fault zone for an active fault, if such a map exists, or to the closest mapped splay of the fault.

IRREGULAR STRUCTURE. A structure designed as having one or more plan or vertical irregularities per ASCE 7 Section 12.3.

~~**STRUCTURAL ELEMENTS.** Floor or roof diaphragms, decking, joists, slabs, beams, or girders, columns, bearing walls, retaining walls, masonry or concrete nonbearing walls exceeding one story in height, foundations, shear walls or other lateral force resisting members, and any other elements necessary to the vertical and lateral strength or stability of either the building as a whole or any of its parts, including connection between such elements.~~

1616.9.3 Mapped acceleration parameters. Seismic Design Category shall be determined in accordance with Section 1613.3.5.

1616.9.4 Determination of seismic design category. Structures not assigned to Seismic Design Category E or F, in accordance with Section 1613.3, shall be assigned to Seismic Design Category D.

1616.9.4.1 Alternative seismic design category determination. The alternative Seismic Design Category determination procedure of Section 1613.3.5.1 is not permitted by DSA-SS/CC.

1616.9.4.2 Simplified design procedure. The simplified design procedure of Section 1613.3.5.2 is not permitted by DSA-SS/CC.

~~**1616.9.5 Automatic sprinkler systems.** The allowable values for design of anchors, hangers, and bracing elements shall be determined in accordance with material chapters of this code in lieu of those in NFPA 13.~~

1616.10 Modifications to ASCE 7. The text of ASCE 7 shall be modified as indicated in Sections 1616.10.1 through 1616.10.24.

1616.10.1 ASCE 7, Section 1.3. Modify ASCE 7 Section 1.3 by adding Section 1.3.6 as follows:

1.3.6 Structural design criteria. Where design is based on ASCE 7 Chapters 16, 17, 18, or 31, the ground motion, wind tunnel design recommendations, analysis, and design methods, material assumptions, testing requirements, and acceptance criteria proposed

by the engineer shall be submitted to the enforcement agency in the form of structural design criteria for approval.

Peer review requirements in ~~Section 3422 of this code~~ Section 322 of the California Existing Buildings Code shall apply to design reviews required by ASCE 7 Chapters 17 and 18.

1616.10.2 ASCE 7, Section 11.4.7. Modify ASCE 7 Section 11.4.7 by adding the following:

For buildings assigned to Seismic Design Category E and F, or when required by the building official, a ground motion hazard analysis shall be performed in accordance with ASCE 7 Chapter 21, as modified by Section 1803A.6 of this code.

1616.10.3 ASCE 7, Table 12.2-1. Modify ASCE 7 Table 12.2-1 as follows:

A. BEARING WALL SYSTEMS

17. Light-framed walls with shear panels of all other materials - Not permitted by DSA-SS/CC.

B. BUILDING FRAME SYSTEMS

24. Light-framed walls with shear panels of all other materials - Not permitted by DSA-SS/CC.

C. MOMENT RESISTING FRAME SYSTEMS

12. Cold-formed steel — special bolted moment frame - Not permitted by DSA-SS/CC.

Exception:

- 1) Systems listed in this section can be used as an alternative system when preapproved by the enforcement agency.*
- 2) Rooftop or other supported structures not exceeding two stories in height and 10 percent of the total structure weight can use the systems in this section when designed as components per ASCE 7 Chapter 13.*
- 3) Systems listed in this section can be used for seismically isolated buildings when permitted by Section 1613.4.1.*

1616.10.4 ASCE 7, Section 12.2.3.1. Replace ASCE 7 Section 12.2.3.1, Items 1 and 2 by the following:

The value of the response modification coefficient, R , used for design at any story shall not exceed the lowest value of R that is used in the same direction at any story above that story. Likewise, the deflection amplification factor, C_d , and the system over strength factor, Ω_o , used for the design at any story shall not be less than the largest value of these factors that are used in the same direction at any story above that story.

1616.10.5 ASCE 7, Section 12.2.3.2. Modify ASCE 7 Section 12.2.3.2 by adding the following additional requirements for a two stage equivalent lateral force procedure or modal response spectrum procedure:

f. Where design of elements of the upper portion is governed by special seismic load combinations, the special loads shall be considered in the design of the lower portions.

1616.10.6 ASCE 7, Section 12.2.5.6.1. The exception in Item a is not permitted by DSA-SS/CC.

1616.10.7 ASCE 7, Section 12.2.5.7.1. The exception in Item a is not permitted by DSA-SS/CC.

1616.10.8 ASCE 7, Section 12.2.5.7.2. The exception in Item a is not permitted by DSA-SS/CC.

1616.10.9 ASCE 7, Section 12.3.3.1. Modify ASCE 7 Section 12.3.3.1 as follows:

12.3.3.1 Prohibited horizontal and vertical irregularities for Seismic Design Categories D through F. Structures assigned to Seismic Design Category E or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted. Structures assigned to Seismic Design Category D having vertical irregularity Type 1b or 5b of Table 12.3-2 shall not be permitted.

1616.10.10 ASCE 7, Section 12.7.2. Modify ASCE 7 Section 12.7.2 by adding Item 6 to read as follows:

6. Where buildings provide lateral support for walls retaining earth, and the exterior grades on opposite sides of the building differ by more than 6 feet (1829 mm), the load combination of the seismic increment of earth pressure due to earthquake acting on the higher side, as determined by a Geotechnical engineer qualified in soils engineering, plus the difference in earth pressures shall be added to the lateral forces provided in this section.

1616.10.11 ASCE 7, Section 12.8.1.3. Replace ASCE 7 Section 12.8.1.3 by the following:

~~**12.8.1.3 Maximum S_s value in determination of C_s.** For regular structures five stories or less above the base, as defined in Section 11.2 and with a period, T, of 0.5 s or less, C_s is permitted to be calculated using the larger of either S_s=1.5 or 80 percent of the value of S_s determined per Section 11.4.1 or 11.4.7.~~

12.8.1.3 Maximum S_{DS} Value in Determination of C_s and E_v

The value of C_s and E_v are permitted to be calculated using a value of S_{DS} equal to 1.0, but not less than 70% of S_{DS} as defined in Section 11.4.4, provided that all of the following criteria are met:

1. The structure does not have irregularities, as defined in Section 12.3.2;
2. The structure does not exceed five stories above the base as defined in Section 11.2;
3. The structure has a fundamental period, T, that does not exceed 0.5 seconds, as determined using Section 12.8.2;

4. The structure meets the requirements necessary for the redundancy factor, ρ , to be permitted to be taken as 1.0, in accordance with Section 12.3.4.2;
5. The site soil properties are not classified as Site Class E or F, as defined in Section 11.4.2; and
6. The structure is classified as Risk Category I or II, as defined in Section 1.5.1.

1616.10.12 ASCE 7, Section 12.9.4. Replace ASCE 7 Section 12.9.4 as follows:

12.9.4 Scaling design values of combined response. Modal base shears used to determine forces and drifts shall not be less than the base shear calculated using the equivalent lateral force procedure of Section 12.8.

1616.10.13 ASCE 7, Section 12.10.2.1. Replace ASCE 7 Exception 1 of Section 12.10.2.1 by the following:

Exception: The forces calculated above need not exceed those calculated using the load combinations of Section 12.4.3.2 with seismic forces determined by Equation 12.10-3 and transfer forces, where applicable.

1616.10.14 ASCE 7, Section 12.13.1. Modify ASCE 7 Section 12.13.1 by adding Section 12.13.1.1 as follows:

12.13.1.1 Foundations and superstructure-to-foundation connections. The foundation shall be capable of transmitting the design base shear and the overturning forces from the structure into the supporting soil. Stability against overturning and sliding shall be in accordance with Section 1605.1.1.

In addition, the foundation and the connection of the superstructure elements to the foundation shall have the strength to resist, in addition to gravity loads, the lesser of the following seismic loads:

1. The strength of the superstructure elements
2. The maximum forces that ~~would occur~~ can be delivered to the foundation in the a fully yielded structural system
3. Forces from the Load Combinations with overstrength factor in accordance with ASCE 7 Section 12.4.3.2

Exceptions:

1. Where referenced standards specify the use of higher design loads.
2. When it can be demonstrated that inelastic deformation of the foundation and superstructure-to-foundation connection will not result in a weak story or cause collapse of the structure.

3. Where ~~basic structural system~~ seismic force-resisting system consists of light-framed walls with shear panels, unless the reference standard specifies the use of higher design loads.

Where the computation of the seismic overturning moment is by the equivalent lateral-force method or the modal analysis method, reduction in overturning moment permitted by Section 12.13.4 of ASCE 7 may be used.

Where moment resistance is assumed at the base of the superstructure elements, the rotation and flexural deformation of the foundation as well as deformation of the superstructure-to-foundation connection shall be considered in the drift and deformation compatibility analyses.

1616.10.15 ASCE 7, Section 13.1.4. Replace ASCE 7 Section 13.1.4 by the following:

13.1.4 Exemptions. The following nonstructural components are exempt from the requirements of this section:

1. Furniture (except storage cabinets as noted in Table 13.5-1).
2. Temporary or moveable (mobile) equipment.

Exceptions:

- 1) Equipment shall be anchored if it is permanently attached to the building utility services such as electricity, gas, or water. For the purposes of this requirement, "permanently attached" shall include all electrical connections except plugs for duplex receptacles.
- 2) The enforcement agency shall be permitted to require temporary attachments for movable equipment which is usually stationed in one place and heavier than 400 pounds or has a center of mass located 4 feet (1.22 m) or more above the adjacent floor or roof level that directly support the component, when they are not in use for a period longer than 8 hours at a time.
3. Mechanical and electrical components in Seismic Design Categories D, E or F where all of the following apply:
 - a. The component is positively attached to the structure;
 - b. Flexible connections are provided at seismic separation joints and between the component and associated ductwork, piping and conduit; and either:

i. The component weighs 400 lb (1780N) or less and has a center of mass located 4 ft. (1.22 m) or less above the adjacent floor or roof level;

Exception: Special Seismic Certification requirements of this code in accordance with Section 1705A.12.3 shall be applicable.

Or

ii. The component weighs 20 lb (89 N) or less or, in the case of a distributed system, 5 lb/ft (73 N/m) or less.

Exception: The enforcement agency shall be permitted to require attachments for equipment with hazardous contents to be shown on construction documents irrespective of weight.

1616.10.16 ASCE 7, Section 13.5.6. Replace ASCE 7, Section 13.5.6 by the following:

13.5.6 Suspended ceilings. Suspended ceilings shall be in accordance with this section.

13.5.6.1 Seismic forces. The weight of the ceiling, W_p , shall include the ceiling grid; ceiling tiles or panels; light fixtures if attached to, clipped to, or laterally supported by the ceiling grid; and other components that are laterally supported by the ceiling. W_p shall be taken as not less than 4 psf (19 N/m²).

The seismic force, F_p , shall be transmitted through the ceiling attachments to the building structural elements or the ceiling-structure boundary.

13.5.6.2 Industry standard construction for acoustical tile or lay-in panel ceilings. Unless designed in accordance with ASTM E 580 Section 5.2.8, or seismically qualified in accordance with Sections 13.2.5 or 13.2.6, acoustical tile or lay-in panel ceilings shall be designed and constructed in accordance with this section.

13.5.6.2.1 Seismic Design Categories D through F. Acoustical tile or lay-in panel ceilings in Seismic Design Categories D, E and F shall be designed and installed in accordance with ASTM C 635, ASTM C 636, and ASTM E 580, Section 5 - Seismic Design Categories D, E and F as modified by this section.

Exception to Section 13.5.8.1 shall not be used in accordance with ASTM E 580 Section 5.5.

13.5.6.2.2 Modification to ASTM E 580. Modify ASTM E 580 by the following:

1. **Exitways.** Lay-in ceiling assemblies in exitways of hospitals and essential services buildings shall be installed with a main runner or cross runner surrounding all sides of each piece of tile, board or panel and each light fixture or grille. A cross runner that supports another cross runner shall be considered as a main runner for the purpose of structural classification. Splices or intersections of such runners shall be attached with through connectors such as pop rivets, screws, pins, plates with end tabs or other approved connectors. Lateral force diagonal bracing may be omitted in the short or transverse direction of exitways, not exceeding 8 feet wide, when perimeter support in accordance with ASTM E 580 Sections 5.2.2 and 5.2.3 is provided and the perimeter wall laterally supporting the ceiling in the short or transverse direction is designed to carry the ceiling lateral forces. The connections between the ceiling grid, wall angle and the wall shall be designed to resist the ceiling lateral forces.

2. **Corridors and lobbies.** Expansion joints shall be provided in the ceiling at intersections of corridors and at junctions of corridors and lobbies or other similar areas.

3. **Lay-in panels.** Metal panels and panels weighing more than 1/2 pounds per square foot (24 N/m²) other than acoustical tiles shall be positively attached to the ceiling suspension runners.

4. **Lateral force bracing.** Lateral force bracing is required for all ceiling areas except that they shall be permitted to be omitted in rooms with floor areas up to 144 square feet when perimeter support in accordance with ASTM E 580 Sections 5.2.2 and 5.2.3 are provided and perimeter walls are designed to carry the ceiling lateral forces. The connections between the ceiling grid, wall angle and the wall shall be designed to resist the ceiling lateral forces. Horizontal restraint point spacing shall be justified by analysis or test and shall not exceed a spacing of 12 feet by 12 feet. Restraint Bracing wires shall be secured with four tight twists in 1 1/2 inches, or an approved alternate connection.

5. Ceiling support and bracing wires shall be spaced a minimum of 6" from all pipes, ducts, conduits and equipment that are not braced for horizontal forces, unless approved otherwise by the building official.

5. **Ceiling fixtures.** ~~Fixtures installed in acoustical tile or lay-in panel ceilings shall be mounted in a manner that will not compromise ceiling performance.~~

~~All recessed or drop-in light fixtures and grilles shall be supported directly from the fixture housing to the structure above with a minimum of two 12-gage wires located at diagonally opposite corners. Leveling and positioning of fixtures may be provided by the ceiling grid. Fixture support wires may be slightly loose to allow the fixture to seat in the grid system. Fixtures shall not be supported from main runners or cross runners if the weight of the fixtures causes the total dead load to exceed the deflection capability of the ceiling suspension system.~~

~~Fixtures shall not be installed so that the main runners or cross runners will be eccentrically loaded.~~

~~Surface mounted fixtures shall be attached to the main runner with at least two positive clamping devices made of material with a minimum of 14 gage. Rotational spring catches do not comply. A 12-gage suspension wire shall be attached to each clamping device and to the structure above.~~

~~6. **Partitions.** Where the suspended ceiling system is required to provide lateral support for the permanent or relocatable partitions, the connection of the partition to the ceiling system, the ceiling system members and their connections, and the lateral force bracing shall be designed to support the reaction force of the partition from prescribed loads applied perpendicular to the face of the partition. Partition connectors, the suspended ceiling system and the lateral force bracing shall all be engineered to suit the individual partition application and shall be shown or defined in the drawings or specifications.~~

1616.10.17 ASCE 7, Section 13.6.5. Modify ASCE 7, Section 13.6.5.6, Exceptions 1 and 2, as follows:

Exceptions:

1. Design for the seismic forces of Section 13.3 shall not be required for raceways where either:

a. Trapeze assemblies are used to support raceways and the total weight of the raceway supported by trapeze assemblies is less than 10lb/ft (146 N/m), or

b. The raceway is supported by hangers and each hanger in the raceway run is 12 in. (305mm) or less in length from the raceway support point to the supporting structure. Where rod hangers are used, they shall be equipped with swivels to prevent inelastic bending in the rod.

2. Design for the seismic forces of Section 13.3 shall not be required for conduit, regardless of the value of I_p , where the conduit is less than 2.5 in. (64 mm) trade size.

1616.10.18 ASCE 7, Section 13.6.7. Replace ASCE 7, Section 13.6.7, Exceptions 1 and 2, by the following:

Exceptions:

The following exceptions pertain to ductwork not designed to carry toxic, highly toxic or flammable gases, or used for smoke control:

1. Design for the seismic forces of Section 13.3 shall not be required for ductwork where either:

a. Trapeze assemblies are used to support ductwork and the total weight of the ductwork supported by trapeze assemblies is less than 10 lb/ft (146 N/m); or

b. The ductwork is supported by hangers and each hanger in the duct run is 12 in. (305 mm) or less in length from the duct support point to the supporting structure. Where rod hangers are used, they shall be equipped with swivels to prevent inelastic bending in the rod.

2. Design for the seismic forces of Section 13.3 shall not be required where provisions are made to avoid impact with larger ducts or mechanical components or to protect the ducts in the event of such impact; and HVAC ducts have a cross-sectional area of 6 ft² (0.557 m²) or less, or weigh 10 lb/ft (146 N/m) or less.

1616.10.19 ASCE 7, Section 13.6.8. ~~Modify ASCE 7, Section 13.6.8.2 by adding exception as follows:~~

~~**Exception:** Anchor capacities shall be determined in accordance with material chapters of this code in lieu of using those in NFPA 13 and demand shall be based on ASCE 7.~~

1616.10.19 1616.10.20 ASCE 7, Section 13.6.8.3. Replace ASCE 7, Section 13.6.8.3 with the following:

13.6.8.3 Exceptions. Design of piping systems and attachments for the seismic forces of Section 13.3 shall not be required where one of the following conditions apply:

1. Trapeze assemblies are used to support piping whereby no single pipe exceeds the limits set forth in 3a. or b. below and the total weight of the piping supported by the trapeze assemblies is less than 10 lb/ft (146 N/m).

2. The piping is supported by hangers and each hanger in the piping run is 12 in. (305 mm) or less in length from the top of the pipe to the supporting structure. Where pipes are supported on a trapeze, the trapeze shall be supported by hangers having a length of 12 in. (305 mm) or less. Where rod hangers are used, they shall be equipped with swivels, eye nuts or other devices to prevent bending in the rod.

3. Piping having an R_p in Table 13.6-1 of 4.5 or greater is used and provisions are made to avoid impact with other structural or nonstructural components or to protect the piping in the event of such impact and where the following size requirements are satisfied:

a. For Seismic Design Categories D, E or F and values of I_p greater than one, the nominal pipe size shall be 1 inch (25 mm) or less.

b. For Seismic Design Categories D, E or F where $I_p = 1.0$ the nominal pipe size shall be 3 inches (80 mm) or less.

The exceptions above shall not apply to elevator piping.

1616.10.20 ~~1616.10.21~~ **ASCE 7, Section 13.6.10.1.** Modify ASCE 7 Section 13.6.10.1 by adding Section 13.6.10.1.1, as follows:

13.6.10.1.1 Elevators guide rail support. The design of guide rail support bracket fastenings and the supporting structural framing shall use the weight of the counterweight or maximum weight of the car plus not more than 40 percent of its rated load. The seismic forces shall be assumed to be distributed one-third to the top guiding members and two-thirds to the bottom guiding members of cars and counterweights, unless other substantiating data are provided. In addition to the requirements of ASCE 7 Section 13.6.10.1, the minimum seismic forces shall be 0.5g acting in any horizontal direction.

1616.10.21 ~~1616.10.22~~ **ASCE 7, Section 13.6.10.4.** Replace ASCE 7 Section 13.6.10.4, as follows:

13.6.10.4 Retainer plates. Retainer plates are required at the top and bottom of the car and counterweight, except where safety devices acceptable to the enforcement agency are provided which meet all requirements of the retainer plates, including full engagement of the machined portion of the rail. The design of the car, cab stabilizers, counterweight guide rails and counterweight frames for seismic forces shall be based on the following requirements:

1. The seismic force shall be computed per the requirements of ASCE 7 Section 13.6.10.1. The minimum horizontal acceleration shall be 0.5g for all buildings.
2. W_p shall equal the weight of the counterweight or the maximum weight of the car plus not less than 40 percent of its rated load.
3. With the car or counterweight located in the most adverse position, the stress in the rail shall not exceed the limitations specified in these regulations, nor shall the deflection of the rail relative to its supports exceed the deflection listed below:

**TABLE 1224.4.11
ACCEPTABLE CEILING AND CARPET LOCATIONS**

RAIL SIZE (weight per foot of length, pounds)	WIDTH OF MACHINED SURFACE (inches)	ALLOWABLE RAIL DEFLECTION (inches)
8	$1\frac{1}{4}$	0.20
11	$1\frac{1}{2}$	0.30
12	$1\frac{3}{4}$	0.40
15	$1\frac{31}{32}$	0.50

$18\frac{1}{2}$	$1\frac{31}{32}$	0.50
$22\frac{1}{2}$	2	0.50
30	$2\frac{1}{4}$	0.50

For SI: 1 inch = 25 mm, 1 foot = 305 mm, 1 pound = 0.454 kg.

Note: Deflection limitations are given to maintain a consistent factor of safety against disengagement of retainer plates from the guide rails during an earthquake.

4. Where guide rails are continuous over supports and rail joints are within 2 feet (610 mm) of their supporting brackets, a simple span may be assumed.

5. The use of spreader brackets is allowed.

6. Cab stabilizers and counterweight frames shall be designed to withstand computed lateral load with a minimum horizontal acceleration of 0.5g.

1616.10.22 ~~1616.10.23~~ ASCE 7, Section 16.1.4. Remove ASCE 7 Sections 16.1.4.1 and 16.1.4.2 and modify 16.1.4 by the following:

Maximum scaled base shears used to determine forces and drifts shall not be less than the base shear calculated using the equivalent lateral force procedure of Section 12.8.

1616.10.23 ~~1616.10.24~~ ASCE 7, Section 16.2.4. Modify ASCE 7 Section 16.2.4 by the following:

a) Where site is located within 3.1 miles (5 km) of an active fault at least seven ground motions shall be analyzed and response parameters shall be based on larger of the average of the maximum response with ground motions applied as follows:

1. Each of the ground motions shall have their maximum component at the fundamental period aligned in one direction.

2. Each of the ground motion's maximum component shall be rotated orthogonal to the previous analysis direction.

b) Where site is located more than 3.1 miles (5 km) from an active fault at least 10 ground motions shall be analyzed. The ground motions shall be applied such that one-half shall have their maximum component aligned in one direction and the other half aligned in the orthogonal direction. The average of the maximum response of all the analyses shall be used for design.

1616.10.25 ~~ASCE 7, Section 17.2.1.~~ Modify ASCE 7 Section 17.2.1 by adding the following:

~~The importance factor, I_p , for parts and portions of a seismically isolated building shall be the same as that required for a fixed-base building of the same risk category.~~

1616.10.24 ~~1616.10.26~~ ASCE 7 Section 17.2.4.7. Modify ASCE 7 Section 17.2.4.7 by adding the following to the end of the section:

The effects of uplift and/or rocking shall be explicitly accounted for in the analysis and in the testing of the isolator units.

~~1616.10.27 ASCE 7, Section 17.2.5.2.~~ *Modify ASCE 7, Section 17.2.5.2 by adding the following:*

The separation requirements for the building above the isolation system and adjacent buildings shall be the sum of the factored displacements for each building. The factors to be used in determining separations shall be:

- 1. For seismically isolated buildings, the deformation resulting from the analyses using the maximum considered earthquake unmodified by R_I .*
- 2. For fixed based buildings, C_d times the elastic deformations resulting from an equivalent static analysis using the seismic base shear computed via ASCE 7 Section 12.8.*

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 16A
STRUCTURAL DESIGN**

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter as amended	X	-	
Adopt only those sections listed below			

~~All existing California amendments that are not revised below shall continue without change.~~

**SECTION 1601A
GENERAL**

1601A.1 Scope. The provisions of this chapter shall govern the structural design of buildings, structures and portions thereof regulated by this code.

1601A.1.1 Application. *The scope of application of Chapter 16A is as follows:*

1. *Applications listed in Section 1.9.2.1, regulated by the Division of the State Architect-Structural Safety (DSASS). These applications include public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings.*
2. ~~Reserved for OSHPD.~~

Exception: ~~Reserved for OSHPD.~~

1601A.1.2 Amendments in this chapter. *DSA-SS adopt this chapter and all amendments.*

Exception: *Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:*

1. *Division of the State Architect-Structural Safety: [DSA-SS] – For applications listed in Section 1.9.2.1.*
2. ~~Reserved for OSHPD.~~

1601A.2 Enforcement Agency Approval. *In addition to requirements of the California Administrative Code and the California Building Code, any aspect of project design, construction, quality assurance, or quality control programs for which this code requires approval by the Registered d Design p Professional (RDP), are also subject to approval by the enforcement agency.*

SECTION 1602A DEFINITIONS AND NOTATIONS

1602A.1 Definitions. *The following terms are defined in Chapter 2 except those defined below which shall, for the purposes of this section, have the meanings shown herein.*

...

~~**HOSPITAL BUILDING.** Any building defined in Section 129725, Health and Safety Code.~~

...

SECTION 1603A CONSTRUCTION DOCUMENTS

1603A.1 General. Construction documents shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603A.1.1 through ~~1603.1.8~~ 1603A.1.9 shall be indicated on the *construction documents*.

...

[DSA-SS] Additional requirements are included in Section 4-210 and 4-317 of the California Administrative Code (Part 1, Title 24, C.C.R.).

Reserved for DSA-PD

...

1603A.1.5 Earthquake design data. The following information related to seismic loads shall be shown, regardless of whether seismic loads govern the design of the lateral-force-resisting system of the building:

1. Risk Category
2. Seismic importance factor, I_e .
3. Mapped spectral response accelerations, S_S and S_1 .
4. Site class.
5. Design spectral response acceleration parameters, S_{DS} and S_{D1} .
6. Seismic design category.
7. Basic seismic-force-resisting system(s).
8. Design base shear.
9. Seismic response coefficient(s), C_S .
10. Response modification factor(s), R .
11. Analysis procedure used.
12. *Applicable horizontal structural irregularities.*
13. *Applicable vertical structural irregularities.*

14. Location of base as defined in Section 1613A.2.

1603A.1.5.1 Connections. Connections that resist design seismic forces shall be designed and detailed on the design drawings.

...

1603A.1.9 ~~1603A.1.10~~ Construction Procedures. Where unusual erection or construction procedures are considered essential by the Registered Design Professional (RDP) in order to accomplish the intent of the design or influence the construction design, such procedure shall be indicated on the construction documents.

1603A.2 Site Data Reports. Geotechnical and Geohazard reports for review by the enforcement agency shall be accompanied by a description of the project prepared by the Registered Design Professional (RDP) in responsible charge, which shall include the following:

1. Type of service such as General Acute Care Facility, Skilled Nursing Facility, Intermediate Care Facility, Acute Psychiatric Facility, Central Utility Plants, K-12 school, community college, essential service, etc.
2. Construction materials used for the project such as Steel, Concrete, Masonry, Wood, etc.
3. Type of construction project such as new, addition, alteration, repair, etc.
4. For existing buildings, extent of construction such as incidental, minor, major, and/or voluntary seismic improvements as defined in Section 318, Part 10, Title 24, C.C.R 3418 [DSA-SS] Sections 202 and 3402A **[OSHDP 1 & 4]**.
5. Seismic Force Resisting System used for each structure in the project.
6. Foundation system that will be used for each structure in the project such as spread footing, drilled piers, etc.
7. Analysis procedure used and basis of design such as ASCE 7 Equivalent Lateral Force Procedure, ASCE 41 Nonlinear Dynamic Procedure, etc.
8. Building characteristics such as number of stories above and below grade, foot print area at grade, grade slope on site, etc.
9. Special features such as requirement for shoring, underpinning, retaining walls, etc.

1603A.3 Structural Design Basis and Calculations. The application for the approval of construction documents that involves structural elements or components shall be accompanied by complete and

accurate structural design computations, which shall comply with requirements prescribed by the enforcement agency:

1. The computations shall be preceded by a detailed index.
2. The computations including each major subsection shall be prefaced by a statement clearly and concisely outlining the basis for the structural design and indicating the manner in which the structure will resist the vertical loads and lateral forces.
3. The computations shall be sufficiently complete to the extent that calculations for the individual structural members and connections can be readily interpreted.

SECTION 1604A GENERAL DESIGN REQUIREMENTS

...

1604A.3 Serviceability. Structural systems and members thereof shall be designed to have adequate stiffness to limit deflections and lateral drift. See Section 12.12.1 of ASCE 7 for drift limits applicable to earthquake loading.

1604A.3.1 Deflections. The deflections of structural members shall not exceed the more restrictive of the limitations of Sections 1604A.3.2 through 1604A.3.6 or that permitted by Table 1604A.3.

TABLE 1604A.3 - DEFLECTION LIMITS^{a, b, c, h, i}

CONSTRUCTION	$L \text{ or } L_r$	$S \text{ or } W$	$D + (L \text{ or } L_r)^{d,g}$
...
...
Veneered walls, anchored veneers and adhered veneers over 1 inch (25 mm) thick,	—	1/600	—

<i>including the mortar backing</i>			
Farm buildings	—	—	//180
Greenhouses	—	—	//120

...

1604A.3.7 Horizontal diaphragms. The maximum span-width depth ratio for any roof or floor diaphragm consisting of steel and composite steel slab decking shall not exceed those given in Table 4.2.4 of AF & PA SDPWS for wood or maximum span-depth ratio given in Table 1604A.4 for steel and composite steel slab decking, unless test data and design calculations acceptable to the enforcement agency are submitted and approved for the use of other span-width or span-depth ratios. Concrete diaphragms shall not exceed the span- depth ratios for the equivalent composite steel-slab diaphragm in Table 1604A.4.

TABLE 1604A.4 – MAXIMUM HORIZONTAL DIAPHRAGM SPAN AND SPAN-DEPTH RATIOS^{1,3,4}

FLEXIBILITY FACTOR(F) ²	MAXIMUM DIAPHRAGM SPAN FOR MASONRY OR CONCRETE WALLS (feet)	DIAPHRAGM SPAN-DEPTH LIMITATION			
		Rotation (torsion) Not Considered in Diaphragm		Rotation (torsion) Considered in Diaphragm	
		Masonry or Concrete Walls	Flexible Walls	Masonry or Concrete Walls	Flexible Walls
More than 150	Not to be used	Not to be used	2:1	Not to be used	1-1/2:1
70-150	200	2:1 or as required for deflection	3:1	Not to be used	2:1
10-70	400	2-1/2:1 or as required for deflection	4:1	As required for deflection	2-1/2:1
1-10	No limitation	3:1 or as required for deflection	5:1	As required for deflection	3:1

Less than 1	No limitation	As required for deflection	No limitation	As required for deflection	3-1/2:1
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For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.6 N/m, 1 psi = 6894 Pa

¹ Diaphragms shall satisfy span-depth limitations based on flexibility.

² Flexibility Factor (F) is the average deflection in micro inches (10^{-6}) or μm of the diaphragm web per foot (m) of span stressed with a shear of 1 pound per foot (N/m).

³ The total deflection Δ of the diaphragm may be computed from the equation: $\Delta = \Delta_f + \Delta_w$.

Where:

Δ_f = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams. The flexural stiffness of the web of diaphragms consisting of bare steel decking shall be neglected.

Δ_w = Web deflection of the diaphragm may be determined solving the following equation:

$$F = \frac{\Delta_w \times 10^6}{q_{ave} L}$$

Where:

L = Distance in feet (m) between the vertical resisting element (such as a shear wall) and the point to which the deflection is to be determined.

q_{ave} = Average shear in the diaphragm in pounds per foot (N/m) over length L .

⁴ When applying these limitations to cantilevered diaphragms, the allowable span-depth ratio will be half of that shown.

1604A.3.8 Deflections. Deflection criteria for materials not specified shall be developed by the project architect or structural engineer in a manner consistent with the provisions of this section and approved by the enforcement agency.

1604A.4 Analysis. Load effects on structural members and their connections shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short- and long-term material properties.

Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the added eccentricities expected to occur during their service life.

Any system or method of construction to be used shall be based on a rational analysis in accordance with well-established principles of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.

The total lateral force shall be distributed to the various vertical elements of the lateral force-resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements assumed not to be a part of the lateral force-resisting system are permitted to be incorporated into buildings provided their effect on the action of the system is considered and provided for in the design. Structural analysis shall explicitly include consideration of stiffness of diaphragms in accordance with ASCE 7 Section 12.3.1. ~~A diaphragm is rigid for the purpose of distribution of story shear and torsional moment when the lateral deformation of the diaphragm is less than or equal to two times the average story drift.~~ Where required by ASCE 7, provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to eccentricity between the center of application of the lateral forces and the center of rigidity of the lateral force resisting system.

Every structure shall be designed to resist the overturning effects caused by the lateral forces specified in this chapter. See Section 1609 for wind loads, Section 1610 for lateral soil loads and Section 1613 for earthquake loads.

...

1604A.5 Risk category. Each building and structure shall be assigned a *risk category* in accordance with Table 1604A.5. Where a referenced standard specifies an occupancy category, the risk category shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a risk category be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

...

TABLE 1604A.5 - RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
...	...
III	<p>Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:</p> <p>...</p> <ul style="list-style-type: none"> • Group 1-2 occupancies with an occupant load of 50 or more resident care recipients, but not having surgery or emergency treatment facilities. <p>...</p>
IV	<p>Buildings and other structures designated as essential facilities, including but not limited to:</p> <ul style="list-style-type: none"> • Group 1-2 occupancies having surgery or emergency treatment facilities. <p>...</p> <ul style="list-style-type: none"> • Designated emergency preparedness, communications and operations centers and other facilities required for emergency response. [DSA-SS] as defined in the California Administrative Code (Title 24, Part 1, CCR), Section 4-207 and all structures required for their continuous operation or access/egress. <p>...</p>

...

1604A.8.2 Structural walls. Walls that provide vertical load-bearing resistance or lateral shear resistance for a portion of the structure shall be anchored to the roof and to all floors and members that provide lateral support for the wall or that are supported by the wall. The connections shall be

capable of resisting the horizontal forces specified in Section 1.4.4 of ASCE 7 for walls of structures assigned to Seismic Design Category A and to Section 12.11 of ASCE 7 for walls of structures assigned to all other seismic design categories. *For anchorage of concrete or masonry walls to roof and floor diaphragms, the out-of-plane strength design force shall not be less than 280 lb/linear ft (4.09 kN/m) of wall.* Required anchors in masonry walls of hollow units or cavity walls shall be embedded in a reinforced grouted structural element of the wall. See Sections 1609A for wind design requirements and 1613A for earthquake design requirements.

...

SECTION 1605A LOAD COMBINATIONS

1605A.1 General. Buildings and other structures and portions thereof shall be designed to resist:

...

1605A.1.1 Stability. Regardless of which load combinations are used to design for strength, where overall structure stability (such as stability against overturning, sliding, or buoyancy) is being verified, use of the load combinations specified in Section 1605A.2 or 1605A.3 shall be permitted. Where the load combinations specified in Section 1605A.2 are used, strength reduction factors applicable to soil resistance shall be provided by a *registered design professional*. The stability of retaining walls shall be verified in accordance with Section 1807A.2.3. *When using allowable stress design, factor of safety for soil bearing values shall not be less than the overstrength factor of the structures supported.*

...

SECTION 1606A DEAD LOADS

...

1606A.3 Roof Dead Loads. *The design dead load shall provide for the weight of at least one additional roof covering in addition to other applicable loadings if the new roof covering is permitted to be applied over the original roofing without its removal, in accordance with Section 1511.4510.*

SECTION 1607A
LIVE LOADS

1607A.1 General. Live loads are those loads defined in Chapter 2 of this code.

1607A.2 Loads not specified. For occupancies or uses not designated in Table 1607A.1, the live load shall be determined in accordance with a method approved by the building official.

1607A.3 Uniform live loads. The live loads used in the design of buildings and other structures shall be the maximum loads expected by the intended use or occupancy but shall in no case be less than the minimum uniformly distributed unit loads required by Table 1607A.1.

TABLE 1607A.1 - MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS^a

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
...
4. Assembly areas ^{o,q}		
Fixed seats (fastened to floor)	60 ^m	
Follow spot, projections and control rooms	50	
Lobbies	100 ^m	—
Movable seats	100 ^m	
Stage floors	150 ^m	
Platforms (assembly)	100 ^m	
Other assembly areas	100 ^m	
...
19. Libraries ⁿ		
Corridors above first floor	80	1,000
Reading rooms	60 ^m	1,000
Stack rooms	150 ^{b,m}	1,000
...
22. Office buildings ⁿ		
Corridors above first floor	80	2,000
File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—
Lobbies and first-floor	100	2,000

corridors		
Offices	50	2,000
...
24.		
Reviewing stands, grandstands and bleachers ^q	100 ^{c,m}	
...		
...
27. Schools ⁿ		
Classrooms	40 ^p	1,000
Corridors above first floor	80	1,000
First-floor corridors	100	1,000
...
35. Yards and terraces, pedestrians ^r	100 ^m	—
36. Storage racks and wall-hung cabinets.	Total Loads ⁿ	—

n. The minimum vertical design live load shall be as follows:

Paper media:

12-inch-deep (305 mm) shelf 33 pounds per lineal foot (482 N/m)
15-inch-deep (381 mm) shelf 41 pounds per lineal foot (598 N/m), or
33 pounds per cubic foot (5183 N/m³) per total volume of the rack or cabinet, whichever is less.

Film media:

18-inch-deep (457 mm) shelf 100 pounds per lineal foot (1459 N/m), or
50 pounds per cubic foot (7853 N/m³) per total volume of the rack or cabinet, whichever is less.

Other media:

20 pounds per cubic foot (311 N/m³) or 20 pounds per square foot (958 Pa), whichever is less,
but not less than actual loads.

o. [DSA-SS] The following minimum loads for stage accessories apply:

1. Gridirons and fly galleries: 75 pounds per square foot uniform live load.
2. Loft block wells: 250 pounds per lineal foot vertical load and lateral load.
3. Head block wells and sheave beams: 250 pounds per lineal foot vertical load and lateral load. Head block wells and sheave beams shall be designed for all tributary loft block well loads. Sheave blocks shall be designed with a safety factor of five.
4. Scenery beams where there is no gridiron: 300 pounds per lineal foot vertical load and lateral load.
5. Ceiling framing over stages shall be designed for a uniform live load of 20 pounds per square foot. For members supporting a tributary area of 200 square feet or more, this additional load may be reduced to 15 pounds per square foot.

- p. **[DSA-SS]** *The minimum uniform live load for classroom occupancies is 50 psf. Live load reduction is not permitted for classrooms classified as Group A occupancies unless specific exception of Section 1607A.10 apply.*
- q. **[DSA-SS]** *The minimum uniform live load for a press box floor or accessible roof with railing is 100 psf.*
- r. **[DSA-SS]** *Item 35 applies to pedestrian bridges and walkways that are not subjected to uncontrolled vehicle access.*
- ...

1607A.12.6 ~~1607A.12.5~~ Uncovered open-frame roof structures. *Uncovered open-frame roof structures shall be designed for a vertical live load of not less than 10 pounds per square foot (0.48 kN/m²) of the total area encompassed by the framework.*

...

1607A.14 Interior walls and partitions. Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the loads to which they are subjected but not less than a horizontal load of 5 psf (0.240 kN/m²). *The 5 psf (0.24 kN/m²) working service load need not be applied simultaneously with wind or seismic loads. The deflection of such walls under a load of 5 psf (0.24 kN/m²) shall not exceed the limits in Table 1604A.3.*

...

SECTION 1608A

SNOW LOADS

1608A.2 Ground snow loads. The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with ASCE 7 or Figure 1608A.2 for the contiguous United States and ~~Table 1608.2 for Alaska~~. Site-specific case studies shall be made in areas designated "CS" in Figure 1608A.2. Ground snow loads for sites at elevations above the limits indicated in Figure 1608A.2 and for all sites within the CS areas shall be approved. Ground snow load determination for such sites shall be based on an extreme value statistical analysis of data available in the vicinity of the site using a value with a 2-percent annual probability of being exceeded (50-year mean recurrence interval). ~~Snow loads are zero for Hawaii, except in mountainous regions as approved by the building official.~~

~~TABLE 1608.2 GROUND SNOW LOADS, pg , FOR ALASKAN LOCATIONS~~

LOCATION	POUNDS PER SQUARE FOOT	LOCATION	POUNDS PER SQUARE FOOT	LOCATION	POUNDS PER SQUARE FOOT
Adak	30	Galena	60	Petersburg	150
Anchorage	50	Gulkana	70	St. Paul Islands	40
Angeon	70	Homer	40	Seward	50
Barrow	25	Juneau	60	Shemya	25
Barter Island	35	Kenai	70	Sitka	50
Bethel	40	Kodiak	30	Talkeetna	120
Big Delta	50	Kotzebue	60	Unalakleet	50
Cold Bay	25	McGrath	70	Valdez	160
Cordova	100	Nenana	80	Whittier	300
Fairbanks	60	Nome	70	Wrangell	60
Fort Yukon	60	Palmer	50	Yakutat	150

For SI: 1 pound per square foot = 0.0479 kN/m².

FIGURE 1608A.1 - Not shown for Clarity

...

1608A.4 Determination of snow loads. [DSA-SS] The ground snow load or the design snow load for roofs shall conform with the adopted ordinance of the city, county, or city and county in which the project site is located, and shall be approved by DSA.

SECTION 1609A
WIND LOADS

...

1609A.1.3 Story Drift for Wind Loads. *The calculated story drift due to wind pressures with ultimate design wind speed, V_{ult} , shall not exceed 0.008 times the story height for buildings less than 65 feet (19,812 mm) in height or 0.007 times the story height for buildings 65 feet (19,812 mm) or greater in height.*

Exception: **[DSA-SS]** *This story drift limit need not be applied for single-story open structures buildings in Risk Category I and II.*

...

SECTION 1612A
FLOOD LOADS

...

1612A.3 Establishment of flood hazard areas. To establish *flood hazard areas*, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for [INSERT NAME OF JURISDICTION]," dated [INSERT DATE OF ISSUANCE], Agency's *Flood Insurance Study (FIS)* adopted by the local authority having jurisdiction where the project is located, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

...

SECTION 1613A
EARTHQUAKE LOADS

1613A.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7 *with all the modifications incorporated herein*, excluding Chapter 14 and Appendix 11A. The seismic design category for a structure ~~is permitted to~~ *shall* be determined in accordance with Section 1613A ~~or ASCE 7~~.

Exceptions:

- ~~1. Detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C, or located where the mapped short-period spectral response acceleration, S_S , is less than 0.4 g.~~
- ~~2. The seismic force-resisting system of wood frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.~~
- ~~3. Agricultural storage structures intended only for incidental human occupancy.~~

Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.

1613A.2 Definitions. The following terms are defined in Chapter 2 *except those defined below which shall, for the purposes of this section, have the meanings shown herein. Definition provided in ASCE 7 Section 11.2 and [OSHPD 1 & 4] Section 3402A.1 and ASCE 7 Section 11.2 shall apply when appropriate in addition to terms defined in this section.*

ACTIVE EARTHQUAKE FAULT. *A fault that has been the source of earthquakes or is recognized as a potential source of earthquakes, including those that have exhibited surface displacement within Holocene time (about 11,000 years) as determined by California Geological Survey (CGS) under the Alquist-Priolo Earthquake Fault Zoning Act, those included as type A or type B faults for the U.S. Geological Survey (USGS) National Seismic Hazard Maps, and faults considered to have been active in Holocene time by any authoritative source, Federal, State or Local Governmental Agency.*

BASE. *The level at which the horizontal seismic ground motions are considered to be imparted to the structure or the level at which the structure as a dynamic vibrator is supported. This level does not*

~~necessarily coincide with the ground level. See ASCE 7.~~

...

DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT. Distance measured from the nearest point of the building to the closest edge of an Alquist-Priolo Earthquake fault zone for an active fault, if such a map exists, or to the closest mapped splay of the fault.

GENERAL ACUTE CARE HOSPITAL. See Section 1224.3.

~~**HOSPITAL BUILDINGS.** Hospital buildings and all other medical facilities as defined in Section 1250, Health and Safety Code.~~

IRREGULAR STRUCTURE. A structure designed as having one or more plan or vertical irregularities per ASCE 7 Section 12.3.

...

~~**STRUCTURAL ELEMENTS.** Floor or roof diaphragms, decking, joists, slabs, beams, or girders, columns, bearing walls, retaining walls, masonry or concrete nonbearing walls exceeding one story in height, foundations, shear walls or other lateral force resisting members, and any other elements necessary to the vertical and lateral strength or stability of either the building as a whole or any of its parts, including connection between such elements.~~

...

1613A.3 Seismic ground motion values. Seismic ground motion values shall be determined in accordance with this section.

1613A.3.1 Mapped acceleration parameters. The parameters S_s and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(8). ~~Where S_1 is less than or equal to 0.04 and S_s is less than or equal to 0.15, the structure is permitted to be assigned to Seismic Design Category A.~~

~~Figures 1613.3.1(1) through 1613.3.1(2) were shown in the CBC 2013 and will not be shown in Chapter 16A. These figures are shown in Chapter 16.~~

...

1613A.3.5 Determination of seismic design category. Structures classified as Risk Category I, II or III that are located where the mapped spectral response acceleration parameter at 1-second period, S_1 , is greater than or equal to 0.75 shall be assigned to Seismic Design Category E. Structures classified as Risk Category IV that are located where the mapped spectral response acceleration parameter at 1-second period, S_1 , is greater than or equal to 0.75 shall be assigned to Seismic Design Category F. All other structures shall be assigned to *Seismic Design Category D*. ~~a seismic design category based on their occupancy category and the design spectral response acceleration coefficients, S_{DS} and S_{D1} , determined in accordance with Section 1613.5.4 or the site specific procedures of ASCE 7. Each building and structure shall be assigned to the more severe seismic design category in accordance with Table 1613.5.6(1) or 1613.5.6(2), irrespective of the fundamental period of vibration of the structure, T .~~

TABLE 1613.3.5(1) — SEISMIC DESIGN CATEGORY BASED ON SHORT PERIOD (0.2 second) RESPONSE ACCELERATIONS

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

TABLE 1613.3.5(2) — SEISMIC DESIGN CATEGORY BASED ON 1 SECOND PERIOD RESPONSE ACCELERATION

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A

$0.067g \leq S_{D4}$ $< 0.133g$	B-	B-	C-
$0.133g \leq S_{D4} < 0.20g$	C-	C-	D-
$0.20g \leq S_{D4}$	D-	D-	D-

1613A.3.5.1 Alternative seismic design category determination. *Not permitted by DSA-SS.* Where S_4 is less than 0.75, the seismic design category is permitted to be determined from Table 1613.3.5(1) alone when all of the following apply:

1. In each of the two orthogonal directions, the approximate fundamental period of the structure, T_a , in each of the two orthogonal directions determined in accordance with Section 12.8.2.1 of ASCE 7, is less than $0.8 T_s$, determined in accordance with Section 11.4.5 of ASCE 7.
2. In each of the two orthogonal directions, the fundamental period of the structure used to calculate the story drift is less than T_s .
3. Equation 12.8-2 of ASCE 7 is used to determine the seismic response coefficient, C_s .
4. The diaphragms are rigid or are permitted to be idealized as rigid in accordance with Section 12.3.1 in ASCE 7 or for diaphragms permitted to be idealized as flexible in accordance with Section 12.3.1 of ASCE 7, the distance between vertical elements of the seismic force-resisting system does not exceed 40 feet (12 192 mm).

1613A.3.5.2 Simplified design procedure. *Not permitted by DSA-SS.* Where the alternate simplified design procedure of ASCE 7 is used, the seismic design category shall be determined in accordance with ASCE 7.

...

1613A.4.1 Additional seismic-force-resisting systems for seismically isolated structures. Add the following exception to the end of Section 17.5.4.2 of ASCE 7:

Exception: For isolated structures designed in accordance with this standard, the structural system limitations including the structural height limitations in Table 12.2-1 for ordinary steel concentrically braced frames (OCBFs) as defined in Chapter 11 and ordinary intermediate

moment frames (~~OMFs~~) (*IMFs*) as defined in Chapter 11 are permitted to be taken as 160 feet (48 768 mm) for structures assigned to Seismic Design Category D, E or F, provided that the following conditions are satisfied:

1. The value of R_1 as defined in Chapter 17 is taken as 1.
2. For ~~OMFs~~ and OCBFs, design is in accordance with AISC 341.
3. For *IMFs*, design is in accordance with AISC 341. In addition, requirements of Section E3.6e of AISC 341 shall be satisfied.

...

SECTION 1615A STRUCTURAL INTEGRITY

1615A.1 General. High-rise buildings that are assigned to Risk Category III or IV shall comply with the requirements of this section. Frame structures shall comply with the requirements of Section 1615A.3. Bearing wall structures shall comply with the requirements of Section 1615A.4.

1615A.2 Definitions. The following words and terms are defined in Chapter 2 *except those defined below shall, for the purposes of this section, have the meanings shown herein.*

...

HIGH-RISE BUILDING. *A building with an occupied floor located more than 75 feet (22 860 mm) above the base.*

...

SECTION 1616A MODIFICATIONS TO ASCE 7

1616A.1 General. The text of ASCE 7 shall be modified as indicated in Sections 1616A.1.1 through 1616A.1.40 ~~1616A.1.42~~.

1616A.1.1 ASCE 7, Section 1.3. Modify ASCE 7 Section 1.3 by adding Section 1.3.6 as follows:

1.3.6 Structural Design Criteria. Where design is based on ASCE 7 Chapters 16, 17, or 18, and ~~31~~, the ground motion, ~~wind tunnel design recommendations~~, analysis, and design methods, material assumptions, testing requirements, and acceptance criteria proposed by the engineer shall be submitted to the enforcement agency in the form of structural design criteria for approval. ~~(relocated from above)~~ **[DSA-SS]** Structural design criteria including wind tunnel design recommendations are required where design is based on ASCE 7 Chapter 31.
[DSA-SS] Peer review requirements in ~~Section 3414A of this code~~ Section 322 of the California Existing Buildings Code shall apply to design reviews required by ASCE 7 Chapters 17 and 18.

1616A.1.2 ASCE 7, Section 11.1.3. Replace last paragraph of ASCE 7 Section 11.1.3 by the following:

Buildings shall be designed and detailed in accordance with Chapter 12.

1616A.1.3 ASCE 7, Section 11.4.7. Modify ASCE 7 Section 11.4.7 by adding the following:

For buildings assigned to Seismic Design Category E or F, or when required by the building official, a ground motion hazard analysis shall be performed in accordance with ASCE 7 Chapter 21 as modified by Section 1803A.6 of this code.

1616A.1.4 ASCE 7, Table 12.2 -1. Modify ASCE 7 Table 12.2-1 as follows:

A. BEARING WALL SYSTEMS

5. ~~(Reserved for OSHPD)~~

17. Light-framed walls with shear panels of all other materials – Not permitted by DSA-SS.

B. BUILDING FRAME SYSTEMS

3. ~~Reserved for OSHPD.~~

8. ~~Reserved for OSHPD.~~

24. *Light-framed walls with shear panels of all other materials – Not permitted by DSA-SS.*

26. ~~Reserved for OSHPD.~~

C. MOMENT RESISTING FRAME SYSTEMS

2. ~~Reserved for OSHPD.~~

3. ~~Reserved for OSHPD.~~

4. ~~Reserved for OSHPD.~~

12. 5. *Cold-formed steel –special bolted moment frame - Not permitted by DSA-SS.*

Exception:

- 1) *Systems listed in this section can be used as an alternative system when pre-approved by the enforcement agency.*
- 2) *Rooftop or other supported structures not exceeding two stories in height and 10 percent of the total structure weight can use the systems in this section when designed as components per ASCE 7 Chapter 13.*
- 3) *Systems listed in this section can be used for seismically isolated buildings when permitted by Section 1613A.4.1.*

1616A.1.5 ASCE 7, Section 12.2.3.1. *Replace ASCE 7 Section 12.2.3.1 Items # 1 and # 2 by the following:*

The value of the response modification coefficient, R , used for design at any story shall not exceed the lowest value of R that is used in the same direction at any story above that story. Likewise, the deflection amplification factor, C_d , and the system over strength factor, Ω_o , used for the design at any story shall not be less than the largest values of these factors that are used in the same direction at any story above that story.

1616A.1.6 ASCE 7, Section 12.2.3.2. Modify ASCE 7 Section 12.2.3.2 by adding the following additional requirement:

- f. *Where design of elements of the upper portion is governed by special seismic load combinations, the special loads shall be considered in the design of the lower portion.*

1616A.1.7 ASCE 7, Section 12.2.5.6.1 [DSA-SS] *The exception after the first paragraph is not permitted by DSA-SS.*

1616A.1.8 ASCE 7, Section 12.2.5.7.1 [DSA-SS] *The exception after the first paragraph is not permitted by DSA-SS.*

1616A.1.9 ASCE 7, Section 12.2.5.7.2 [DSA-SS] *The exception after the first paragraph is not permitted by DSA-SS.*

1616A.1.10 ASCE 7, Section 12.3.3. Modify first sentence of ASCE 7 Section 12.3.3.1 as follows:

12.3.3.1 Prohibited Horizontal and Vertical Irregularities for Seismic Design Categories D through F. *Structures assigned to Seismic Design Category D, E, or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted.*

1616A.1.11 ASCE 7, Section 12.7.2. Modify ASCE 7 Section 12.7.2 by adding item 6 to read as follows:

6. *Where buildings provide lateral support for walls retaining earth, and the exterior grades on opposite sides of the building differ by more than 6 feet (1829 mm), the load combination of the seismic increment of earth pressure due to earthquake acting on the higher side, as determined*

by a Geotechnical engineer qualified in soils engineering plus the difference in earth pressures shall be added to the lateral forces provided in this section.

1616A.1.12 ASCE 7, Section 12.8.1.3. Replace ASCE 7 Section 12.8.1.3 by the following:

~~**12.8.1.3 Maximum S_s Value in Determination of C_s .** For regular structures five stories or less above the base as defined in Section 11.2 and with a period, T , of 0.5 s or less, C_s is permitted to be calculated using the larger of either $S_s = 1.5$ or 80% of the value of S_s determined per Sections 11.4.1 or 11.4.7.~~

12.8.1.3 Maximum S_{DS} Value in Determination of C_s and E_v

The value of C_s and E_v are permitted to be calculated using a value of S_{DS} equal to 1.0, but not less than 70% of S_{DS} as defined in Section 11.4.4, provided that all of the following criteria are met:

7. The structure does not have irregularities, as defined in Section 12.3.2;
8. The structure does not exceed five stories above the base as defined in Section 11.2;
9. The structure has a fundamental period, T , that does not exceed 0.5 seconds, as determined using Section 12.8.2;
10. The structure meets the requirements necessary for the redundancy factor, ρ , to be permitted to be taken as 1.0, in accordance with Section 12.3.4.2;
11. The site soil properties are not classified as Site Class E or F, as defined in Section 11.4.2; and
12. The structure is classified as Risk Category I or II, as defined in Section 1.5.1.

1616A.1.13 ASCE 7, Section 12.9.4. Replace ASCE 7 Section 12.9.4 as follows:

12.9.4 Scaling Design Values of Combined Response. Modal base shears used to determine forces and drifts shall not be less than the base shears calculated using the equivalent lateral force procedure of section 12.8.

1616A.1.14 ASCE 7, Section 12.10.2.1. Replace ASCE 7 Exception 1. of Section 12.10.2.1 by the following:

EXCEPTIONS:

1. The forces calculated above need not exceed those calculated using the load combinations with overstrength factor of Section 12.4.3.2 with seismic forces determined by Equation 12.10- 3 and transfer forces, where applicable.

1616A.1.15 ASCE 7, Section 12.12.3. ~~Reserved for OSHPD~~

1616A.1.16 ASCE 7, Section 12.13.1. Modify ASCE 7 section 12.13.1 by adding Section 12.13.1.1 as follows:

12.13.1.1 Foundations and superstructure-to-foundation connections. *The foundation shall be capable of transmitting the design base shear and the overturning forces from the structure into the supporting soil. Stability against overturning and sliding shall be in accordance with Section 1605A.1.1.*

In addition, the foundation and the connection of the superstructure elements to the foundation shall have the strength to resist, in addition to gravity loads, the lesser of the following seismic loads:

- 1. The strength of the superstructure elements.*
- 2. The maximum forces that ~~would occur~~ can be delivered to the foundation in the a fully yielded structural system.*
- 3. Forces from the Load Combinations with overstrength factor in accordance with ASCE 7 Section 12.4.3.2.*

Exceptions:

- 1. Where reference standards specify the use of higher design loads.*
- 2. When it can be demonstrated that inelastic deformation of the foundation and superstructure-to-foundation connection will not result in a weak story or cause collapse of the structure.*
- 3. Where ~~basic structural system~~ seismic force-resisting system consists of light framed walls with shear panels, unless the reference standard specifies the use of higher design loads.*

Where the computation of the seismic overturning moment is by the equivalent lateral-force method or the modal analysis method, reduction in overturning moment permitted by section 12.13.4 of ASCE 7 may be used.

Where moment resistance is assumed at the base of the superstructure elements, the rotation and flexural deformation of the foundation as well as deformation of the superstructure-to-foundation connection shall be considered in the drift and deformation compatibility analyses.

1616A.1.17 ASCE 7, Section 13.1.3. ~~Repealed by CSHPD~~

1616A.1.18 ASCE 7, Section 13.1.4. Replace ASCE 7 Section 13.1.4 with the following:

13.1.4 Exemptions. *The following nonstructural components are exempt from the requirements of this section:*

- 1. Furniture (except storage cabinets as noted in Table 13.5-1).*
- 2. Temporary or moveable (mobile) equipment.*

Exceptions:

- a) Equipment shall be anchored if it is permanently attached to the building utility services such as electricity, gas, or water. For the purposes of this requirement, "permanently attached" shall include all electrical connections except plugs for duplex receptacles.*
 - b) The enforcement agency shall be permitted to require temporary attachments for movable equipment which is usually stationed in one place and heavier than 400 pounds or has a center of mass located 4 feet (1.22 m) or more above the adjacent floor or roof level that directly support the component, when they are not in use for a period longer than 8 hours at a time.*
- 3. Architectural, mechanical and electrical components in Seismic Design Categories D, E, or F where all of the following apply:*

- a. The component is positively attached to the structure;
- b. Flexible connections are provided at seismic separation joints and between the component and associated ductwork, piping, and conduit; and either:
 - i. The component weighs 400 pounds (1780 N) or less and has a center of mass located 4 feet (1.22 m) or less above the adjacent floor or roof level that directly support the component;

Exception: Special Seismic Certification requirements of this code in accordance with Section 1705A.13.3 ~~1705A.12.4~~ shall be applicable.

or

- ii. The component weighs 20 pounds (89 N) or less or, in the case of a distributed system, 5 lb/ft (73 N/m) or less.

Exception: The enforcement agency shall be permitted to require attachments for equipment with hazardous contents to be shown on construction documents irrespective of weight.

1616A.1.19 ASCE 7, Section 13.4. Replace ASCE 7 Section 13.4.2.3 with the following:

13.4.2.3 Prequalified P post-installed anchors and specialty inserts in Concrete and Masonry.

~~Post-installed anchors shall be pre-qualified for seismic applications in accordance with ACI 355.2, ACI 355.4, ICC-ES AC193, ICC-ES AC232, or ICC-ES AC308 or ICC-ES AC446 shall be permitted.~~ Post-installed anchors in masonry used for component anchorage shall be pre-qualified for seismic applications in accordance with ICC-ES AC01, AC58, or AC106.

Use of screw anchors shall be limited to dry interior conditions and shall not be used in building enclosures. Re-use of screw anchors or screw anchor holes shall not be permitted.

Exception: [DSA-SS] Screw anchors are not prohibited for use in building enclosures.

1616A.1.20 ASCE 7, Section 13.4.5 *Modify ASCE 7 Section 13.4.5 by adding Section 13.4.5.1 as follows:*

~~Relocated from Section 1908A.1.1~~ **13.4.5.1 1908A.1.1 Power Actuated Fasteners:**

Power actuated fasteners qualified in accordance with ICC-ES AC 70 shall be deemed to satisfy the requirements of Section 13.4.5. ~~this section.~~

Power actuated fasteners shall be permitted in seismic shear for components exempt from permit requirements by Section 1616A.1.18 of this code and for interior non-bearing non-shear wall partitions only. Power actuated fastener shall not be used to anchor seismic bracing, exterior cladding or curtain wall systems.

Exception: Power actuated fasteners in steel to steel connections prequalified for seismic application by cyclic tests in accordance with ICC-ES AC 70 shall be permitted for seismic design.

1616A.1.21 ~~**1616A.1.20**~~ **ASCE 7, Section 13.5.6**. *Replace ASCE 7, Section 13.5.6 with the following:*

13.5.6 Suspended Ceilings. *Suspended ceilings shall be in accordance with this section.*

13.5.6.1 Seismic Forces. *The weight of the ceiling, W_p , shall include the ceiling grid; ceiling tiles or panels; light fixtures if attached to, clipped to, or laterally supported by the ceiling grid; and other components that are laterally supported by the ceiling. W_p shall be taken as not less than 4 psf (19 N/m²).*

The seismic force, F_p , shall be transmitted through the ceiling attachments to the building structural elements or the ceiling-structure boundary.

13.5.6.2 Seismic Design Requirements. *Suspended acoustical tile or lay-in panel ceilings shall be designed in accordance with ASTM E 580 Section 5.2.8 and the requirements of Sections 13.5.6.2.1 and 13.5.6.2.2, or be designed in accordance with Section 13.2.1.1, or be seismically qualified in accordance with Sections 13.2.5 or 13.2.6.*

13.5.6.2.1. Industry Standard Construction for Acoustical Tile or Lay-In Panel Ceilings.

Acoustical tile or lay-in panel ceilings in Seismic Design Categories D, E, and F shall be designed and installed in accordance with ASTM C635, ASTM C636, and ASTM E 580, Section 5 - Seismic Design Categories D, E, and F as modified by Section 13.5.6.2.2.

Exception to Section 13.5.8.1 shall not be used in accordance with ASTM E 580 Section 5.5.

13.5.6.2.2 Modification to ASTM E 580. Modify ASTM E 580 by the following:

1. **Exitways.** Lay-in ceiling assemblies in exitways of hospitals and essential services buildings shall be installed with a main runner or cross runner surrounding all sides of each piece of tile, board or panel and each light fixture or grille. A cross runner that supports another cross runner shall be considered as a main runner for the purpose of structural classification. Splices or intersections of such runners shall be attached with through connectors such as pop rivets, screws, pins, plates with end tabs or other approved connectors. Lateral force diagonal bracing may be omitted in the short or transverse direction of exitways, not exceeding 8 feet wide, when perimeter support in accordance with ASTM E 580 Sections 5.2.2 and 5.2.3 is provided and the perimeter wall laterally supporting the ceiling in the short or transverse direction is designed to carry the ceiling lateral forces. The connections between the ceiling grid, wall angle and the wall shall be designed to resist the ceiling lateral forces.
2. **Corridors and Lobbies.** Expansion joints shall be provided in the ceiling at intersections of corridors and at junctions of corridors and lobbies or other similar areas.
3. **Lay-in panels.** Metal panels and panels weighing more than 1/2 pounds per square foot (24 N/m²) other than acoustical tiles shall be positively attached to the ceiling suspension runners.
4. **Lateral force bracing.** Lateral force bracing is required for all ceiling areas except that they shall be permitted to be omitted in rooms with floor areas up to 144 square feet when perimeter support in accordance with ASTM E 580 Sections 5.2.2 and 5.2.3 are provided and perimeter walls are designed to carry the ceiling lateral forces. The connections between the ceiling grid, wall angle and the wall shall be designed to

resist the ceiling lateral forces. Horizontal restraint point spacing shall be justified by analysis or test and shall not exceed a spacing of 12 feet by 12 feet. Restraint Bracing wires shall be secured with four tight twists in 1 1/2 inches, or an approved alternate connection.

5. Ceiling support and bracing wires shall be spaced a minimum of 6" from all pipes, ducts, conduits and equipment that are not braced for horizontal forces, unless approved otherwise by the building official.

5. ~~Ceiling fixtures. Fixtures installed in acoustical tile or lay-in panel ceilings shall be mounted in a manner that will not compromise ceiling performance.~~

~~All recessed or drop-in light fixtures and grilles shall be supported directly from the fixture housing to the structure above with a minimum of two 12-gage wires located at diagonally opposite corners. Leveling and positioning of fixtures may be provided by the ceiling grid. Fixture support wires may be slightly loose to allow the fixture to seat in the grid system. Fixtures shall not be supported from main runners or cross runners if the weight of the fixtures causes the total dead load to exceed the deflection capability of the ceiling suspension system.~~

~~Fixtures shall not be installed so that the main runners or cross runners will be eccentrically loaded.~~

~~Surface-mounted fixtures shall be attached to the main runner with at least two positive clamping devices made of material with a minimum of 14 gage. Rotational spring catches do not comply. A 12-gage suspension wire shall be attached to each clamping device and to the structure above.~~

6. ~~Partitions. Where the suspended ceiling system is required to provide lateral support for the permanent or relocatable partitions, the connection of the partition to the ceiling system, the ceiling system members and their connections, and the lateral force bracing shall be designed to support the reaction force of the partition from prescribed loads applied perpendicular to the face of the partition. Partition connectors, the suspended ceiling system and the lateral force bracing shall all be engineered to suit the individual partition application and shall be shown or defined in the drawings or specifications.~~

1616A.1.22 1616A.1.21. ~~Reserved for OSHPD~~

1616A.1.23 ~~1616A.1.22~~ ASCE 7 Tables 13.5-1 and 13.6-1. Modify ASCE 7, Tables 13.5-1 & 13.6-1 by the following:

1. For components with R_p greater than 1.5, overstrength factor (Ω_o) for design of anchorage to concrete and vibration isolators along with associated snubbers/connections shall be 2.0.
2. For Exterior Nonstructural Wall Elements and Connections, overstrength factor (Ω_o) shall be 1.0.

1616A.1.24 ~~1616A.1.23~~ ASCE 7, Section 13.6.5. Modify ASCE 7, Section 13.6.5.6 Exceptions 1 and 2 as follows:

Exceptions:

1. Design for the seismic forces of Section 13.3 shall not be required for raceways where either:
 - a. Trapeze assemblies are used to support raceways and the total weight of the raceway supported by trapeze assemblies is less than 10 lb/ft (146 N/m), or
 - b. The raceway is supported by hangers and each hanger in the raceway run is 12 in. (305 mm) or less in length from the raceway support point to the supporting structure. Where rod hangers are used with a diameter greater than 3/8 inch, they shall be equipped with swivels to prevent inelastic bending in the rod.
2. Design for the seismic forces of Section 13.3 shall not be required for conduit, regardless of the value of I_p , where the conduit is less than 2.5 in. (64 mm) trade size.

1616A.1.25 ~~1616A.1.24~~ ASCE 7, Section 13.6.7. Replace ASCE 7, Section 13.6.7 Exceptions 1 and 2 with the following:

Exceptions:

The following exceptions pertain to ductwork not designed to carry toxic, highly toxic, or flammable gases or used for smoke control:

1. Design for the seismic forces of Section 13.3 shall not be required for ductwork where either:

- a. Trapeze assemblies are used to support ductwork and the total weight of the ductwork supported by trapeze assemblies is less than 10 lb/ft (146 N/m); or
- b. The ductwork is supported by hangers and each hanger in the duct run is 12 in. (305 mm) or less in length from the duct support point to the supporting structure. Where rod hangers are used with a diameter greater than 3/8 inch, they shall be equipped with swivels to prevent inelastic bending in the rod.

2. Design for the seismic forces of Section 13.3 shall not be required where provisions are made to avoid impact with larger ducts or mechanical components or to protect the ducts in the event of such impact; and HVAC ducts have a cross-sectional area of 6 ft² (0.557 m²) or less, or weigh 10 lb/ft (146 N/m) or less.

~~1616A.1.25 ASCE 7, Section 13.6.8.2. Modify ASCE 7, Section 13.6.8.2 by adding Exception as follows:~~

~~Exception: Anchor capacities shall be determined in accordance with material chapters of this code in lieu of using those in NFPA 13 and demand shall be based on ASCE 7.~~

1616A.1.26 ASCE 7, Section 13.6.8.3. Replace ASCE 7, Section 13.6.8.3 with the following:

13.6.8.3 Exceptions. Design of piping systems and attachments for the seismic forces of Section 13.3 shall not be required where one of the following conditions apply:

1. Trapeze assemblies are used to support piping whereby no single pipe exceeds the limits set forth in 3a. or b. below and the total weight of the piping supported by the trapeze assemblies is less than 10 lb/ft (146 N/m).
2. The piping is supported by hangers and each hanger in the piping run is 12 in. (305 mm) or less in length from the top of the pipe to the supporting structure. Where pipes are supported on a trapeze, the trapeze shall be supported by hangers having a length of 12 in. (305 mm) or less. Where rod hangers are used with a diameter greater than 3/8 inch, they shall be equipped with swivels to prevent inelastic bending in the rod.

3. *Piping having an R_p in Table 13.6-1 of 4.5 or greater is used and provisions are made to avoid impact with other structural or nonstructural components or to protect the piping in the event of such impact and where the following size requirements are satisfied:*

- a. *For Seismic Design Categories D, E, or F and values of I_p greater than one, the nominal pipe size shall be 1 inch (25 mm) or less.*
- b. *For Seismic Design Categories D, E, or F, where $I_p = 1.0$ the nominal pipe size shall be 3 inches (80 mm) or less.*

The exceptions above shall not apply to elevator piping.

1616A.1.27 ASCE 7, Section 13.6.10.1. *Modify ASCE 7 Section 13.6.10.1 by adding Section 13.6.10.1.1 as follows:*

13.6.10.1.1 Elevators guide rail support. *The design of guide rail support-bracket fastenings and the supporting structural framing shall use the weight of the counterweight or maximum weight of the car plus not less than 40 percent of its rated load. The seismic forces shall be assumed to be distributed one third to the top guiding members and two thirds to the bottom guiding members of cars and counterweights, unless other substantiating data are provided. In addition to the requirements of ASCE 7 Section 13.6.10.1, the minimum seismic forces shall be 0.5g acting in any horizontal direction.*

1616A.1.28 ASCE 7, Section 13.6.10.4. *Replace ASCE 7, Section 13.6.10.4 as follows:*

13.6.10.4 Retainer plates. *Retainer plates are required at the top and bottom of the car and counterweight, except where safety devices acceptable to the enforcement agency are provided which meet all requirements of the retainer plates, including full engagement of the machined portion of the rail. The design of the car, cab stabilizers, counterweight guide rails and counterweight frames for seismic forces shall be based on the following requirements:*

1. *The seismic force shall be computed per the requirements of ASCE 7 13.6.10.1. The minimum horizontal acceleration shall be 0.5g for all buildings.*
2. *W_p shall equal the weight of the counterweight or the maximum weight of the car plus not less than 40 percent of its rated load.*

3. With the car or counterweight located in the most adverse position, the stress in the rail shall not exceed the limitations specified in these regulations, nor shall the deflection of the rail relative to its supports exceed the deflection listed below:

RAIL SIZE (weight per foot of length, pounds)	WIDTH OF MACHINED SURFACE (inches)	ALLOWABLE RAIL DEFLECTION (inches)
8	1 ¼	0.20
11	1 ½	0.30
12	1 ¾	0.40
15	1 31/32	0.50
18 ½	1 31/32	0.50
22 ½	2	0.50
30	2 ¼	0.50

For SI: 1 inch = 25 mm, 1 foot = 305 mm.

NOTE: Deflection limitations are given to maintain a consistent factor of safety against disengagement of retainer plates from the guide rails during an earthquake.

4. Where guide rails are continuous over supports and rail joints are within 2 feet (610 mm) of their supporting brackets, a simple span may be assumed.
5. The use of spreader brackets is allowed.
6. Cab stabilizers and counterweight frames shall be designed to withstand computed lateral load with a minimum horizontal acceleration of 0.5g.

1616A.1.29 ASCE 7, Section 16.1.4. Remove ASCE 7 Sections 16.1.4.1 and 16.1.4.2 and modify Section 16.1.4 by the following:

Maximum scaled base shears used to determine forces and drifts shall not be less than the base shears calculated using the equivalent lateral force procedure of Section 12.8.

1616A.1.30 ASCE 7, Section 16.2.2. Modify ASCE 7 Section 16.2.2 by adding the following:

Requirements of this section shall be deemed to be satisfied for new buildings, using acceptance criteria in Section 16.2.4.2, by the nonlinear modeling parameters in ASCE 41.

1616A.1.31 ASCE 7, Section 16.2.3. Modify ASCE 7 Section 16.2.3 by adding the following:

Requirements of this section shall be deemed to be satisfied by using load combinations in Sections 12.4.2.3 and 12.4.3.2 with 25% of the required live loads.

1616A.1.32 ASCE 7, Section 16.2.4. Modify ASCE 7 Section 16.2.4 by the following:

- a) *Where site is located within 3.1 miles (5 km) of an active fault at least seven ground motions shall be analyzed and response parameters shall be based on larger of the average of the maximum response with ground motions applied as follows:*
 - 1. *Each of the ground motions shall have their maximum component at the fundamental period aligned in one direction.*
 - 2. *Each of the ground motion's maximum component shall be rotated orthogonal to the previous analysis direction.*
- b) *Where site is located more than 5 km from an active fault at least 10 ground motions shall be analyzed. The ground motions shall be applied such that one-half shall have their maximum component aligned in one direction and the other half aligned in the orthogonal direction. The average of the maximum response of all the analyses shall be used for design.*

1616A.1.33 ASCE 7, Section 16.2.4.1. ~~Reserved for OSHPD~~

1616A.1.34 ASCE 7, Section 16.2.4.2. ~~Reserved for OSHPD~~

1616A.1.35 ASCE 7, Section 17.2.1. Modify ASCE 7, Section 17.2.1 by adding the following:

~~*The importance factor, I_p , for parts and portions of a seismic-isolated building shall be the same as that required for a fixed-base building of the same risk category.*~~

1616A.1.35 1616A.1.36 ASCE 7 Section 17.2.4.7. Modify ASCE 7, Section 17.2.4.7 by adding the following:

The effects of uplift and/or rocking shall be explicitly accounted for in the analysis and in the testing of the isolator units.

1616A.1.37 ~~ASCE 7, Section 17.2.5.2.~~ *Modify ASCE 7, Section 17.2.5.2 by adding the following:*

~~The separation requirements for the building above the isolation system and adjacent buildings shall be the sum of the factored displacements for each building. The factors to be used in determining separations shall be:~~

- ~~1. For seismically isolated buildings, the deformation resulting from the analyses using the Risk-Targeted Maximum Considered Earthquake unmodified by R_1 .~~*
- ~~2. For fixed based buildings, C_d times the elastic deformations resulting from an equivalent static analysis using the seismic base shear computed via ASCE 7, Section 12.8.~~*

1616A.1.36 ~~1616A.1.38~~ ASCE 7, Section 17.4. *Modify ASCE 7, Section 17.4.2 by adding the following:*

17.4.2.3 Linear Procedure. *Linear procedures shall not be used in Seismic Design Category E & F structures, be limited to structures located at sites where mapped value of S_1 is less than 0.6g.*

1616A.1.37 ~~1616A.1.39~~ ASCE 7, Section 17.6 *Modify ASCE 7, Section 17.6 by adding the following:*

17.6.1.1 Minimum Seismic Force. *For the response spectrum and linear response history procedures, V_b and V_s , shall not be taken less than those calculated in accordance with Equations 17.5-7 and 17.5-8.*

1616A.1.38 ~~1616A.1.40~~ ASCE 7, Section 18.3.1. *Modify ASCE 7, Section 18.3.1 by replacing the third paragraph with the following:*

If the calculated force in an element of the seismic force resisting system does not exceed 1.5 times its nominal strength for the Risk-Targeted Maximum Considered Earthquake (MCE_R) nor its nominal strength for the Design Earthquake (DE), the element is permitted to be modeled as linear. For this section, the MCE_R and DE response shall be based on largest response due to a single ground motion and not the average response of suite of ground motions.

1616A.1.39 ~~1616A.1.41~~ **Reserved for OSHPD**

1616A.1.40 ~~1616A.1.42~~ **Reserved for OSHPD**

All existing amendments that are not revised above shall continue without any change.

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

CHAPTER 17A

SPECIAL INSPECTIONS AND TESTS

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter as amended	X	X	
Adopt only those sections listed below			

All existing California amendments that are not revised below shall continue without change.

SECTION 1701A

GENERAL

1701A.1 Scope. The provisions of this chapter shall govern the quality, workmanship and requirements for materials covered. Materials of construction and tests shall conform to the applicable standards listed in this code.

1701A.1.1 Application. *The scope of application of Chapter 17A is as follows:*

- 1. [DSA-SS & DSA-SS/CC]** *Structures regulated by the Division of the State Architect-Structural Safety, which include those applications listed in Sections 1.9.2.1 (DSA-SS), and 1.9.2.2*

(DSA-SS/CC). These applications include public elementary and secondary schools, community colleges and state-owned or state leased essential services buildings

2. ~~Reserved for OSHPD~~

Exception: ~~Reserved for OSHPD~~

1701A.1.2 Amendments in this chapter. DSA-SS adopts this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. Division of the State Architect - Structural Safety:

[DSA-SS] For applications listed in Section

1.9.2.1.

[DSA-SS/CC] For applications listed in Section

1.9.2.2.

2. ~~Reserved for OSHPD~~

1701A.1.3 Reference to other chapters.

1701A.1.3.1 [DSA-SS/CC] Where reference within this chapter is made to sections in Chapters 16A, 19A, 21A, and 22A, ~~and 34A~~, the provisions in Chapters 16, 19, 21, and 22, ~~and 34~~ respectively, shall apply instead.

...

1701A.3 1701A.4 Special inspectors inspections and tests. ~~Reserved for OSHPD~~

1701A.4 1701A.5 Special inspectors inspections and tests. **[DSA-SS & DSA-SS/CC]** In addition to the project inspector required by the California Administrative Code (CCR, Title 24, Part 1), Section 4-333, the owner shall employ one or more approved agencies special inspectors to provide special inspections and tests as required by the enforcement agency during construction on the types of work

listed under Chapters 17A, 18A, 19A, 20, 21A, 22A, 23, and 25 and 34 of the California Existing Building Code and noted in the special test, inspection and observation plan required by Section 4-335 of the California Administrative Code.

SECTION 1702A DEFINITIONS

1702A.1 Definitions. The following terms are defined in Chapter 2 *except those defined below which shall, for the purposes of this ~~section~~ chapter, have the meanings shown herein.*

...

PROJECT INSPECTOR. *[DSA-SS, DSA-SS/CC] The person approved to provide inspection in accordance with the California Administrative Code, Section 4-333(b). The term "project inspector" is synonymous with "inspector of record."*

...

Quality Assurance (QA). *Special inspections and testing provided by an approved agency employed by the Owner. Project specific testing required by approved construction documents shall be performed by the approved agency responsible for Quality Assurance (QA), unless approved otherwise by the building official.*

Quality Control (QC). *Inspections and materials/functionality testing provided by the fabricator, erector, manufacturer or other responsible contractor as applicable.*

...

SPECIAL INSPECTION.

Continuous special inspection. *The full-time observation of work requiring special inspection by a special inspector who is present in the area where the work is being performed.*

Periodic special inspection. *The part-time or intermittent observation of work requiring special*

inspection by a special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

...

SECTION 1704A
SPECIAL INSPECTIONS, AND TESTS,
CONTRACTOR RESPONSIBILITY AND
STRUCTURAL OBSERVATION

...

1704A.2 Special inspections and tests. Where application is made to the building official for construction as specified in Section 105, the owner ~~or the owners authorized agent, other than contractor,~~ shall employ one or more *approved agencies* to provide special inspections and tests during construction on the types of work specified in Section 1705A and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

Exceptions:

1. *Special inspections* and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved by the building official*.
2. *[DSA-SS, DSA-SS/CC] Reference to Section 105 and Section 110 shall be to the California Administrative Code instead.*
2. ~~Unless otherwise required by the building official, special inspections are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.~~
3. ~~Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light frame construction provisions of Section 2211.7 or the conventional light frame construction provisions of Section 2308.~~
4. ~~The contractor is permitted to employ the approved agencies where the contractor is also the owner.~~

...

1704A.2.3 Statement of special inspections. The applicant shall submit a statement of *special inspections prepared by the registered design professional in responsible charge* in accordance with Section 107.1 as a condition for ~~permit issuance~~ *construction documents review*. This statement shall be in accordance with Section 1704A.3.

~~[DSA-SS, DSA-SS/CC] Reference to Section 107.1 shall be to the California Administrative Code instead.~~

Exception: ~~A statement of special inspections is not required for portions of structures designed and constructed in accordance with the cold-formed steel light frame construction provisions of Section 2211.7 or the conventional light frame construction provisions of Section 2308.~~

1704A.2.4 Report requirement. ~~The inspector(s) of record and A-approved agencies shall keep records of special inspections and tests. The inspector of record and approved agency shall submit reports of special inspections and tests to the building official, and to the registered design professional in responsible charge as required by the California Administrative Code. Reports shall indicate that work inspected or tested was or was not completed in conformance to approved construction documents as required by the California Administrative Code and this code. Title 24 Parts 1 and 2.~~ Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge prior to the completion of that phase of the work. A final report documenting required special inspections and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted at a point in time agreed upon prior to the start of work by the owner or owner's authorized agent to the building official.

1704A.2.5 Special inspection of fabricated items. Where fabrication of structural, load-bearing or lateral load resisting members or assemblies is being conducted on the premises of a fabricator's shop, *special inspection* of the fabricated items shall be performed during fabrication.

Exceptions: ~~(Reserved for OSHPD)~~

- 4) ~~Special inspections during fabrication are not required where the fabricator maintains approved detailed fabrication and quality control procedures that provide a basis for control of the workmanship and the fabricator's ability to conform to approved construction documents and this~~

code. Approval shall be based upon review of fabrication and quality control procedures and periodic inspection of fabrication practices by the building official.

- 2) ~~Special inspections are not required where fabricator is registered and approved in accordance with Section 1704.2.5.1.~~

~~**1704.2.5.1 Fabricator approval.** *Special inspections* during fabrication are not required where the work is done on the premises of a fabricator registered and approved to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved agency. At completion of fabrication, the approved fabricator shall submit a *certificate of compliance* to the owner or owner's authorized agent for submittal to the *building official* as specified in Section 1704.5 stating that the work was performed in accordance with the approved construction documents.~~

...

1704A.3.2 Seismic requirements in the statement of special inspections. Where Section 1705A.12 or 1705A.13 specifies *special inspections* or tests for seismic resistance, the statement of special inspections shall identify the *equipment/components that require special seismic certification* ~~designated seismic systems~~ and seismic force resisting systems that are subject to *special inspections* or tests.

...

1704A.4 Contractor responsibility. Each contractor responsible for the construction of a main wind- or seismic force resisting system, *installation of equipment/components requiring special seismic certification* ~~designated seismic system~~ or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the *building official* and the owner or the Owner's authorized agent prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the statement of *special inspections*.

1704A.5 Submittal to the Building official. In addition to the submittal of reports of *special inspections* and tests in accordance with Section 1704A.2.4, reports and certificates shall be submitted by the owner or owner's authorized agent to the building official for each of the following:

1. ~~Reserved for DSH/DP~~ *Certificate of Compliance* for the fabrication of structural, load-bearing or lateral load-resisting members or assemblies on the premises of a registered and *approved fabricator* in accordance with Section 1704.2.5.1.
2. *Certificate of compliance* for the seismic qualification manufacturer's certification of non-structural components, supports and attachments in Section 1705A.13.2.
3. *Certificate of compliance* for the designated seismic system equipment/components requiring special seismic certification in accordance with Section 1705A.13.3.

...

1704A.6 Structural observations. ~~Where required by the provisions of Section 1704.6.1 or 1704.6.2, t~~
The owner or the owner's authorized agent shall employ a *registered design professional* to perform structural observations. Structural observation does not include or waive the responsibility for inspection in Section 110 or the special inspections in Section 1705A or other sections of this code.

Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations.

At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved.

[DSA-SS, DSA-SS/CC] Reference to Section 110 shall be to the California Administrative Code instead.

1704.6.1 Structural observations for seismic resistance. ~~Structural observations shall be provided for those structures assigned to Seismic Design Category D, E or F where one or more of the following conditions exist:~~

- ~~1. The structure is classified as Risk Category III or IV.~~
- ~~2. The height of the structure is greater than 75 feet (22 860 mm) above the base as defined in ASCE 7.~~

3. The structure is assigned to *Seismic Design Category E*, is classified as *Risk Category I or II*, and is greater than two stories above grade plane.
4. When so designated by the *registered design professional* responsible for the structural design.
5. When such observation is specifically required by the *building official*.

1704.6.2 Structural observations for wind requirements. Structural observations shall be provided for those structures sited where *V_{as}* as determined in accordance with Section 1609.3.1 exceeds 110 mph (49 m/sec), where one or more of the following conditions exist:

1. The structure is classified as *Risk Category III or IV*.
2. The *building height* is greater than 75 feet (22 860 mm).
3. When so designated by the *registered design professional* responsible for the structural design.
4. When such observation is specifically required by the *building official*.

SECTION 1705A REQUIRED SPECIAL INSPECTIONS AND TESTS

...

1705A.2.1 Structural steel. *Special inspections* and nondestructive testing of structural steel elements in buildings, structures and portions thereof shall be in accordance with the quality assurance inspection requirements of AISC 360 of this section, *and Chapter 22A and quality control requirements of AISC 360, AISC 341 and AISC 358.*

Exception: *Special inspection* of railing systems composed of structural steel elements shall be limited to welding inspection of welds at the base of cantilevered rail post.

AISC 360, Chapter N and AISC 341, Chapter J are adopted, except as noted below:

The following provisions of AISC 360, Chapter N are not adopted:

1. N4., Item 2. (Quality Assurance Inspector Qualifications)
2. N5., Item 2. (Quality Assurance)
3. **[DSA-SS, DSA-SS/CC]** N5., Item 3. (Coordinated Inspection)

4. [DSA-SS, DSA-SS/CC] N5, Item 4. (Inspection of Welding)
5. [DSA-SS, DSA-SS/CC] N7 (Approved Fabricators and Erectors)
6. [DSA-SS, DSA-SS/CC] N8 (Nonconforming Material and Workmanship)

In addition to the quality assurance inspection requirements contained in AISC 360, Section N5 Item 6 (Inspection of High-Strength Bolting) (Minimum Requirements for Inspection of Structural Steel Buildings), the requirements of Table 1705A.2.1 of the California Building Code shall apply.

In addition to the quality assurance requirements contained in AISC 360, Section N6 (Minimum Requirements for Inspection of Composite Construction), the requirements of Table 1705A.2.1 of the California Building Code shall apply.

In addition to the quality assurance requirements contained in AISC 341, Chapter J, Section J5 (Inspection Tasks), the requirements of Section 1704A.3 and Table 1705A.2.1 of the California Building Code shall apply.

TABLE 1705A.2.1 REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD ^a	CBC REFERENCE
1. Material verification of high-strength bolts, nuts and washers:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	X	AISC 360, Section A3.3 and applicable ASTM material standards	-
b. Manufacturer's certificate of compliance required.	-	X	-	-
2. Inspection of high-strength bolting:				
a. Snug-tight joints.	-	X	AISC 360,	-

b. Pretensioned and slip-critical joints using turn-of-nut with matchmarking, twist-off bolt or direct tension indicator methods of installation.	-	X	Section M2.5	
c. Pretensioned and slip-critical joints using turn-of-nut without matchmarking or calibrated wrench methods of installation.	X	-		
3. Material verification of structural steel and cold-formed steel deck:				
a. For structural steel, identification markings to conform to AISC 360.	-	X	AISC 360, Section A3.1	2203A.1
b. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents.	-	X	Applicable ASTM material standards	
c. Manufacturer's certified test reports.	-	X		
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.	-	X	AISC 360, Section A3.5 and applicable AWS A5 documents	-
b. Manufacturer's certificate of compliance required.	-	X	-	-
5. Inspection of welding:				
a. Structural steel and cold-formed steel deck:				
1) Complete and partial joint penetration groove welds.	X	-	AWS D1.1 AWS D1.8	1705A.2.1
2) Multipass fillet welds.	X	-		
3) Single-pass fillet welds $> \frac{5}{16}$ "	X	-		
4) Plug and slot welds.	X	-		
5) Single-pass fillet welds $\leq \frac{5}{16}$ "	-	X		
6) Floor and roof deck welds.	-	X	AWS D1.3	

TABLE 1705A.2.1- continued

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD ^a	CBC REFERENCE
b. Reinforcing steel:				-
1) Verification of weldability of reinforcing steel other than ASTM A 706.	-	X	AWS D1.4 ACI 318: Sections <u>26.6.4.1</u> , <u>18.2.8</u> , <u>25.5.7.4</u> <u>3.5.2</u>	
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	-		
3) Shear reinforcement.	X	-		
4) Other reinforcing steel.	-	X		
6. Inspection of steel frame joint details for compliance:				
a. Details such as bracing and stiffening.	-	X	-	<u>1705A.2.1</u>
b. Member locations.	-	X		<u>1705A.2.2</u>
c. Application of joint details at each connection.	-	X		

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section ~~1705A.11~~ 1705A.12, Special inspection for seismic resistance

1705A.2.2 Cold-formed steel deck. ~~Special inspections and qualification of welding special inspectors~~ for cold formed steel floor and roof deck shall be in accordance with the quality assurance inspection requirements of SDI QA/QC.

Deck weld special inspection shall also satisfy requirements in Table 1705A.2.1 and Section 1705A.2.5.

1705A.2.3.1 ~~1705A.2.2.3~~ Steel joist and joist girder inspection. Special inspection is required during the manufacture and welding of steel joists or joist girders. The approved agency special inspector shall verify that proper quality control procedures and tests have been employed for all materials and the manufacturing process, and shall perform visual inspection of the finished product. The approved agency special inspector shall place a distinguishing mark, and/or tag with this distinguishing mark, on each inspected joist or joist girder. This mark or tag shall remain on the joist or joist girder throughout the job site receiving and erection process.

1705A.2.4.1 ~~1705A.2.2.4~~ Light-framed steel truss inspection. The manufacture of cold-formed light framed steel trusses shall be continuously inspected by an approved agency a-qualified-special inspector approved by the enforcement agency. The approved agency special inspector shall verify conformance of materials and manufacture with approved plans and specifications. The approved agency special inspector shall place a distinguishing mark, and/or tag with this distinguishing mark, on each inspected truss. This mark or tag shall remain on the truss throughout the job site receiving and erection process.

1705A.2.5 ~~1705A.2.2.5~~ Inspection of structural welding. Inspection of all shop and field welding operations shall be made by a qualified welding inspector approved by the enforcement agency. The minimum requirements for a qualified welding inspector shall be as those for an AWS Certified Welding Inspector (CWI), as defined in the provisions of the AWS QC1. ~~All welding inspectors shall be as approved by the enforcement agency.~~

Exception: ~~Reserved for CSHFB~~

The welding inspector shall make a systematic daily record of all welds. In addition to other records, this record shall include:

1. Identification marks of welders.
2. List of defective welds.

3. *Manner of correction of defects.*

The welding inspector shall check the material, details of construction and procedure, as well as workmanship of the welds. The inspector shall verify that the installation of end-welded stud shear connectors is in accordance with the requirements of AWS D1.1 and the approved plans and specifications. The inspector approved agency shall furnish the architect, structural engineer, and the enforcement agency with a verified report, that the welding ~~is proper and~~ has been done in conformance ~~conformity~~ with AWS D1.1, D1.3, D1.8, and the approved construction documents.

1705A.3 Concrete construction. *Special inspections and tests of concrete construction shall be performed in accordance with this section and Table 1705A.3.*

Exception: *Special inspections and tests shall not be required for:*

- ~~1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock.~~
- ~~2. Continuous concrete footings supporting walls of buildings three stories or less above grade plane that are fully supported on earth or rock where:~~
 - ~~2.1. The footings support walls of light frame construction;~~
 - ~~2.2. The footings are designed in accordance with Table 1809.7; or~~
 - ~~2.3. The structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the approved construction documents or used in the footing construction.~~
- ~~3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 MPa).~~
- ~~4. Concrete foundation walls constructed in accordance with Table 1807.1.6.2.~~
- ~~5. Concrete patios, driveways and sidewalks, on grade.~~

...

1705A.3.3 ~~1705A.3.2~~ Batch plant inspection. *Except as provided under this S section ~~1705A.3.3~~, the quality and quantity of materials used in transit-mixed concrete and in batched aggregates shall be continuously inspected by an approved agency ~~special inspector~~ at the location where materials are measured.*

1705A.3.3.1 ~~1705A.3.3~~ **Waiver of continuous batch plant inspection.** Continuous batch plant inspection may be waived by the registered design professional, subject to approval by the enforcement agency under either of the following conditions:

1. The concrete plant complies fully with the requirements of ASTM C 94, Sections 9.8 and 10.9, and has a current certificate from the National Ready Mixed Concrete Association or another agency acceptable to the enforcement agency. The certification shall indicate that the plant has automatic batching and recording capabilities.
2. For single-story light-framed construction (without basement or retaining wall higher than 6' in height measured from bottom of footing to top of wall) – buildings and isolated foundations supporting equipment only, where deep foundation elements are not used, where the specified compressive strength f'_c of the concrete delivered to the jobsite is 3,500 psi (24.13 MPa) and where the f'_c used in design is not greater than 3,000 psi (20.68 MPa).

When continuous batch plant inspection is waived, the following ~~periodic inspection~~ requirements shall apply and shall be described in the construction documents:

1. ~~Qualified technician of the~~ An approved agency testing laboratory shall check the first batch at the start of the day to verify materials and proportions conform to the approved mix design.
2. ~~A~~ licensed weighmaster shall ~~to~~ positively identify quantity of materials ~~as to quantity and certify to each load by a batch ticket.~~
3. Batch tickets, including material quantities and weights shall accompany the load, shall be transmitted to the inspector of record by ~~a~~ the truck driver with load identified thereon. The load shall not be placed without a batch ticket identifying the mix. The inspector of record shall will keep a daily record of placements, identifying each truck, its load, and time of receipt at the jobsite, and approximate location of deposit in the structure and shall maintain will transmit a copy of the daily record as required by ~~to~~ the enforcement agency.

1705A.3.3.2 **Batch plant inspection not required.** [DSA-SS, DSA-SS/CC] Batch plant inspection is not required for any of the following conditions, provided they are identified on the approved construction documents and the licensed weighmaster and batch ticket requirements of Section 1705A.3.3.1 are implemented:

1. Site flatwork
2. Unenclosed site structures, including but not limited to lunch or car shelters, bleachers, solar structures, flag or light poles, or retaining walls.
3. Controlled low-strength material backfill
4. Single-story relocatable buildings less than 2,160 square feet.

1705A.3.4 Inspection of prestressed concrete.

1. In addition to the general inspection required for concrete work, all plant fabrication of prestressed concrete members or tensioning of posttensioned members constructed at the site shall be continuously inspected by an inspector specially approved for this purpose by the enforcement agency.
2. The prestressed concrete plant fabrication inspector shall check the materials, equipment, tensioning procedure and construction of the prestressed members and prepare daily written reports. The ~~inspector~~ approved agency shall make a verified report identifying the members by mark and shall include such pertinent data as lot numbers of tendons used, tendon jacking forces, age and strength of concrete at time of tendon release and such other information that may be required.
3. The inspector of prestressed members posttensioned at the site shall check the condition of the prestressing tendons, anchorage assemblies and concrete in the area of the anchorage, the tensioning equipment and the tensioning procedure and prepare daily written reports. The ~~inspector~~ approved agency shall make a verified report of the prestressing operation identifying the members or tendons by mark and including such pertinent data as the initial cable slack, net elongation of tendons, jacking force developed, and such other information as may be required.
4. The verified reports of construction shall show that of the inspector's own personal knowledge, the work covered by the report has been performed and materials used and installed in every material respect in compliance with the duly approved plans and specifications for plant fabrication inspection. The verified report shall be accompanied by test reports required for materials used. For site posttensioning inspections the verified report shall be accompanied by copies of calibration charts, certified by an approved testing laboratory, showing the relationship between gage readings and force applied by the jacks used in the prestressing procedure.

1705A.3.5 Concrete pre-placement inspection. *Concrete shall not be placed until the forms and reinforcement have been inspected, all preparations for the placement have been completed, and the preparations have been checked by the inspector of Record.*

1705A.3.6 Placing record. *A record shall be kept on the site of the time and date of placing the concrete in each portion of the structure. Such record shall be kept until the completion of the structure and shall be open to the inspection of the enforcement agency.*

TABLE 1705A.3
REQUIRED SPECIAL INSPECTION AND TESTS OF
CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCE STANDARDS	CBC REFERENCE
...				
4. Inspect anchors post installed in hardened concrete members. ^{b,e}	X		ACI 318: 17.8.2.4	
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.				
b. Mechanical anchors and adhesive anchors not defined in 4.a.		X	ACI 318: 17.8.2	
...				
...				
...				
13. Inspection of adhesive anchors in horizontal and upwardly inclined positions.^e		X	ACI318: D.9.2.2	==

...

c. Installation of all adhesive anchors in horizontal and upwardly inclined positions shall be performed by an ACI/CRSI Certified Adhesive Anchor Installer, except where the factored design tension on the anchors is less than 100 lbs and those anchors are clearly noted on the approved construction documents or where the anchors are shear dowels across cold joints in slabs on grade where the slab is not part of the lateral force resisting system.

1705A.4 Masonry construction. *Special inspections* and tests of masonry construction shall be performed in accordance with the quality assurance program requirements of TMS 402/ACI 530/ASCE 5, as set forth in Table 3.1.3 Level C requirements, and TMS 602/ACI 530.1/ASCE 6, ~~as set forth in Table 4.19.3 Level C requirements~~. *Special inspection and testing of post-installed anchors in masonry shall be required in accordance with requirements for concrete in Chapters 17A and 19A.*

~~**Exception:** *Special inspections and tests shall not be required for:*~~

- ~~1. Empirically designed masonry, glass unit masonry or masonry veneer designed in accordance with Section 2109, 2110 or Chapter 14, respectively, where they are part of structures classified as *Risk Category I, II or III*.~~
- ~~2. Masonry foundation walls constructed in accordance with Table 1807.1.6.3(1), 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4).~~
- ~~3. Masonry fireplaces, masonry heaters or masonry chimneys installed or constructed in accordance with Section 2111, 2112 or 2113, respectively.~~

1705A.4.1 Empirically designed masonry, g Glass unit masonry and masonry veneer in Risk Category Categories II, III or IV. *Special inspections* and tests for empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110A or Chapter 14, respectively, in structures classified as *Risk Category Categories II, III or IV*, shall be performed in accordance with TMS 402/ACI 530/ASCE 5 Level B Quality Assurance.

...

1705A.5 Wood construction. *Special inspections* of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704A.2.5 *except as modified in this section*. *Special inspections* of site-built assemblies shall be in accordance with this section.

...

1705A.5.3 Wood structural elements and assemblies. Special inspection of wood structural elements and assemblies is required, as specified in this section, to ensure conformance with ~~drawings and specifications~~ construction documents, and applicable standards.

The ~~approved agency special inspector~~ shall furnish a verified report to the design professional in general responsible charge of construction observation, the structural engineer, and the enforcement agency, in accordance with the California Administrative code and this chapter. The verified report shall list all inspected members or trusses, and shall indicate whether or not the inspected members or trusses conform with applicable standards and the approved drawings and specifications. Any non-conforming items shall be indicated on the verified report.

1705A.5.4 Structural glued laminated timber. Manufacture of all structural glued laminated timber shall be continuously inspected by an approved agency ~~a qualified special inspector approved by the enforcement agency~~.

The ~~approved agency special inspector~~ shall verify that proper quality control procedures and tests have been employed for all materials and the manufacturing process, and shall perform visual inspection of the finished product. Each inspected member shall be stamped by the approved agency special inspector with an identification mark.

Exception: Special Inspection is not required for non-custom members of 5-1/8 inch maximum width and 18 inch maximum depth, and with a maximum clear span of 32 feet, manufactured and marked in accordance with ANSI/AITC A 190.1 Section 6.1.1 for non-custom members.

1705A.5.5 Manufactured open web trusses. The manufacture of open web trusses shall be continuously inspected by an approved agency ~~a qualified special inspector approved by the enforcement agency~~.

The ~~approved agency special inspector~~ shall verify that proper quality control procedures and tests have been employed for all materials and the manufacturing process, and shall perform visual inspection of the finished product. Each inspected truss shall be stamped with an identification mark by the ~~special inspector~~ approved agency.

1705A.5.6 Timber connectors. The installation of all split ring and shear plate timber connectors, and timber rivets shall be continuously inspected by an approved agency ~~a qualified inspector approved by the enforcement agency~~. The approved agency inspector shall furnish the architect, structural engineer

and the enforcement agency with a report verifying ~~duly verified by him~~ that the materials, timber connectors and workmanship conform to the approved ~~plans and specifications~~ construction documents.

1705A.6.1 Soil fill. All fills used to support the foundations of any building or structure shall be continuously inspected by the geotechnical engineer or his or her qualified representative. It shall be the responsibility of the geotechnical engineer to verify that fills meet the requirements of the approved construction documents and to coordinate all fill inspection and testing during the construction involving such fills.

The duties of the geotechnical engineer or his or her qualified representative shall include, but need not be limited to, the inspection of cleared areas and benches prepared to receive fill; inspection of the removal of all unsuitable soils and other materials; the approval of soils to be used as fill material; the inspection of placement and compaction of fill materials; the testing of the completed fills; the inspection or review of geotechnical drainage devices, buttress fills or other similar protective measures in accordance with the approved construction documents.

A verified report shall be submitted by the geotechnical engineer as required by the California Administrative Code. The report shall indicate that all tests and inspection required by the approved construction documents were completed and that the tested materials and/or inspected work meet the requirements of the approved construction documents.

1705A.7.1 Driven deep foundations observation. The installation of driven deep foundations shall be continuously inspected by a qualified representative of the geotechnical engineer responsible for that portion of the project.

The representative of the geotechnical engineer shall make a report of the deep foundation pile-driving operation giving such pertinent data as the physical characteristics of the deep foundation pile-driving equipment, identifying marks for each deep foundation pile, the total depth of embedment for each deep foundation; and when the allowable deep foundation pile loads are determined by a dynamic load formula, the design formula used, and the permanent

penetration under the last 10 blows. One copy of the report shall be sent to the enforcement agency.

...

1705A.11.1 Structural wood. Continuous special inspection is required during field gluing operations of elements of the main windforce-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.

~~**Exception:** Special inspections are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other components of the main windforce-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.~~

1705A.11.2 Cold-formed steel light-frame construction. Periodic special inspection is required for welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

~~**Exception:** Special inspections are not required for cold formed steel light frame shear walls and diaphragms, including screwing, bolting, anchoring and other fastening to components of the windforce-resisting system, where either of the following apply:~~

- ~~1. The sheathing is gypsum board or fiberboard.~~
- ~~2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).~~

...

1705A.12 Special inspections for seismic resistance. *Special inspections* for seismic resistance shall be required as specified in Sections 1705A.12.1 through 1705A.12.9, unless exempted by the exceptions of Section 1704A.2.

Exception: ~~The special inspections specified in Sections 1705.12.1 through 1705.12.9 are not required for structures designed and constructed in accordance with one of the following:~~

- ~~1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).~~
- ~~2. The seismic force resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).~~
- ~~3. The structure is a detached one- or two-family dwelling not exceeding two stories above grade plane and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:~~
 - ~~3.1. Torsional or extreme torsional irregularity.~~
 - ~~3.2. Nonparallel systems irregularity.~~
 - ~~3.3. Stiffness soft story or stiffness extreme soft story irregularity.~~
 - ~~3.4. Discontinuity in lateral strength weak story irregularity.~~

1705A.12.1 Structural steel. *Special inspections* for structural steel shall be in accordance with Section 1705A.12.1.1 or 1705A.12.1.2, as applicable.

1705A.12.1.1 Seismic Force-Resisting Systems. *Special inspections* of structural steel in the seismic force resisting systems of buildings and structures assigned to *Seismic Design Category B*, *C*, *D*, *E* or *F* shall be performed in accordance with quality assurance requirements of AISC 341 as modified by Section 1705A.2.1 of this code.

Exception: ~~*Special inspections* the seismic force-resisting systems of buildings and structures assigned to *Seismic Design Category B* or *C* that are not specifically detailed for seismic resistance, with a response modification coefficient, R , of 3 or less, excluding cantilever column systems.~~

1705A.12.1.2 Structural Steel Elements. *Special inspections* of structural steel elements in the seismic force resisting systems of buildings and structures assigned to *Seismic Design Category B*,

C, D, E or F, other than those covered in Section 1705A.12.1.1, including struts, collectors, chords, and foundation elements, shall be performed in accordance with quality assurance requirements of AISC 341 as modified by Section 1705A.2.1 of this code.

Exception: ~~Special inspections of structural steel element are not required in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B or C with a response modification coefficient, R , of 3 or less.~~

1705A.12.2 Structural wood. For the seismic force-resisting system of structures assigned to *Seismic Design Category C, D, E or F*:

...

Exception: ~~Special inspections are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the seismic force-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.~~

1705A.12.3 Cold-formed steel light-frame construction. For the seismic force-resisting system of structures assigned to *Seismic Design Category C, D, E or F*, periodic special inspection shall be required:

...

Exception: ~~Special inspections are not required for cold formed steel light frame shear walls and diaphragms, including screw installation, bolting, anchoring and other fastening to components of the seismic force-resisting system, where either of the following applies:~~

- ~~1. The sheathing is gypsum board or fiberboard.~~
- ~~2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.~~

...

1705A.12.4 Special Inspection for Special Seismic Certification. ~~Designated seismic systems.~~ For structures assigned to *Seismic Design Category C, D, E or F*, the special inspector shall examine ~~equipment and components designated seismic systems~~ requiring *special seismic certification qualification* in accordance with *Section 1705A.13.3 or ASCE 7 Section 13.2.2* and verify that the *label, anchorage and mounting conforms to the certificate of compliance.*

1705A.12.5 Architectural components. *Periodic special inspection* is required for the erection and fastening of exterior cladding, interior and exterior nonbearing walls, *ceilings*, and interior and exterior veneer in structures assigned to *Seismic Design Category D, E or F.*

Exceptions: ~~*Periodic special inspection is not required for the following:*~~

- ~~1. Exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer 30 feet (9144 mm) or less in height above grade or walking surface.~~
- ~~2. Exterior cladding and interior and exterior veneer weighing 5 psf (24.5 N/m²) or less.~~
- ~~3. Interior nonbearing walls weighing 15 psf (73.5 N/m²) or less.~~

...

1705A.12.6 Plumbing, mechanical and electrical components. *Periodic special inspection of plumbing, mechanical and electrical components shall be required for the following:*

1. Anchorage of electrical equipment for emergency or standby power systems in structures assigned to *Seismic Design Category C, D, E or F.*
2. Anchorage of other electrical equipment in structures assigned to *Seismic Design Category D, E or F.*
3. Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to *Seismic Design Category C, D, E or F.*
4. Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to *Seismic Design Category C, D, E or F.*
5. Installation and anchorage of vibration isolation systems in structures assigned to *Seismic Design Category C, D, E or F* where the approved *construction documents* require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.

...

1705A.12.8 Seismic isolation and damping systems. Periodic special inspection shall be provided for seismic isolation and damping systems in ~~seismically isolated~~ structures assigned to Seismic Design Category ~~B, C~~, D, E or F during the fabrication and installation of isolator units and energy dissipation devices. *Continuous special inspection is required for prototype and production testing of isolator units and damping devices.*

~~**1705.12.9 Cold-formed steel special bolted moment frames.** Periodic special inspection shall be provided for the installation of cold-formed steel special bolted moment frames in the seismic force-resisting systems of structures assigned to Seismic Design Category D, E or F.~~

1705A.13 Testing for seismic resistance. Testing for seismic resistance shall be required as specified in Sections 1705A.13.1.1 through 1705A.13.4, unless exempted from special inspections by exceptions of Section 1704A.2.

1705A.13.1 Structural Steel. Nondestructive testing for seismic resistance shall be in accordance with Section 1705A.13.1.1 or 1705A.13.1.2, as applicable.

1705A.13.1.1 Seismic Force-Resisting Systems. Nondestructive testing of structural steel in the seismic force resisting systems of buildings and structures assigned to Seismic Design Category ~~B, C~~, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

~~**Exception:** Nondestructive testing is not required in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, R , of 3 or less, excluding cantilever column systems.~~

1705A.13.1.2 Structural Steel Elements. Nondestructive testing of *structural steel elements* in the seismic force resisting systems of buildings and structures assigned to *Seismic design Category B, C*, D, E or F, other than those covered in Section 1705A.13.1.1, including struts, collectors, chords, and foundation elements, shall be performed in accordance with quality assurance requirements of AISC 341.

Exception: ~~Nondestructive testing of structural steel element is not required in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B or C with a response modification coefficient, R , of 3 or less.~~

1705A.13.2 Nonstructural Components. For structures assigned to *Seismic design Category B, C, D, E or F*, where requirements of Section 13.2.1 of ASCE 7 for non-structural components, supports, or attachments are met by *manufacturer's certification seismic qualification* as specified in Item 2 therein, the *registered design professional* shall specify on the *approved construction documents* the requirements for seismic certification qualification by analysis, or testing, ~~or experience data~~. *Certificates of compliance* for the seismic qualification *manufacturer's certification* shall be submitted to the building official as specified in Section 1704A.5.

Seismic sway braces satisfying requirements of FM 1950 shall be deemed to satisfy the requirements of this Section. Component tests shall be supplemented by assembly tests, when required by the building official.

1705A.13.3 Special Seismic Certification. Designated Seismic System. For structures assigned to *Seismic design Category C, D, E or F*, ~~and with designated seismic systems~~ equipment and components that are subject to the requirements of Section 13.2.2 of ASCE 7 for special seismic certification, the *registered design professional* shall specify on the *approved construction documents* the requirements to be met by analysis, or testing ~~or experience data~~ as specified therein. *Certificate of compliance* documenting that the requirements are met shall be submitted to the building official as specified in Section 1704A.5.

Active or energized equipment and components shall be certified exclusively on the basis of approved shake table testing in accordance with ICC-ES AC 156. Minimum of two equipment/components shall be tested for a product line with similar structural configuration. Where a range of products are tested, the two equipment/components shall be either the largest and a small unit, or approved alternative representative equipment/components.

Exception: When a single product (and not a product line with more than one product with variations) is certified and manufacturing process is ISO 9001 certified, one test shall be permitted.

For a multi-component system, where active or energized components are certified by tests, connecting elements, attachments, and supports can be justified by supporting analysis.

1705A.13.3.1 1705A.12.4.1 ~~Reserved for OSHPD~~

1705A.13.4 Seismic isolation and damping systems. Seismic isolation and damping systems in seismically isolated structures assigned to Seismic Design Category B, C, D, E or F shall be tested in accordance with Section 17.8 and 18.9 of ASCE 7.

Prototype and production testing and associated acceptance criteria for isolator units and damping devices shall be subject to preapproval by the building official. Testing exemption for similar units shall require approval by the building official.

...

1705A.19 1705A.18 Shotcrete. All shotcrete work shall be continuously inspected during placing by an approved agency inspector ~~specialty approved for that purpose by the enforcement agency~~. The special shotcrete inspector shall check the materials, placing equipment, details of construction and construction procedure. The inspector ~~an approved agency~~ shall furnish a verified report that of his or her own personal knowledge the work covered by the report has been performed and materials used and installed in every material respect in compliance with the duly approved plans and specifications.

1705A.19.1 1705A.18.1 Visual examination for structural soundness of in-place shotcrete.

Completed shotcrete work shall be checked visually for reinforcing bar embedment, voids, rock pockets, sand streaks and similar deficiencies by examining a minimum of three 3-inch (76 mm) cores taken from three areas chosen by the design engineer which represent the worst congestion of reinforcing bars occurring in the project. Extra reinforcing bars may be added to noncongested areas and cores may be taken from these areas. The cores shall be examined by the special inspector and a report submitted to the enforcement agency prior to final approval of the shotcrete.

Exception: Shotcrete work fully supported on earth, minor repairs, and when, in the opinion of the enforcement agency, no special hazard exists.

...

All existing amendments that are not revised above shall continue without any change.

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 18A

SOILS AND FOUNDATIONS

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter WITHOUT AMENDMENTS			
Adopt entire chapter as amended	X	X	
Adopt only those sections listed below			

All existing California amendments that are not revised below shall continue without change.

SECTION 1801A

GENERAL

1801A.1 Scope. The provisions of this chapter shall apply to building and foundation systems.

~~Refer to Appendix J, Grading, for requirements governing grading, excavation and earthwork construction, including fills and embankments.~~

1801A.1.1 Application. The scope of application of Chapter 18A is as follows:

1. Structures regulated by the Division of the State Architect—Structural Safety, which include

those applications listed in Section 1.9.2.1 (DSA-SS), and 1.9.2.2 (DSA-SS/CC). These applications include public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings

2. **[Reserved for OSHPD]**

1801A.1.2 Amendments in this chapter. DSA –SS & DSA –SS/CC adopt this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. Division of the State Architect-Structural Safety:

[DSA-SS] For applications listed in Section
1.9.2.1.

[DSA-SS/CC] For applications listed in Section
1.9.2.2.

2. **[Reserved for OSHPD]**

1801A.1.3 Reference to other chapters.

1801A.1.3.1 **[DSA-SS/CC]** Where reference within this chapter is made to sections in Chapters 16A, 19A, 21A, and 22A, ~~and 34A~~, the provisions in Chapters 16, 19, 21, and 22, ~~and 34~~ respectively shall apply instead.

SECTION 1803A GEOTECHNICAL INVESTIGATIONS

1803A.1 General. Geotechnical investigations shall be conducted in accordance with Section 1803A.2 and reported in accordance with Section 1803.6 1803A.7. ~~Where required by the building official or where geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a registered design professional.~~ The classification and investigation of the soil shall be made under the responsible charge of a California registered geotechnical engineer. All recommendations contained in geotechnical and geohazard reports shall be subject to the approval of the enforcement agency. All reports shall be prepared and signed by a registered geotechnical engineer,

certified engineering geologist, and a registered geophysicist, where applicable.

1803A.2 Investigations required. Geotechnical investigations shall be conducted in accordance with Sections 1803A.3 through 1803A.5 1803A.6.

Exceptions: ~~The building official shall be permitted to waive the requirement for a geotechnical investigation where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary for any of the conditions in Sections 1803.5.1 through 1803.5.6 and Sections 1803.5.10 and 1803.5.11.~~

1. *Geotechnical reports are not required for one-story, wood-frame and light-steel-frame buildings of Type II or Type V construction and 4,000 square feet (371 m²) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS) or in seismic hazard zones as defined in the Safety Element of the local General Plan. Allowable foundation and lateral soil pressure values may be determined from Table 1806A.2.*
2. *A previous report for a specific site may be resubmitted, provided that a reevaluation is made and the report is found to be currently appropriate.*

...

1803A.3 Basis of investigation. Soil classification shall be based on observation and any necessary tests of the materials disclosed by borings, test pits or other subsurface exploration made in appropriate locations. Additional studies shall be made as necessary to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on soil-bearing capacity, compressibility, liquefaction and expansiveness.

1803A.3.1 Scope of investigation. The scope of the geotechnical investigation including the number and types of borings or soundings, the equipment used to drill or sample, the in-situ testing equipment and the laboratory testing program shall be determined by a *registered design professional*.

There shall not be less than one boring or exploration shaft for each 5,000 square feet (465 m²) of building area at the foundation level with a minimum of two provided for any one

building. A boring may be considered to reflect subsurface conditions relevant to more than one building, subject to the approval of the enforcement agency.

Borings shall be of sufficient size to permit visual examination of the soil in place or, in lieu thereof, cores shall be taken.

Borings shall be of sufficient depth and size to adequately characterize sub-surface conditions.

...

1803A.5.4 Ground-water table. A subsurface soil investigation shall be performed to determine whether the existing ground-water table is above or within 5 feet (1524 mm) below the elevation of the lowest floor level where such floor is located below the finished ground level adjacent to the foundation.

~~**Exception:** A subsurface soil investigation to determine the location of the ground-water table shall not be required where waterproofing is provided in accordance with Section 1805.~~

...

1803A.6. Geohazard Reports. Geohazard reports shall be required for all proposed construction.

Exceptions:

1. *Reports are not required for one-story, wood-frame and light-steel-frame buildings of Type II or Type V construction and 4,000 square feet (371m²) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS) or in seismic hazard zones as defined in the Safety Element of the local General Plan; nonstructural, associated structural or voluntary structural alterations, and incidental structural additions or alterations, and structural repairs for other than earthquake damage.*
2. *A previous report for a specific site may be resubmitted, provided that a reevaluation is made and the report is found to be currently appropriate.*

The purpose of the geohazard report shall be to identify geologic and seismic conditions that may require project mitigations. The reports shall contain data which provide an assessment of the nature of the site and potential for earthquake damage based on appropriate investigations of the regional and site geology, project foundation conditions and the potential seismic shaking at the site. The report shall be prepared by a California-certified engineering geologist in consultation with a California-registered geotechnical engineer.

The preparation of the geohazard report shall consider the most recent CGS Note 48: Checklist for the Review of Engineering Geology and Seismology Reports for California Public School, Hospitals, and Essential Services Buildings. In addition, the most recent version of CGS Special Publication 42, Fault Rupture Hazard Zones in California, shall be considered for project sites proposed within an Alquist-Priolo Earthquake Fault Zone. The most recent version of CGS Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, shall be considered for project sites proposed within a Seismic Hazard Zone. All conclusions shall be fully supported by satisfactory data and analysis.

In addition to requirements in Sections 1803A.5.11 and 1803A.5.12, the report shall include, but shall not be limited to, the following:

- 1. Site Geology.*
- 2. Evaluation of the known active and potentially active faults, both regional and local.*
- 3. Ground-motion parameters, as required by Sections 1613A, 1616A, & ASCE 7.*

The three Next Generation Attenuation (NGA) relations used for the 2008 USGS seismic hazards maps for Western United States (WUS) shall be utilized to determine the site-specific ground motion. When supported by data and analysis, other NGA (NGA West 1) relations, that were not used for the 2008 USGS maps, shall be permitted as additions or substitutions. No fewer than three NGA relations shall be utilized.

1803A.7 4803.6 Geotechnical Reporting. Where geotechnical investigations are required, a written report of the investigations shall be submitted to the *building official* by the permit applicant at the time of permit application. *The geotechnical report shall provide completed evaluations of the foundation conditions of the site and the potential geologic/seismic hazards affecting the site. The geotechnical report shall include, but shall not be limited to, site-specific evaluations of design criteria related to the nature and extent of foundation materials, groundwater conditions, liquefaction potential, settlement potential and slope stability. The report shall contain the results of the analyses of problem areas identified in the geohazard report. The geotechnical report shall incorporate estimates of the characteristics of site ground motion provided in the geohazard report.* This geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the soil investigations.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.
4. Elevation of the water table, if encountered. *Historic high ground water elevations shall be addressed in the report to adequately evaluate liquefaction and settlement potential.*
5. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement and varying soil strength; and the effects of adjacent loads.
6. Expected total and differential settlement.
7. Deep foundation information in accordance with Section 1803A.5.5.
8. Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
9. Compacted fill material properties and testing in accordance with Section 1803A.5.8.
10. Controlled low-strength material properties and testing in accordance with Section 1803A.5.9.
11. *The report shall consider the effects of stepped footings addressed in Section 1809A.3.*
12. *The report shall consider the effects of seismic hazards in accordance with Section 1803A.6 and shall incorporate the findings of the associated geohazard report.*

...

1803A.8 Geotechnical peer review. [DSA-SS and DSA-SS/CC] *When alternate foundations designs or ground improvements are employed or where slope stabilization is required, a qualified peer review by a California-licensed geotechnical engineer, in accordance with Section 322 of Part 10, Title 24,*

C.C.R. Section 3422, may be required by the enforcement agency. In Section 322 of Part 10, Title 24, C.C.R. Section 3422, where reference is made to structural or seismic-resisting system, it shall be replaced with geotechnical, foundation, or ground improvement, as appropriate.

...

SECTION 1805A DAMPPROOFING AND WATERPROOFING

1805A.1 General. Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall be waterproofed and damp proofed in accordance with this section, with the exception of those spaces containing groups other than residential and institutional where such omission is not detrimental to the building or occupancy.

Ventilation for crawl spaces shall comply with Section 1203.4.

...

1805A.2 Dampproofing. Where hydrostatic pressure will not occur as determined by Section 1803A.5.4, floors and walls for other than wood foundation systems shall be dampproofed in accordance with this section. ~~Wood foundation systems shall be constructed in accordance with AF&PA PWF.~~

...

SECTION 1807A FOUNDATION WALLS, RETAINING WALLS AND EMBEDDED POSTS AND POLES

1807A.1 Foundation walls. Foundation walls shall be designed and constructed in accordance with Sections 1807A.1.1 through 1807A.1.6. Foundation walls shall be supported by foundations designed in accordance with Section 1808A.

1807A.1.1 Design lateral soil loads. Foundation walls shall be designed for the lateral soil loads set

~~forth in Section 1610A, determined by a geotechnical investigation in accordance with Section 1803A.~~

1807A.1.2 Unbalanced backfill height. Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where an interior concrete slab on grade is provided and is in contact with the interior surface of the foundation wall, the unbalanced backfill height shall be permitted to be measured from the exterior finish ground level to the top of the interior concrete slab.

1807A.1.3 Rubble stone foundation walls. ~~Not permitted by DSA –SS, DSA –SS/CC. Foundation walls of rough or random rubble stone shall not be less than 16 inches (406 mm) thick. Rubble stone shall not be used for foundation walls of structures assigned to Seismic Design Category C, D, E or F.~~

1807A.1.4 Permanent wood foundation systems. ~~Not permitted by DSA –SS, DSA –SS/CC. Permanent wood foundation systems shall be designed and installed in accordance with AF&PAPWF. Lumber and plywood shall be treated in accordance with AWWA U1 (Commodity Specification A, Use Category 4B and Section 5.2) and shall be identified in accordance with Section 2303A.1.8.1.~~

1807A.1.5 Concrete and masonry foundation walls. Concrete and masonry foundation walls shall be designed in accordance with Chapter 19A or 21A, as applicable.

Exception: ~~Concrete and masonry foundation walls shall be permitted to be designed and constructed in accordance with Section 1807.1.6.~~

1807.1.6 Prescriptive design of concrete and masonry foundation walls. ~~Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section.~~

1807.1.6.1 Foundation wall thickness. ~~The thickness of prescriptively designed foundation walls shall not be less than the thickness of the wall supported, except that foundation walls of at least 8-inch (203 mm) nominal width shall be permitted to support brick veneered frame walls and 10-inch-wide (254 mm) cavity walls provided the requirements of Section 1807.1.6.2 or 1807.1.6.3 are met.~~

~~1807.1.6.2 Concrete foundation walls.~~ Concrete foundation walls shall comply with the following:

- ~~1. The thickness shall comply with the requirements of Table 1807.1.6.2.~~
- ~~2. The size and spacing of vertical reinforcement shown in Table 1807.1.6.2 are based on the use of reinforcement with a minimum yield strength of 60,000 psi (414 Mpa). Vertical reinforcement with a minimum yield strength of 40,000 psi (276 Mpa) or 50,000 psi (345 Mpa) shall be permitted, provided the same size bar is used and the spacing shown in the table is reduced by multiplying the spacing by 0.67 or 0.83, respectively.~~

TABLE 1807.1.6.2
CONCRETE FOUNDATION WALLS^{b,c}

(Deleted Table not shown for clarity)

- ~~3. Vertical reinforcement, when required, shall be placed nearest the inside face of the wall a distance, d , from the outside face (soil face) of the wall. The distance, d , is equal to the wall thickness, t , minus 1.25 inches (32 mm) plus one half the bar diameter, db , [$d = t - (1.25 + db / 2)$]. The reinforcement shall be placed within a tolerance of $\pm 3/8$ inch (9.5 mm) where d is less than or equal to 8 inches (203 mm) or $\pm 1/2$ inch (12.7 mm) where d is greater than 8 inches (203 mm).~~
- ~~4. In lieu of the reinforcement shown in Table 1807.1.6.2, smaller reinforcing bar sizes with closer spacings that provide an equivalent cross-sectional area of reinforcement per unit length shall be permitted.~~
- ~~5. Concrete cover for reinforcement measured from the inside face of the wall shall not be less than $3/4$ inch (19.1 mm). Concrete cover for reinforcement measured from the outside face of the wall shall not be less than 1 1/2 inches (38 mm) for No. 5 bars and smaller, and not less than 2 inches (51 mm) for larger bars.~~
- ~~6. Concrete shall have a specified compressive strength, f_c' , of not less than 2,500 psi (17.2 MPa).~~
- ~~7. The unfactored axial load per linear foot of wall shall not exceed $1.2 t f_c'$ where t is the specified wall thickness in inches.~~

~~1807.1.6.2.1 Seismic requirements.~~ Based on the seismic design category assigned to the

~~structure in accordance with Section 1613, concrete foundation walls designed using Table 1905.1.7 shall be subject to the following limitations:~~

- ~~1. *Seismic Design Categories A and B.* No additional seismic requirements, except provide reinforcement around openings in accordance with Section 1909.6.3.~~
- ~~2. *Seismic Design Categories C, D, E and F.* Tables shall not be used except as allowed for plain concrete members in Section 1908.1.8.~~

~~**1807.1.6.3 Masonry foundation walls.** Masonry foundation walls shall comply with the following:~~

- ~~1. The thickness shall comply with the requirements of Table 1807.1.6.3(1) for plain masonry walls or Table 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4) for masonry walls with reinforcement.~~
- ~~2. Vertical reinforcement shall have a minimum yield strength of 60,000 psi (414 Mpa).~~
- ~~3. The specified location of the reinforcement shall equal or exceed the effective depth distance, d , noted in Tables 1807.1.6.3(2), 1807.1.6.3(3) and 1807.1.6.3(4) and shall be measured from the face of the exterior (soil) side of the wall to the center of the vertical reinforcement. The reinforcement shall be placed within the tolerances specified in TMS 602/ACI 530.1/ASCE 6, Article 3.3.B.11 of the specified location.~~

TABLE 1807.1.6.3(1)
PLAIN MASONRY FOUNDATION WALLS^{a,b,c}

(Deleted Table not shown for clarity)

- ~~4. Grout shall comply with Section 2103.12.~~
- ~~5. Concrete masonry units shall comply with ASTM C 90.~~
- ~~6. Clay masonry units shall comply with ASTM C 652 for hollow brick, except compliance with ASTM C 62 or ASTM C 216 shall be permitted where solid masonry units are installed in accordance with Table 1807.1.6.3(1) for plain masonry.~~
- ~~7. Masonry units shall be laid in running bond and installed with Type M or S mortar in accordance with Section 2103.2.1.~~
- ~~8. The unfactored axial load per linear foot of wall shall not exceed $1.2 t F_m$ where t is the specified wall thickness in inches and F_m is the specified compressive strength of masonry in~~

pounds per square inch.

9. At least 4 inches (102 mm) of solid masonry shall be provided at girder supports at the top of hollow masonry unit foundation walls.

10. Corbeling of masonry shall be in accordance with Section 2104.2. Where an 8-inch (203 mm) wall is corbeled, the top corbel shall not extend

TABLE 1807.1.6.3(2)

8-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE $d \leq 5$ INCHES^{a,b,c}

(Deleted Table not shown for clarity)

higher than the bottom of the floor framing and shall be a full course of headers at least 6 inches (152 mm) in length or the top course bed joint shall be tied to the vertical wall projection. The tie shall be W2.8 (4.8 mm) and spaced at a maximum horizontal distance of 36 inches (914 mm). The hollow space behind the corbelled masonry shall be filled with mortar or grout.

1807.1.6.3.1 Alternative foundation wall reinforcement. In lieu of the reinforcement provisions for masonry foundation walls in Table 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4), alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per linear foot (mm) of wall shall be permitted to be used, provided the spacing of reinforcement does not exceed 72 inches (1829 mm) and reinforcing bar sizes do not exceed No. 11.

1807.1.6.3.2 Seismic requirements. Based on the seismic design category assigned to the structure in accordance with Section 1613, masonry foundation walls designed using Tables 1807.1.6.3(1) through 1807.1.6.3(4) shall be subject to the following limitations:

1. *Seismic Design Categories A and B.* No additional seismic requirements.
2. *Seismic Design Category C.* A design using Tables 1807.1.6.3(1) through 1807.1.6.3(4) is

TABLE 1807.1.6.3(3)

10-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE $d \leq 6.75$ INCHES^{a,b,c}

(Deleted Table not shown for clarity)

~~subject to the seismic requirements of Section 7.4.3 of TMS 402/ACI 530/ASCE 5.~~
~~3. Seismic Design Category D. A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4)~~
~~is subject to the seismic requirements of Section 7.4.4 of TMS 402/ACI 530/ASCE 5.~~
~~4. Seismic Design Categories E and F. A design using Tables 1807.1.6.3(2) through~~
~~1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.5 of TMS 402/ACI~~
~~530/ASCE 5.~~

TABLE 1807.1.6.3(4)

~~12-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE $d \geq 8.75$ INCHES^{a,b,c}~~

~~(Deleted Table not shown for clarity)~~

1807A.2 Retaining walls. Retaining walls shall be designed in accordance with Sections 1807A.2.1 through 1807A.2.3. *Freestanding cantilever walls shall be design in accordance with Section 1807A.2.4.*

1807A.2.1 General. Retaining walls shall be designed to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, lateral soil pressures on both sides of the keyway shall be considered in the sliding analysis.

1807A.2.2 Design lateral soil loads. Retaining walls shall be designed for the lateral soil loads ~~set forth in Section 1610.~~ *determined by a geotechnical investigation in accordance with Section 1803A and shall not be less than eighty percent of the lateral soil loads determined in accordance with Section 1610A. For use with the load combinations, lateral soil loads due to gravity loads surcharge shall be considered gravity loads and seismic earth pressure increases due to earthquake shall be considered as seismic loads.*

...

1807A.2.4 Freestanding Cantilever Walls. *A stability check against the possibility of overturning shall be performed for isolated spread footings which support freestanding cantilever walls. The stability check shall be made by dividing R_p used for the wall by 2.0. The allowable soil pressure may be doubled for this evaluation.*

Exception: For overturning about the principal axis of rectangular footings with symmetrical vertical loading and the design lateral force applied, a triangular or trapezoidal soil pressure distribution which covers the full width of the footing will meet the stability requirement.

...

SECTION 1808A FOUNDATIONS

1808A.1 General. Foundations shall be designed and constructed in accordance with Sections 1808A.2 through 1808A.9. Shallow foundations shall also satisfy the requirements of Section 1809A. Deep foundations shall also satisfy the requirements of Section 1810A.

1808A.2 Design for capacity and settlement. Foundations shall be so designed that the allowable bearing capacity of the soil is not exceeded, and that differential settlement is minimized. Foundations in areas with expansive soils shall be designed in accordance with the provisions of Section 1808A.6.

The enforcing agency may require an analysis of foundation elements to determine subgrade deformations in order to evaluate their effect on the superstructure, including story drift.

...

1808A.8 Concrete foundations. The design, materials and construction of concrete foundations shall comply with Sections 1808A.8.1 through 1808A.8.6 and the provisions of Chapter 19A.

~~Exception: Where concrete footings supporting walls of light frame construction are designed in accordance with Table 1809.7, a specific design in accordance with Chapter 19 is not required.~~

...

TABLE 1808A.8.1

MINIMUM SPECIFIED COMPRESSIVE STRENGTH f'_c OF CONCRETE OR GROUT

FOUNDATION ELEMENT OR CONDITION	SPECIFIED COMPRESSIVE STRENGTH, f'_c
1. Foundations for structures assigned to Seismic Design Category A, B or C	2,500 psi
2a. Foundations for Group R or U occupancies of light-frame construction, two stories or less in height, assigned to Seismic Design Category D, E or F	2,500 psi
2b-1. Foundations for other structures assigned to Seismic Design Category D, E or F	3,000 psi
3 2. Precast nonprestressed driven piles	4,000 psi
4 3. Socketed drilled shafts	4,000 psi
5 4. Micropiles	4,000 psi
6 5. Precast prestressed driven piles	5,000 psi

For SI: 1 pound per square inch = 0.00689MPa.

...

1808A.8.6 Seismic requirements. See Section 1905A for additional requirements for foundations of structures assigned to *Seismic Design Category G*, D, E or F.

For structures assigned to *Seismic Design Category D, E or F*, provisions of Sections 18.13 of ACI 318 shall apply where not in conflict with the provisions of Sections 1808A through 1810A.

Exceptions:

- ~~1. Detached one- and two-family dwellings of light-frame construction and two stories or less above~~

~~grade plane are not required to comply with the provisions of Section 18.13 of ACI 318.~~

~~2. Section 18.13.4.3(a) of ACI 318 shall not apply.~~

...

SECTION 1809A SHALLOW FOUNDATIONS

1809A.1 General. Shallow foundations shall be designed and constructed in accordance with Sections 1809A.2 through 1809A.13.

1809A.2 Supporting soils. Shallow foundations shall be built on undisturbed soil, compacted fill material or controlled low-strength material (CLSM). Compacted fill material shall be placed in accordance with Section 1804A.5. CLSM shall be placed in accordance with Section 1804A.6.

1809A.3 Stepped footings. The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a slope not exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 units horizontal (10-percent slope).

Individual steps in continuous footings shall not exceed 18 inches (457 mm) in height and the slope of a series of such steps shall not exceed 1 unit vertical to 2 units horizontal (50% slope) unless otherwise recommended by a geotechnical report. The steps shall be detailed on the drawings. The local effects due to the discontinuity of the steps shall be considered in the design of the foundation.

...

1809A.7 Prescriptive footings for light-frame construction. ~~Not permitted by DSA-SS, DSA-SS/CC. Where a specific design is not provided, concrete or masonry unit footings supporting walls of light frame construction shall be permitted to be designed in accordance with Table 1809.7.~~

TABLE 1809.7
~~PRESCRIPTIVE FOOTINGS SUPPORTING WALLS OF LIGHT-FRAME CONSTRUCTION~~_{a,b,c,d,e}

(Table not shown for clarity)

1809A.8 Plain concrete footings. *Not permitted by DSA-SS, DSA-SS/CC.* The edge thickness of plain concrete footings supporting walls of other than light frame construction shall not be less than 8 inches (203 mm) where placed on soil or rock.

Exception: For plain concrete footings supporting Group R-3 occupancies, the edge thickness is permitted to be 6 inches (152 mm), provided that the footing does not extend beyond a distance greater than the thickness of the footing on either side of the supported wall.

1809A.9 Masonry-unit footings. *Not permitted by DSA-SS, DSA-SS/CC.* The design, materials and construction of masonry-unit footings shall comply with Sections 1809.9.1 and 1809.9.2, and the provisions of Chapter 21.

Exception: Where a specific design is not provided, masonry-unit footings supporting walls of light-frame construction shall be permitted to be designed in accordance with Table 1809.7.

1809.9.1 Dimensions. Masonry-unit footings shall be laid in Type M or S mortar complying with Section 2103.8 and the depth shall not be less than twice the projection beyond the wall, pier or column. The width shall not be less than 8 inches (203 mm) wider than the wall supported thereon.

1809.9.2 Offsets. The maximum offset of each course in brick foundation walls stepped up from the footings shall be 1 1/2 inches (38 mm) where laid in single courses, and 3 inches (76 mm) where laid in double courses.

1809A.10 Reserved. Pier and curtain wall foundations. Except in *Seismic Design Categories D, E and F*, pier and curtain wall foundations shall be permitted to be used to support light frame construction not more than two stories above grade plane, provided the following requirements are met:

1. All load-bearing walls shall be placed on continuous concrete footings bonded integrally with the exterior wall footings.

~~2. The minimum actual thickness of a load-bearing masonry wall shall not be less than 4 inches (102 mm) nominal or 35/8 inches (92 mm) actual thickness, and shall be bonded integrally with piers spaced 6 feet (1829 mm) on center (o.c.).~~

~~3. Piers shall be constructed in accordance with Chapter 21 and the following:~~

~~3.1. The unsupported height of the masonry piers shall not exceed 10 times their least dimension.~~

~~3.2. Where structural clay tile or hollow concrete masonry units are used for piers supporting beams and girders, the cellular spaces shall be filled solidly with concrete or Type M or S mortar.~~

~~**Exception:** Unfilled hollow piers shall be permitted where the unsupported height of the pier is not more than four times its least dimension.~~

~~3.3. Hollow piers shall be capped with 4 inches (102 mm) of solid masonry or concrete or the cavities of the top course shall be filled with concrete or grout.~~

~~4. The maximum height of a 4 inch (102 mm) load-bearing masonry foundation wall supporting wood frame walls and floors shall not be more than 4 feet (1219 mm) in height.~~

~~5. The unbalanced fill for 4 inch (102 mm) foundation walls shall not exceed 24 inches (610 mm) for solid masonry, nor 12 inches (305 mm) for hollow masonry.~~

...

1809A.12 Timber footings. *Not permitted by DSA-SS, DSA-SS/CC.* Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the *building official*. Such footings shall be treated in accordance with AWP A-U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footings supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the AF&PA NDS.

...

1809A.14 Pipes and Trenches. *Unless otherwise recommended by the soils report, open or backfilled trenches parallel with a footing shall not be below a plane having a downward slope of 1 unit vertical to 2 units horizontal (50% slope) from a line 9 inches (229 mm) above the bottom edge of the footing, and not closer than 18 inches (457 mm) from the face of such footing.*

Where pipes cross under footings, the footings shall be specially designed. Pipe sleeves shall be

provided where pipes cross through footings or footing walls and sleeve clearances shall provide for possible footing settlement, but not less than 1 inch (25 mm) all around pipe.

Exception: *Alternate trench locations and pipe clearances shall be permitted when approved by registered design professional in responsible charge and the enforcement agent.*

1809A.15 Grade beams: *[DSA-SS, DSA-SS/CC] For structures assigned to Seismic Design Category D, E or F, grade beams in shallow foundations shall comply with Section 1810A.3.12.*

SECTION 1810A DEEP FOUNDATIONS

1810A.1 General. Deep foundations shall be analyzed, designed, detailed and installed in accordance with Sections 1810A.1 through 1810A.4.

...

1810A.3.1.5 Helical piles. Helical piles shall be designed and manufactured in accordance with accepted engineering practice to resist all stresses induced by installation into the ground and service loads.

1810A.3.1.5.1 Helical Piles Seismic Requirements. *For structures assigned to Seismic Design Category D, E or F, capacities of helical piles shall be determined in accordance with Section 1810A.3.3 by at least two project specific pre-production tests for each soil profile, size and depth of helical pile. At least two percent of all production piles shall be proof tested to the load determined in accordance with Section 1616A.1.16.~~1615A.1.10.~~*

Helical piles shall satisfy corrosion resistance requirements of ICC-ES AC 308. In addition, all helical pile materials that are subject to corrosion shall include at least 1/16" corrosion allowance.

Helical piles shall not be considered as carrying any horizontal loads.

...

1810A.3.2 Materials. The materials used in deep foundation elements shall satisfy the requirements of Sections 1810A.3.2.1 through 1810A.3.2.8, as applicable.

...

~~**1810.3.2.1.2 ACI 318 Equation (25.8.3.3).** Where this chapter requires detailing of concrete deep foundation elements in accordance with Section 18.7.5.4 of ACI 318, compliance with Equation (25.8.3.3) of ACI 318 shall not be required.~~

...

1810A.3.2.4 Timber. ~~Not permitted by DSA-SS, DSASS/CC.~~ Timber deep foundation elements shall be designed as piles or poles in accordance with AF&PA NDS. Round timber elements shall conform to ASTM D 25. Sawn timber elements shall conform to DOC PS-20.

~~**1810.3.2.4.1 Preservative treatment.** Timber deep foundation elements used to support permanent structures shall be treated in accordance with this section unless it is established that the tops of the untreated timber elements will be below the lowest ground water level assumed to exist during the life of the structure. Preservative and minimum final retention shall be in accordance with AWP A U1 (Commodity Specification E, Use Category 4C) for round timber elements and AWP A U1 (Commodity Specification A, Use Category 4B) for sawn timber elements. Preservative treated timber elements shall be subject to a quality control program administered by an approved agency. Element cutoffs shall be treated in accordance with AWP A M4.~~

...

1810A.3.3.1.2 Load tests. Where design compressive loads are greater than those determined using the allowable stresses specified in Section 1810A.3.2.6, where the design load for any deep foundation element is in doubt, where driven deep foundation elements are installed by means other than a pile hammer, or where cast-in-place deep foundation elements have an enlarged base formed either by compacting concrete or by driving a precast base, control test elements shall be tested in accordance with ASTM D 1143 including Procedure G: Cyclic Loading Test or ASTM D 4945. At least one element shall be load tested in each area of uniform subsoil conditions. Where required by the building official,

additional elements shall be load tested where necessary to establish the safe design capacity. The resulting allowable loads shall not be more than one-half of the ultimate axial load capacity of the test element as assessed by one of the published methods listed in Section 1810A.3.3.1.3 with consideration for the test type, duration and subsoil. The ultimate axial load capacity shall be determined by a registered design professional with consideration given to tolerable total and differential settlements at design load in accordance with Section 1810A.2.3. In subsequent installation of the balance of deep foundation elements, all elements shall be deemed to have a supporting capacity equal to that of the control element where such elements are of the same type, size and relative length as the test element; are installed using the same or comparable methods and equipment as the test element; are installed in similar subsoil conditions as the test element; and, for driven elements, where the rate of penetration (e.g., net displacement per blow) of such elements is equal to or less than that of the test element driven with the same hammer through a comparable driving distance, or where the downward pressure and torque on such elements is greater than or equal to that applied to the test element that determined the ultimate axial load capacity at a comparable driving distance.

...

1810A.3.3.1.5 Uplift capacity of a single deep foundation element. Where required by the design, the uplift capacity of a single deep foundation element shall be determined by an approved method of analysis based on a minimum factor of safety of three or by load tests conducted in accordance with ASTM D 3689. The maximum allowable uplift load shall not exceed the ultimate load capacity as determined in Section 1810A.3.3.1.2, using the results of load tests conducted in accordance with ASTM D3689 *including the Cyclic Loading Procedure*, divided by a factor of safety of two.

Exception: Where uplift is due to wind or seismic loading, the minimum factor of safety shall be two where capacity is determined by an analysis and one and a half where capacity is determined by load tests.

...

1810A.3.3.2 Allowable lateral load. Where required by the design, the lateral load capacity of a single deep foundation element or a group thereof shall be determined by an *approved* method of

analysis or by lateral load tests *in accordance with ASTM D3966, including the Cyclic Loading Procedure*, to at least twice the proposed design working load. The resulting allowable load shall not be more than one-half of the load that produces a gross lateral movement of 1 inch (25 mm) at the lower of the top of foundation element and the ground surface, unless it can be shown that the predicted lateral movement shall cause neither harmful distortion of, nor instability in, the structure, nor cause any element to be loaded beyond its capacity.

...

1810A.3.5.3.3 Structural Steel Sheet Piling. Individual sections of structural steel sheet piling shall conform to the profile indicated by the manufacturer, and shall conform to general requirements specified by ASTM A6.

Installation of sheet piling shall satisfy inspection, monitoring, and observation requirements in Sections 1812A.6 and 1812A.7.

...

1810A.3.8.3 Precast prestressed piles. Precast prestressed concrete piles shall comply with the requirements of Sections 1810A.3.8.3.1 through 1810A.3.8.3.3.

...

1810A.3.8.3.2 Seismic reinforcement in Seismic Design Category C. *Not permitted by DSA-SS, DSA-SS/CC. For structures assigned to Seismic Design Category C in accordance with Section 1613, precast prestressed piles shall have transverse reinforcement in accordance with this section. The volumetric ratio of spiral reinforcement shall not be less than the amount required by the following formula for the upper 20 feet (6096 mm) of the pile.*

$$\rho_s = 0.12 f'_c / f_{yh} \text{ (Equation 18-5)}$$

where:

f'_c = Specified compressive strength of concrete, psi (MPa).

f_{yh} = Yield strength of spiral reinforcement $\leq 85,000$ psi (586 MPa).

ρ_s = ~~Spiral reinforcement index (vol. spiral/vol. core).~~

~~At least one-half the volumetric ratio required by Equation 18-5 shall be provided below the upper 20 feet (6096 mm) of the pile.~~

1810A.3.8.3.3 Seismic reinforcement in Seismic Design Categories D through F. For structures assigned to *Seismic Design Category D, E or F*, ~~in accordance with Section 1613A,~~ precast prestressed piles shall have transverse reinforcement in accordance with the following:

...

5. Where the transverse reinforcement consists of circular spirals, the volumetric ratio of spiral transverse reinforcement in the ductile region shall comply with the following:

...

~~This required amount of spiral reinforcement is permitted to be obtained by providing an inner and outer spiral.~~

...

1810A.3.9.4.2.1 Site Classes A through D. For Site Class A, B, C or D sites, transverse confinement reinforcement shall be provided in the element in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 within three times the least element dimension ~~at~~ of the bottom of the pile cap. A transverse spiral reinforcement ratio of not less than one-half of that required in Section 18.7.5.4 ~~(a)~~ of ACI 318 shall be permitted *for concrete deep foundation elements*.

1810A.3.9.4.2.2 Site Classes E and F. For Site Class E or F sites, transverse confinement reinforcement shall be provided in the element in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 within seven times the least element dimension ~~at~~ of the *bottom of the pile cap* and within seven times the least element dimension ~~at~~ of the interfaces of strata that are hard or stiff and strata that are liquefiable or are composed of soft- to medium-stiff clay.

...

1810A.3.10 Micropiles. Micropiles shall be designed and detailed in accordance with Sections 1810A.3.10.1 through 1810A.3.10.4.

...

~~**1810A.3.10.4 Seismic reinforcement.** For structures assigned to *Seismic Design Category C*, a permanent steel casing shall be provided from the top of the micropile down to the point of zero curvature. For structures assigned to *Seismic Design Category D, E or F*, the micropile shall be considered as an alternative system in accordance with Section 104.11. The alternative system design, supporting documentation and test data shall be submitted to the building official for review and approval.~~

1810A.3.10.4 Seismic requirements. *For structures assigned to Seismic Design Category D, E, or F, a permanent steel casing having a minimum thickness of 3/8" shall be provided from the top of the micropile down to a minimum of 120 percent of the point of zero curvature. Capacity of micropiles shall be determined in accordance with Section 1810A.3.3 by at least two project specific pre-production tests for each soil profile, size and depth of micropile. At least two percent of all production piles shall be proof tested to the load determined in accordance with Section 1616A.1.16 ~~1615A.1.10~~.*

Steel casing length in soil shall be considered as unbonded and shall not be considered as contributing to friction. Casing shall provide confinement at least equivalent to hoop reinforcing required by ACI 318 Section 18.13.4 ~~21.12.4~~.

Reinforcement shall have Class 1 corrosion protection in accordance with PTI Recommendations for Prestressed Rock and Soil Anchors. Steel casing design shall include at least 1/16" corrosion allowance.

Micropiles shall not be considered as carrying any horizontal loads.

...

1810A.4 Installation. Deep foundations shall be installed in accordance with Section 1810A.4. Where a single deep foundation element comprises two or more sections of different materials or different types spliced together, each section shall satisfy the applicable conditions of installation.

1810A.4.1 Structural integrity. Deep foundation elements shall be installed in such a manner and sequence as to prevent distortion or damage that may adversely affect the structural integrity of adjacent structures or of foundation elements being installed or already in place and as to avoid compacting the surrounding soil to the extent that other foundation elements cannot be installed properly.

...

1810A.4.1.5 Defective timber piles. *Not permitted by DSA-SS, DSA-SS/CC. Any substantial sudden increase in rate of penetration of a timber pile shall be investigated for possible damage. If the sudden increase in rate of penetration cannot be correlated to soil strata, the pile shall be removed for inspection or rejected.*

...

SECTION 1811A

PRESTRESSED ROCK AND SOIL FOUNDATION ANCHORS

1811A.1 General. *The requirements of this section address the use of vertical rock and soil anchors in resisting seismic or wind overturning forces resulting in tension on shallow foundations.*

1811A.2 Adoption. *Except for the modifications as set forth in Sections 1811A.3 and 1811A.4, all Prestressed Rock and Soil Foundation Anchors shall ~~be designed~~ comply with in accordance with PTI Recommendations for Prestressed Rock and Soil Anchors.*

1811A.3 Geotechnical Requirements. *Geotechnical report for the Prestressed Rock & Soil Foundation Anchors shall address the following:*

- 1. Minimum diameter and minimum spacing for the anchors including consideration of group effects.*
- 2. Maximum unbonded length and minimum bonded length of the tendon.*

3. *Maximum recommended anchor tension capacity based upon the soil or rock strength / grout bond and anchor depth / spacing.*
4. *Allowable bond stress at the ground / grout interface and applicable factor of safety for ultimate bond stress.*
5. *Anchor axial tension stiffness recommendations at the anticipated anchor axial tension displacements, when required for structural analysis.*
6. *Minimum grout pressure for installation and post-grout pressure.*
7. *Class I Corrosion Protection is required for all permanent anchors. Geotechnical report shall specify the corrosion protection recommendations for temporary anchors.*
8. *Performance test shall be at a minimum of 1.6 times the design loads. There shall be a minimum of two preproduction test anchors. Preproduction test anchors shall be tested to ultimate load or 0.80 times the specified minimum tensile strength of the tendon. A Creep test is required for all prestressed anchors with greater than 10 kips of lock-off prestressing load.*
9. *Lock-off prestressing load requirements.*
10. *Acceptable Drilling methods.*
11. *Geotechnical observation and monitoring requirements.*

1811A.4 Structural Requirements.

1. *Tendons shall be thread-bar anchors conforming to ASTM A722.*
2. *The anchors shall be placed vertical.*
3. *Design Loads shall be based upon the load combinations in Section 1605A.3.1 and shall not exceed 60 percent of the specified minimum tensile strength of the tendons.*
4. *Ultimate Load shall be based upon Section 1616A.1.16 ~~1615A.1.10~~ and shall not exceed 80 percent of the specified minimum tensile strength of the tendons.*
5. *The anchor shall be designed to fail in grout bond to the soil or rock before pullout of the soil wedge by group effect.*

6. Foundation design shall incorporate the effect of lock-off loads.
7. Design shall account for as-built locations of soil anchors considering all the acceptable construction tolerances.
8. Design shall account for both short and long term deformation.
9. Enforcement agency may require consideration of anchor deformation in evaluating deformation compatibility or building drift where it may be significant.

SECTION 1812A

EARTH RETAINING SHORING

~~Relocated from Section J106.2~~ **J106.2 Earth retaining shoring. [DSA-SS & DSA-SS/CC]**

1812A.1 J106.2.1 General. The requirements of this section shall apply to temporary and permanent earth retaining shoring using soldier piles and lagging with or without tie-back anchors in soil or rock, only when existing or new ~~DSA-SS & DSA-SS/CC~~ facilities are affected. Shoring used as construction means and methods only, which does not affect existing or new ~~DSA-SS & DSA-SS/CC~~ facilities, are not regulated by this section ~~DSA~~ and shall satisfy the requirements of the authorities having jurisdiction.

Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections 1812A.2 J106.2.2 through ~~J106.2.8~~ 1812A.8.

1812A.2 J106.2.2 Duration. Shoring shall be considered temporary when elements of the shoring will be exposed to site conditions for a period of less than one (1) year, and shall be considered permanent otherwise. Permanent shoring shall account for the increase in lateral soil pressure due to earthquake. At the end of the construction period, the existing and new structures shall not rely on the temporary shoring for support in anyway. Wood components shall not be used for permanent shoring lasting more than two (2) years. Wood components of the temporary shoring that may affect the performance of permanent structure shall be removed after the shoring is no longer required.

All components of the shoring shall have corrosion protection or preservative treatment for their expected duration. Wood components of the temporary shoring that will not be removed shall be treated in accordance with AWPA U1 (Commodity Specification A, Use Category 4B and Section 5.2), and shall be identified in accordance with Section 2303.1.9.1 ~~2303.1.8.1~~.

1812A.3 J106.2.3 Surcharge. Surcharge pressure due to footings, traffic, or other sources shall be considered in design. If the footing surcharge is located within the semi-circular distribution or bulb of earth pressure (when shoring is located close to a footings), lagging shall be designed for lateral earth pressure due to footing surcharge. Soil arching effects may be considered in the design of lagging. Underpinning of the footing may be used in lieu of designing the shoring and lagging for surcharge pressure. Alternatively, continuously contacting drilled pier shafts near the footings shall be permitted. The lateral surcharge design pressure shall be derived using Boussinesq equations modified for the distribution of stresses in an elastic medium due to a uniform, concentrated or line surface load as appropriate and soil arching effects.

1812A.4 J106.2.4 Design and testing. Except for the modifications as set forth in Sections 1812A.4.1 J106.2.4.1 and J106.2.4.2 through 1812A.4.3 below, all Prestressed Rock and Soil Tie-back Anchors shall be designed and tested in accordance comply with PTI Recommendations for Prestressed Rock and Soil Anchors (PTI-2004).

1812A.4.1 J106.2.4.1 Geotechnical requirements. The geotechnical report for the earth retaining shoring shall address the following:

1. Minimum diameter and minimum spacing for the anchors including consideration of group effects.
2. Maximum unbonded length and minimum bonded length of the tie-back anchors.
3. Maximum recommended anchor tension capacity based upon the soil or rock strength / grout bond and anchor depth / spacing.
4. Allowable bond stress at the ground / grout interface and applicable factor of safety for ultimate bond stress for the anchor. For permanent anchors, a minimum factor of safety of 2.0 shall be applied to ground soil interface as required by PTI-2004 Section 6.6.
5. Minimum grout pressure for installation and post-grout pressure for the anchor. The presumptive post grout pressure of 300 psi may be used for all soil type.
6. Class I Corrosion Protection is required for all permanent anchors. The geotechnical report shall specify the corrosion protection recommendations for temporary anchors.
7. Performance test for the anchors shall be at a minimum of two (2) times the design loads and shall not exceed 80% of the specified minimum tensile strength of the anchor rod. A creep test is required for all prestressed anchors that are

- performance tested. All production anchors shall be tested at 150% of design loads and shall not be greater than 70% of the specified minimum tensile strength of the anchor rod.*
- 8. Earth pressure, surcharge pressure, and the seismic increment of earth pressure loading, when applicable.*
 - 9. Maximum recommended lateral deformation at the top of the soldier pile, at the tie-back anchor locations, and the drilled pier concrete shafts at the lowest grade level.*
 - 10. Allowable vertical soil bearing pressure, friction resistance, and lateral passive soil resistance for the drilled pier concrete shafts and associated factors of safety for these allowable capacities.*
 - 11. Soil-pier shaft / pile interaction assumptions and lateral soil stiffness to be used in design for drilled pier concrete shaft or pile lateral loads.*
 - 12. Acceptable drilling methods.*
 - 13. Geotechnical observation and monitoring recommendations.*

1812A.4.2 ~~J406-2.4.2~~ Structural requirements:

- 1. Tendons shall be thread-bar anchors conforming to ASTM A 722.*
- 2. Anchor design loads shall be based upon the load combinations in Section 1605A.3.1 and shall not exceed 60 percent of the specified minimum tensile strength of the tendons.*
- 3. The anchor shall be designed to fail in grout bond to the soil or rock before pullout of the soil wedge.*
- 4. Design of shoring system shall account for as-built locations of soil anchors considering all specified construction tolerances in Section 1812A.8 ~~J406-2.8~~.*
- 5. Design of shoring system shall account for both short and long term deformation.*

1812A.4.3 ~~J406-2.4.3~~ Testing of tie-back anchors:

- 1. The geotechnical engineer shall keep a record at job site of all test loads, total anchor movement, and report their accuracy.*
- 2. If a tie-back anchor initially fails the testing requirements, the anchor shall be permitted to be re-grouted and retested. If anchor continues to fail, the followings steps shall be taken:*
 - a. The contractor shall determine the cause of failure – variations of the soil conditions,*

installation methods, materials, etc.

- b. Contractor shall propose a solution to remedy the problem. The proposed solution will need to be reviewed and approved by geotechnical engineer, shoring design engineer, and the building official.*
- 3. After a satisfactory test, each anchor shall be locked-off in accordance with Section 8.4 of PTI 2004.*
- 4. The shoring design engineer shall specify design loads for each anchor.*

1812A.5 ~~J406.2.5~~ Construction: *The construction procedure shall address the following:*

- 1. Holes drilled for piles / tie-back anchors shall be done without detrimental loss of ground, sloughing or caving of materials and without endangering previously installed shoring members or existing foundations.*
- 2. Drilling of earth anchor shafts for tie-backs shall occur when the drill bench reaches two to three feet below the level of the tie-back pockets.*
- 3. Casing or other methods shall be used where necessary to prevent loss of ground and collapse of the hole.*
- 4. The drill cuttings from earth anchor shaft shall be removed prior to anchor installation.*
- 5. Unless tremie methods are used, all water and loose materials shall be removed from the holes prior to installing piles / tie-backs.*
- 6. Tie-back anchor rods with attached centralizing devices shall be installed into the shaft or through the drill casing. Centralizing device shall not restrict movement of the grout.*
- 7. After lagging installation, voids between lagging and soil shall be backfilled immediately to the full height of lagging.*
- 8. The soldier piles shall be placed within specified tolerances in the drilled hole and braced against displacement during grouting. Fill shafts with concrete up to top of footing elevation, rest of the shaft can generally be filled with lean concrete. Excavation for lagging shall not be started until concrete has achieved sufficient strength for all anticipated loads as determined by the shoring design engineer.*
- 9. Where boulders and / or cobbles have been identified in the geotechnical reports, contractor shall be prepared to address boulders and / or cobbles that may be encountered during the drilling of soldier piles and Tie-back anchors.*
- 10. The grouting equipment shall produce grout free of lumps and indispensed cement. The grouting equipment shall be sized to enable the grout to be pumped in continuous operation.*

The mixer shall be capable of continuously agitating the grout.

- 11. The quantity of grout and grout pressure shall be recorded. The grout pressure shall be controlled to prevent excessive heave in soils or fracturing rock formations.*
- 12. If post-grouting is required, post grouting operation shall be performed after initial grout has set for 24-hours in the bond length only. Tie-backs shall be grouted over a sufficient length (anchor bond length) to transfer the maximum anchor force to the anchor grout.*
- 13. Testing of anchors may be performed after post-grouting operations provided grout has reached strength of 3,000 psi as required by PTI-2004 Section 6.11.*
- 14. Anchor rods shall be tensioned straight and true. Excavation directly below the anchors shall not continue before those anchors are tested.*

1812A.6 ~~J406.2.6~~ *Inspection, survey monitoring, and observation*

- 1. The shoring design engineer or his designee shall make periodic inspections of the job site for the purpose of observing the installation of shoring system, testing of tie-back anchors, and monitoring of survey.*
- 2. Testing, inspection, and observation shall be in accordance with testing, inspection and observation requirements approved by the building official. The following activities and materials shall be tested, inspected, or observed by the special inspector and geotechnical engineer:*
 - a. Sampling and testing of concrete in soldier pile and tie-back anchor shafts.*
 - b. Fabrication of tie-back anchor pockets on soldier beams*
 - c. Installation and testing of tie-back anchors.*
 - d. Survey monitoring of soldier pile and tie-back load cells.*
 - e. Survey Monitoring of existing buildings.*
- 3. A complete and accurate record of all soldier pile locations, depths, concrete strengths, tie-back locations and lengths, tie-back grout strength, quantity of concrete per pile, quantity of grout per tie-back and applied tie-back loads shall be maintained by the special inspector and geotechnical engineer. The shoring design engineer shall be notified of any unusual conditions encountered during installation.*
- 4. Calibration data for each test jack, pressure gauge, and master pressure gauge shall be verified*

by the special inspector and geotechnical engineer. The calibration tests shall be performed by an independent testing laboratory and within 120 calendar days of the data submitted.

- 5. Monitoring points shall be established at the top and at the anchor heads of selected soldier piles and at intermediate intervals as considered appropriate by the geotechnical engineer.*
- 6. Control points shall be established outside the area of influence of the shoring system to ensure the accuracy of the monitoring readings.*
- 7. The periodic basis of shoring monitoring, as a minimum, shall be as follows:*
 - a. Initial monitoring shall be performed prior to any excavation.*
 - b. Once excavation has begun, the periodic readings shall be taken weekly until excavation reaches the estimated subgrade elevation and the permanent foundation is complete.*
 - c. If performance of the shoring is within established guidelines, shoring design engineer may permit the periodic readings to be bi-weekly. Once initiated, bi-weekly readings shall continue until the building slab at ground floor level is completed and capable of transmitting lateral loads to the permanent structure. Thereafter, readings can be monthly.*
 - d. Where the building has been designed to resist lateral earth pressures, the periodic monitoring of the soldier piles and adjacent structure can be discontinued once the ground floor diaphragm and subterranean portion of the structure is capable of resisting lateral soil loads and approved by the shoring design engineer, geotechnical engineer, and the building official.*
 - e. Additional readings shall be taken when requested by special inspector, shoring design engineer, geotechnical engineer, or the building official.*
- 8. Monitoring reading shall be submitted to shoring design engineer, engineer in responsible charge, and the building official within 3 working days after they are conducted. Monitoring readings shall be accurate to within 0.01 feet. Results are to be submitted in tabular form showing at least the initial date of monitoring and reading, current monitoring date and reading and difference between the two readings.*
- 9. If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches ½" or soldier piles reaches 1" all excavation activities shall be suspended. The geotechnical and shoring design engineer shall determine the cause of movement, if any,*

and recommend corrective measures, if necessary, before excavation continues.

10. *If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches 3/4" or soldier piles reaches 1 1/2" all excavation activities shall be suspended until the causes, if any, can be determined. Supplemental shoring shall be devised to eliminate further movement and the building official shall review and approve the supplemental shoring before excavation continues.*
11. *Monitoring of Tie-back Anchor Loads:*
 - a. *Load cells shall be installed at the tie-back heads adjacent to buildings at maximum interval of 50', with a minimum of one load cells per wall.*
 - b. *Load cell readings shall be taken once a day during excavation and once a week during the remainder of construction.*
 - c. *Load cell readings shall be submitted to the geotechnical engineer, shoring design engineer, engineer in responsible charge, and the building official.*
 - d. *Load cell readings can be terminated once the temporary shoring no longer provides support for the buildings.*

1812A.7 J406.2.7 Monitoring of existing DSA-SS and DSA-SS/CC structures

1. *The contractor shall complete a written and photographic log of all existing DSA-SS, DSA-SS/CC and structures within 100 ft or three times depth of shoring, prior to construction. A licensed surveyor shall document all existing substantial cracks in adjacent existing structures.*
2. *Contractor shall document existing condition of wall cracks adjacent to shoring walls prior to start of construction.*
3. *Contractor shall monitor existing walls for movement or cracking that may result from adjacent shoring.*
4. *If excessive movement or visible cracking occurs, contractor shall stop work and shore / reinforce excavation and contact shoring design engineer and the building official.*
5. *Monitoring of the existing structure shall be at reasonable intervals as required by the registered design professional subject to approval of the building official. Monitoring shall be performed by a licensed surveyor and shall consist of vertical and lateral movement of the*

existing structures. Prior to starting shoring installation a pre-construction meeting shall take place between the contractor, shoring design engineer, surveyor, geotechnical engineer, and the building official to identify monitoring locations on existing buildings.

- 6. If in the opinion of the building official or shoring design engineer, monitoring data indicate excessive movement or other distress, all excavation shall cease until the geotechnical engineer and shoring design engineer investigates the situation and makes recommendations for remediation or continuing.*
- 7. All reading and measurements shall be submitted to the building official and shoring design engineer.*

1812A.8 J106.2.8 Tolerances. *Following tolerances shall be specified on the construction documents.*

1. Soldier Piles:

- i. Horizontal and vertical construction tolerances for the soldier pile locations.*
- ii. Soldier pile plumbness requirements (angle with vertical line).*

2. Tie-back Anchors:

- i. Allowable deviation of anchor projected angle from specified vertical and horizontal design projected angle.*
- ii. Anchor clearance to the existing/new utilities and structures.*

~~Relocated from Section 1812~~

Section 1813A J112

Vibro Stone Columns for Ground Improvement

1813A.1 J112.1 General. ~~[DSA-SS & DSA-SS/CC]~~ *This section shall apply to Vibro Stone Columns (VSCs) for ground improvement using unbounded aggregate materials. Vibro stone column provisions in this section are intended to increase bearing capacity, reduce settlements, and mitigate liquefaction for shallow foundations. These requirements shall not be used for grouted or bonded stone columns, ground improvement for deep foundation elements, or changing site class. VSCs shall not be considered as a deep foundation element.*

Ground improvement shall be installed under the entire building/structure footprint and not under isolated foundation elements only.

Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections 1813A.2 J442.2 through J442.5 1813A.5.

1813A.2 J442.2 Geotechnical Report. *The geotechnical report shall specify vibro stone column requirements to ensure uniformity in total and differential immediate settlement, long term settlement, and earthquake induced settlement.*

- 1. Soil compaction shall be sufficient to mitigate potential for liquefaction as described in California Geological Survey (CGS) Special Publication 117A (SP-117A): Guidelines for Evaluating and Mitigating Seismic Hazard in California.*
- 2. Area replacement ratio for the compaction elements and the basis of its determination shall be explained. Minimum factor of safety for soil compaction shall be in accordance with SP-117A.*
- 3. Depth of soil compaction elements and extent beyond the footprint of structures/foundation shall be defined. Extent beyond the foundation shall be half the depth of the VSCs with a minimum of 10' or an approved alternative.*
- 4. Minimum diameter and maximum spacing of soil compaction elements shall be specified. VSC's shall not be less than 2 feet in diameter and center to center spacing shall not exceed 8 feet.*
- 5. The modulus of subgrade reactions for shallow foundations shall account for the presence of compaction elements.*
- 6. The modulus of subgrade reactions, long-term settlement, and post-earthquake settlement shall be specified along with expected total and differential settlements for design.*
- 7. The acceptance criteria for Friction Cone and Piezocone Penetration Testing ~~Cone Penetration Test (CPT)~~ in accordance with ASTM D 5778 3444 complemented by Standard Penetration Test (SPT) in accordance with ASTM D 1586, if necessary, to verify soil improvement shall be specified*

8. *The requirements for special inspection and observation by the Geotechnical engineer shall be specified.*
9. *A Final Verified Report (FVR) documenting the installation of the ground improvement system and confirming that the ground improvement acceptance criteria have been met shall be prepared by the Geotechnical Engineer and submitted to the enforcement agency for review and approval.*

1813A.3 ~~J412.3~~ Shallow Foundations. *VSCs under the shallow foundation shall be located symmetrically around the centroid of the footing or load.*

1. *There shall be a minimum of four stone columns under each isolated or continuous/combined footing or approved equivalent.*
2. *The VSCs or deep foundation elements shall not be used to resist tension or overturning uplift from the shallow foundations.*
3. *The foundation design for the shallow foundation shall consider the increased vertical stiffness of the VSCs as point supports for analysis, unless it is substantiated that the installation of the VSCs result in improvement of the surrounding soils such that the modulus of subgrade reaction, long term settlement, and post-earthquake settlement can be considered uniform throughout.*

1813A.4 ~~J412.4~~ Installation. *VSCs shall be installed with vibratory probes. Vertical columns of compacted unbounded aggregate shall be formed through the soils to be improved by adding gravel near the tip of the vibrator and progressively raising and re-penetrating the vibrator which will results in the gravel being pushed into the surrounding soil.*

Gravel aggregate for VSCs shall be well graded with a maximum size of 6" and not more than 10% smaller than 3/8" after compaction.

1813A.5 ~~J412.5~~ Construction Documents. *Construction documents for VSCs, as a minimum, shall include the following:*

1. *Size, depth, and location of VSCs.*
2. *Extent of soil improvements along with building/structure foundation outlines.*
3. *Field verification requirements and acceptance criteria using CPT/SPT.*

4. The locations where CPT/SPT shall be performed.
5. The Testing, Inspection and Observation (TIO) program shall indicate the inspection and observation required for the VSCs.

~~All existing amendments that are not revised above shall continue without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 19

CONCRETE

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	-	X	
Adopt only those sections listed below			
1901.1.1		X	
1901.1.2		X	
1901.1.3		X	
1901.1.4		X	
1909		X	
1913.1.1		X	
1913.2		X	
1913.2.1		X	
1913.2.2		X	
1913.2.3		X	

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

<i>1913.2.4</i>		X	
<i>1913.2.5</i>		X	
<i>1913.2.6</i>		X	
<i>1913.2.7</i>		X	
<i>1913.2.8</i>		X	
<i>1913.2.9</i>		X	
<i>1913.2.10</i>		X	
<i>1913.2.11</i>		X	
<i>1913.2.11.1</i>		X	
<i>1913.2.11.2</i>		X	
<i>1913.2.11.3</i>		X	
<i>1913.2.11.4</i>		X	
<i>1913.2.11.5</i>		X	
<i>1913.3.1</i>		X	
<i>1913.3.2</i>		X	
<i>1913.3.3</i>		X	
<i>1913.3.4</i>		X	
<i>1913.3.5</i>		X	
<i>1913.3.6</i>		X	
<i>1913.3.7</i>		X	
<i>1913.3.8</i>		X	
<i>1913.4.1</i>		X	
<i>1913.4.2</i>		X	
<i>1913.4.3</i>		X	
<i>1913.4.4</i>		X	
<i>1913.4.5</i>		X	
<i>1913.5</i>		X	

All existing California amendments that are not revised below shall continue without change.

Italics are used for text within Sections 1903 through 1905 of this code to indicate provisions that differ from ACI 318.

SECTION 1901
GENERAL

1901.1 Scope. *The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used in structures.*

1901.1.1 Application. *The scope of application of Chapter 19 is as follows:*

Community college buildings regulated by the Division of the State Architect—Structural Safety/Community Colleges (DSA-SS/CC), as listed in Section 1.9.2.2.

1901.1.2 Amendments in this chapter. *DSA-SS/CC adopts this chapter and all amendments.*

Exceptions: *Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:*

Division of the State Architect—Structural Safety/Community Colleges:

[DSA-SS/CC] *For applications listed in Section 1.9.2.2.*

1901.1.3 Reference to other chapters. [DSA-SS/CC] *Where reference within this chapter is made to sections in Chapters 17 and 18, the provisions in Chapters 17A, and 18A respectively shall apply instead.*

1901.1.4 Amendments. [DSA-SS/CC] *See Section ~~1909~~ 1913 for additional requirements applicable to community colleges.*

...

SECTION ~~1909~~ 1913
ADDITIONAL REQUIREMENTS FOR COMMUNITY COLLEGES [DSA-SS/CC]

1909.1 ~~1913.1~~ General.

1909.1.1 ~~1913.1.1~~ Construction documents. *Openings larger than 12 inches (305 mm) in any dimension shall be detailed on the structural drawings.*

1909.2 ~~1913.2~~ Tests and materials. *Where required, special inspections and tests shall be in accordance with Chapter 17A and this section.*

~~1913.2.1~~ Glass fiber reinforced concrete. *Glass fiber reinforced concrete (GFRC) and the materials used in such concrete shall be in accordance with the PCI MNL 128 standard.*

~~1913.2.2~~ Fly ash. *Replace ACI 318 Section 3.2.2 as follows: Fly ash or other pozzolan can be used as a partial substitute for ASTM C 150 portland cement, as follows:*

1. Fly ash or other pozzolan shall conform to ASTM C 618 for Class N or Class F materials (Class C is not permitted), and

~~2. More than 15 percent by weight of fly ash or other pozzolans shall be permitted to be substituted for ASTM C 150 portland cement if the mix design is proportioned per ACI 318 Section 5.3. See Section 1904 for durability requirements.~~

~~3. More than 40 percent by weight of ground granulated blast furnace slag conforming to ASTM C 989 shall be permitted to be substituted for ASTM C 150 portland cement if the mix design is proportioned per ACI 318 Section 5.3. See Section 1904 for durability requirements.~~

1909.2.1 1913.2.3 Aggregates - ~~ACI 318, Section 3.3.2. Modify ACI 318 Section 26.4.1.2.1(a).(1) 3.3.2 as follows:~~ by adding the following:

~~Aggregate size limitations waiver shall be approved by the enforcement agency.~~

~~Evidence that the aggregate used is not reactive in the presence of cement alkalis may be required by the enforcement agency. If new aggregate sources are to be used or if past experience indicates problems with existing aggregate sources, test the aggregate for potential reactivity according to ASTM C 289 to determine potential reactivity in the presence of cement.~~

~~If the results of the test are other than innocuous, selected concrete proportions using the aggregate (see Section 1905.2) shall be tested in accordance with ASTM C 1567. If the results of this test indicate an expansion greater than 0.10 percent at 16 days age, provide mitigation with one of the cementitious material systems noted below such that an expansion of less than 0.10 percent at 16 days age is obtained:~~

- ~~1. Low alkali portland cement containing not more than 0.6 percent total alkali when calculated as sodium oxide, as determined by the method given in ASTM C 414.~~
- ~~2. Blended hydraulic cement, Type IS or IP, conforming to ASTM C 595, except that Type IS cement shall not contain less than 40 percent slag constituent.~~
- ~~3. Replacement of not less than 15 percent by weight of the portland cement used by a mineral admixture conforming to ASTM C 618 for Class N or F materials (Class C is not permitted).~~
- ~~4. Replacement of not less than 40 percent by weight of the portland cement used by a ground granulated blast furnace slag conforming to ASTM C 989.~~

~~**(1) Normal weight aggregate::** Aggregate shall be non-reactive as determined by one of the methods in ASTM C33 Appendix XI Methods for Evaluating Potential for Deleterious Expansion Due to Alkali Reactivity of an Aggregate. Aggregates deemed to be deleterious or potentially deleterious may be used with the addition of a material that has been shown to prevent harmful expansion in accordance with Appendix XI of ASTM C33, when approved by the building official.~~

1909.2.2 1913.2.4 Discontinuous Steel fibers reinforcement – Not permitted. ~~Modify ACI 318 Section 3.5.1 by adding the following:~~

~~Discontinuous steel fibers shall not be permitted~~

1909.2.3 1913.2.5 Cementitious material. The concrete supplier shall furnish to the enforcement agency certification that the cement proposed for use on the project has been manufactured and tested in compliance with the requirements of ASTM C 150 for portland cement and ASTM C 595 or ASTM C 1157 for blended hydraulic cement, whichever is applicable. When a mineral admixture or ground granulated blast-furnace slag is proposed for use, the concrete supplier shall furnish to the enforcement agency certification that they have been manufactured and tested in compliance with ASTM C 618 or ASTM C 989, whichever is applicable. The concrete producer shall provide copies of the cementitious material supplier's certificate of compliance that represents the materials used by date of shipment for concrete. Cementitious materials without certification of compliance shall not be used.

1909.2.4 1913.2.6 Tests of reinforcing bars. ~~Where~~ samples shall be taken from bundles as delivered from the mill, with the bundles identified as to heat number and provided the accompanying mill certificate. ~~analyses accompany the report.~~ One tensile test and one bend test shall be made from a sample specimen from each 10 tons (9080 kg) or fraction thereof of each size of reinforcing steel.

Where positive identification of the heat number cannot be made or where random samples are to be taken, one series of tests shall be made from each 2 1/2 tons (2270 kg) or fraction thereof of each size of reinforcing steel.

Tests of reinforcing bars may be waived by the structural engineer with the approval of the Building Official for one-story buildings or non-building structures provided they are identified in the construction documents and certified mill test reports are provided to the inspector of record for each shipment of such reinforcement.

1909.2.5 1913.2.7 Tests for prestressing steel and anchorage. All wires or bars of each size from each mill heat and all strands from each manufactured reel to be shipped to the site shall be assigned an individual lot number and shall be tagged in such a manner that each lot can be accurately identified at the job site. Each lot of tendon and anchorage assemblies and bar couplers to be installed shall be likewise identified.

The following samples of materials and tendons selected by the engineer or the designated testing laboratory from the prestressing steel at the plant or job site shall be furnished by the contractor and tested by an approved independent testing agency:

1. For wire, strand or bars, 7-foot-long (2134 mm) samples shall be taken of the coil of wire or strand reel or rods. A minimum of one random sample per 5,000 pounds (2270 kg) of each heat or lot used on the job shall be selected.
2. For prefabricated prestressing tendons other than bars, one completely fabricated tendon 10 feet (3048 mm) in length between grips with anchorage assembly at one end shall be furnished for each size and type of tendon and anchorage assembly.

Variations of the bearing plate size need not be considered.

The anchorages of unbonded tendons shall develop at least 95 percent of the minimum specified ultimate strength of the prestressing steel. The total elongation of the tendon under ultimate load shall not be less than 2 percent measured in a minimum gage length of 10 feet (3048 mm).

Anchorage of bonded tendons shall develop at least 90 percent of the minimum specified strength of the prestressing steel tested in an unbonded state. All couplings shall develop at least 95 percent of the minimum specified strength of the prestressing steel and shall not reduce the elongation at rupture below the requirements of the tendon itself.

3. If the prestressing tendon is a bar, one 7-foot (2134 mm) length complete with one end anchorage shall be furnished and, in addition, if couplers are to be used with the bar, two 4-foot (1219 mm) lengths of bar fabricated to fit and equipped with one coupler shall be furnished.

4. Mill tests of materials used for end anchorages shall be furnished. In addition, at least one Brinnell hardness test shall be made of each thickness of bearing plate.

1909.2.6 1913.2.8 Composite construction cores. Cores of the completed composite concrete construction shall be taken to demonstrate the shear strength along the contact surfaces. The cores shall be tested when the cast-in-place concrete is approximately 28 days old and shall be tested by a shear loading parallel to the joint between the precast concrete and the cast-in-place concrete. The minimum unit shear strength of the contact surface area of the core shall not be less than 100 psi (689 kPa).

At least one core shall be taken from each building for each 5,000 square feet (465 m²) of area of composite concrete construction and not less than three cores shall be taken from each project. The architect or structural engineer in responsible charge of the project or his or her representative shall designate the location for sampling.

~~1913.2.9 Tests of shotcrete.~~ Testing of shotcrete shall follow the provisions of Sections 1910, 1909.4, and the general requirements of ACI 318 Section 5.6.

~~1913.2.10 Gypsum field tests.~~ Field tests shall be made during construction to verify gypsum strength. One sample consisting of three specimens shall be made for each 5,000 square feet (465 m²) or fraction thereof of all gypsum poured, but not less than one sample shall be taken from each half day's pour.

1909.2.7 1913.2.11 Tests for post-installed anchors in concrete. When post-installed anchors are used in lieu of cast-in place bolts, the installation verification test loads frequency and acceptance criteria shall be in accordance with this section.

1909.2.7.1 1913.2.11.1 General. Test loads or torques and acceptance criteria shall be shown on the construction documents.

If any anchor fails testing, all anchors of the same type shall be tested, which are installed by the same trade, not previously tested until twenty (20) consecutive anchors pass, then resume the initial test frequency.

1909.2.7.2 1913.2.11.5 Testing procedure. The test procedure shall be as permitted by an approved test evaluation report using criteria adopted in this code. All other post-installed anchors shall be tension tested.

Exception: Torque controlled post installed anchors and screw type anchors shall be permitted to be tested using torque based on an approved test report using criteria adopted in this code.

Alternatively, the Manufacturer's recommendation for testing may be approved by the enforcement agency based on approved test report using criteria adopted in this code.

1909.2.7.3 1913.2.11.3 Test frequency. When post-installed anchors are used for sill plate bolting applications, 10 percent of the anchors shall be tested.

When post-installed anchors are used for other structural applications, all such anchors shall be tested.

When post-installed anchors are used for nonstructural applications such as equipment anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tested.

The testing of the post-installed anchors shall be done in the presence of the special inspector and a report of the test results shall be submitted to the enforcement agency.

Exceptions:

1. Undercut anchors that allow visual confirmation of full set shall not require testing.
 2. Where the factored design tension on anchors is less than 100 lb and those anchors are clearly noted on the approved construction documents, only 10 percent of those anchors shall be tested.
 3. Where adhesive anchor systems are used to install reinforcing dowel bars in hardened concrete, only 25 percent of the dowels shall be tested if all the following conditions are met:
 - a. The dowels are used exclusively to transmit shear forces across joints between existing and new concrete.
 - b. The number of dowels in any one member equals or exceeds 12.
 - c. The dowels are uniformly distributed across seismic force resisting members (such as shear walls, collectors and diaphragms).
- Anchors to be tested shall be selected at random by the special inspector/inspector of record (IOR).
4. Testing of shear dowels across cold joints in slabs on grade, where the slab is not part of the lateral force-resisting system shall not be required.

5. Testing is not required for power actuated fasteners used to attach tracks of interior nonshear wall partitions for shear only, where there are at least three fasteners per segment of track.

1909.2.7.4 1913.2.11.2 Test loads. Required test loads shall be determined by one of the following methods:

1. Twice the maximum allowable tension load or one and a quarter (1 1/4) times the maximum design strength of anchors as provided in an approved test report using criteria adopted in this code or determined in accordance with Chapter 17 Appendix D of ACI 318.

Tension test load need not exceed 80 percent of the nominal yield strength of the anchor element ($= 0.8 A_s f_y$).

2. The manufacturer's recommended installation torque based on an approved test report using criteria adopted in this code.

1909.2.7.5 1913.2.11.4 Test acceptance criteria. Acceptance criteria for post-installed anchors shall be based on an approved test report using criteria adopted in this code ~~or manufacturer's written instruction, acceptable to the enforcement agency.~~ Field tests shall satisfy the following minimum requirements.

1. Hydraulic ram method:

Anchors tested with a hydraulic jack or spring loaded ~~devices~~ apparatus shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernible movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.

For adhesive anchors, where other than bond is being tested, the testing apparatus support device shall not be located within 1.5 times the anchor's embedment depth to avoid restricting the concrete shear cone type failure mechanism from occurring.

2. Torque wrench method:

Torque controlled post installed A anchors tested with a calibrated torque wrench shall must attain the specified torque within 1/2 turn of the nut; or one-quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.

Exceptions:

- ~~1. Wedge or sleeve type: One-quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.~~

2. Screw Threaded T-type: anchors tested with a calibrated torque wrench shall attain the specified torque within One-quarter (1/4) turn of the screw after initial seating of the screw head.

1909.3 ~~1913.3~~ Modifications to ACI 318

1909.3.1 ~~1913.3.2~~ ACI 318, Section 11.9 ~~14.9~~. Modify ACI 318 by adding Section 14.9 as follows:

11.9 ~~14.9~~ - **Foundation walls.** Horizontal reinforcing of concrete foundation walls for wood-frame or light-steel buildings shall consist of the equivalent of not less than one No. 5 bar located at the top and bottom of the wall. Where such walls exceed 3 feet (914 mm) in height, intermediate horizontal reinforcing shall be provided at spacing not to exceed 2 feet (610 mm) on center. Minimum vertical reinforcing shall consist of No. 3 bars at 24 inches (610 mm) on center.

Where concrete foundation walls or curbs extend above the floor line and support wood-frame or light steel exterior, bearing or shear walls, they shall be doweled to the foundation wall below with a minimum of No. 3 bars at 24 inches (610 mm) on center. Where the height of the wall above the floor line exceeds 18 inches (457 mm), the wall above and below the floor line shall meet the requirements of ACI 318 Section 11.6 and 11.7 ~~14.3~~.

1909.3.2 ~~1913.3.6~~ ACI 318, Section 12.7.3. Add Section 12.7.3.4 to ACI 318 as follows: ~~ACI 318, Section 21.11.7. Modify ACI 318 Section 21.11.7 by adding Section 21.11.7.7 as follows:~~

~~21.11.7.7 – Where boundary members are not required by ACI 318 Section 21.11.7.5, minimum reinforcement parallel to the edges of all diaphragms and the boundaries of all openings shall consist of twice the cross-sectional area of the minimum shear reinforcement required per linear foot of diaphragm.~~

12.7.3.4 – At least two No. 5 bars in diaphragms having two layers of reinforcement in both directions and one No. 5 bar in diaphragms having a single layer of reinforcement in both directions shall be provided around openings larger than 12 inches in any dimension in addition to the minimum reinforcement required by Section 12.6.

1909.3.3 ~~1913.3.7~~ ACI 318, Chapter 14 ~~22~~. Plain concrete is not permitted.

1909.3.4 ~~1913.3.3~~ ACI 318, Section 18.10.6.5 ~~21.9.2.2~~. Modify ACI 318, Section 18.10.6.5 ~~21.9.2.2~~ by adding the following:

Where boundary members are not required by ACI 318 Section 18.10.6.2 or 18.10.6.3 ~~21.9.6~~, minimum reinforcement parallel to the edges of all structural walls and the boundaries of all openings shall consist of twice the cross-sectional area of the minimum shear reinforcement required per lineal foot of wall. Horizontal extent of boundary element shall be per ACI 318 Section 18.10.6.4 (a), (b) and (c) ~~21.9.6.4 (a) and (b)~~.

1913.3.4 ACI 318, Section 21.9.4. Modify ACI 318 by adding Section 21.9.4.6 as follows:

21.9.4.6 – Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.13.

1909.3.5 1913.3.5 ACI 318, Section 18.12.6 21.11.4. Add Section 18.12.6.2 to ACI 318 as follows: Modify ACI 318 Section 21.11.4 by adding the following:

Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or 6 db thick, where db is the diameter of the largest reinforcement in the topping slab.

1909.3.6 ACI 318, Table 21.2.2. Replace Table 21.2.2 as follows.:

Table 21.2.2 – Strength reduction factor ϕ for moment, axial force, or combined moment and axial force

Net tensile strain ϵ_t	Classification	ϕ			
		Type of transverse reinforcement			
		Spirals conforming to 25.7.3		Other	
$\epsilon_t \leq \epsilon_{ty}$	Compression-controlled	0.75	(a)	0.65	(b)
$\epsilon_{ty} < \epsilon_t < 0.005$	Transition ^{[1][2]}	$0.75 + 0.15 \frac{\epsilon_t - \epsilon_{ty}}{\epsilon_t^* - 0.005 - \epsilon_{ty}}$	(c)	$0.65 + 0.25 \frac{\epsilon_t - \epsilon_{ty}}{\epsilon_t^* - 0.005 - \epsilon_{ty}}$	(d)
$\epsilon_t \geq 0.005$	Tension-controlled ^[3]	0.9	(e)	0.9	(f)

^[1] For sections classified as transition, it shall be permitted to use ϕ corresponding to compression-controlled sections.

^[2] ϵ_t^* is the greater of net tensile strain calculated for $P_u = 0.1A_g f'_c$ and 0.005.

^[3] For sections with factored axial compression force $P_u \geq 0.1A_g f'_c$, ϕ shall be calculated using equation (c) or (d) for sections classified as transition, as applicable.

1909.3.7 1913.3.4 ACI 318, Section 5.6.2.4 26.12.2.1(a). Replace ACI 318 Section 26.12.2.1(a) 5-6-2.4 by the following:

26.12.2.1(a) 5-6-2.4 - Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards (38.2 m³) of concrete, or not less than once for each 2,000 square feet (186 m²) of surface area for slabs or walls. Additional samples for seven-day compressive strength tests shall be taken for each class of concrete at the beginning of the concrete work or whenever the mix or aggregate is changed.

1913.3.8 ACI 318, Section D.3.3. Replace the requirements of Section 1905.1.9 with the following. Modify ACI 318, Sections D.3.3.4.2, D.3.3.4.3(d), and D.3.3.5.2 to read as follows:

~~D.3.3.4.2—Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with Section D.3.3.4.4.~~

Exception:

~~Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 and Section 1604.8.2 of this code shall be deemed to satisfy Section D.3.3.4.3(d).~~

~~D.3.3.4.3(d)—The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include E, with E increased by Ω_0 . The anchor design tensile strength shall be calculated from Section D.3.3.4.4.~~

~~D.3.3.5.2—Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with Section D.6.~~

Exceptions:

~~1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or nonbearing walls of lightframe wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied, provided all of the following are met:~~

~~1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PA NDS Table 11E for lateral design values parallel to grain.~~

~~1.2. The maximum anchor nominal diameter is 5/8 inches (16 mm).~~

~~1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).~~

~~1.4. Anchor bolts are located a minimum of 1 3/4 inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.~~

~~1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.~~

~~1.6. The sill plate is 2-inch or 3-inch nominal thickness.~~

~~2. For the calculation of the in-plane shear strength of anchor bolts attaching cold formed steel track of bearing or nonbearing walls of anchor bolts attaching cold formed steel track of bearing or nonbearing walls of light frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~

~~2.1. The maximum anchor nominal diameter is 5/8 inches (16 mm).~~

~~2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).~~

~~2.3. Anchors are located a minimum of 1 3/4 inches (45 mm) from the edge of the concrete parallel to the length of the track.~~

~~2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.~~

~~2.5. The track is 33 to 68 mil designation thickness.~~

~~Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100, Section E3.3.1.~~

~~3. In light frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 5/8 inch (16 mm) in diameter of sill plate or track to foundation or foundation stem wall need not satisfy Section D.3.3.5.3 (a) through (c) when the design strength of the anchors is determined in accordance with Section D.6.2.1(e).~~

1909.4 1913.4 Shotcrete.

1909.4.1 1913.4.1 Preconstruction tests. A test panel prepared in accordance with Section 1908.5 is required. Approval from the enforcement agency must be obtained prior to performing test panels.

1909.4.2 1913.4.2 Surface preparation. Concrete or masonry to receive shotcrete shall have the entire surface thoroughly cleaned and roughened by sand blasting, and just prior to receiving shotcrete, shall be thoroughly cleaned of all debris, dirt and dust. Concrete and masonry shall be wetted before shotcrete is deposited, but not so wet as to overcome suction.

1909.4.3 1913.4.3 Joints. The film of laitance which forms on the surface of the shotcrete shall be removed within approximately two hours after application by brushing with a stiff broom. If this film is not removed within two hours, it shall be removed by thorough wire brushing or sand blasting. Construction joints over eight hours old shall be thoroughly cleaned with air and water prior to receiving shotcrete.

1909.4.4 1913.4.4 Forms and ground wires for shotcrete. Forms for shotcrete shall be substantial and rigid. Forms shall be built and placed so as to permit the escape of air and rebound.

Adequate ground wires, which are to be used as screeds, shall be placed to establish the thickness, surface planes and form of the shotcrete work. All surfaces shall be rodded to these wires.

1909.4.5 1913.4.5 Placing. Shotcrete shall be placed in accordance with ACI 506.

1909.5 1913.5 Existing concrete structures. The structural use of existing concrete with a core strength less than 1,500 psi (10.3MPa) is not permitted in rehabilitation work.

For existing concrete structures, sufficient cores shall be taken at representative locations throughout the structure, as designated by the architect or structural engineer, so that knowledge will be had of the in-place strength of the concrete. At least three cores shall be taken from each building for each 4,000 square feet (372 m²) of floor area, or fraction thereof. Cores shall be at least 4 inches (102 mm) in diameter. Cores as small as 2.75 inches (70 mm) in diameter may be allowed by the enforcement agency when reinforcement is closely spaced and the coarse aggregate does not exceed 3/4 inch (19 mm).

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 19A
CONCRETE**

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter			
Adopt entire chapter as amended (amended sections listed below)	X	-	
Adopt only those sections listed below			

All existing California amendments that are not revised below shall continue without change.

Italics are used for text within Sections 1903A through 1905A of this code to indicate provisions that differ from ACI 318. State of California amendments in these sections are shown in italics and underlined.

...

**SECTION 1901A
GENERAL**

1901A.1 Scope. The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used in structures.

1901A.1.1 Application. *The scope of application of Chapter 19A is as follows:*

1. *Structures regulated by the Division of the State Architect-Structural Safety (DSA-SS), which include those applications listed in Section 1.9.2.1. These applications include public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings.*
2. **Reserved for CSHPD**

1901A.1.2 Amendments in this chapter. *DSA adopts this chapter and all amendments.*

Exception: *Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:*

1. *Division of the State Architect-Structural Safety: [DSA-SS] For applications listed in Section 1.9.2.1*
2. **Reserved for CSHPD**

...

1901A.5 Construction documents. *The construction documents for structural concrete construction shall include:*

1. *The specified compressive strength of concrete at the stated ages or stages of construction for which each concrete element is designed.*
2. *The specified strength or grade of reinforcement.*
3. *The size and location of structural elements, reinforcement and anchors.*
4. *Provision for dimensional changes resulting from creep, shrinkage and temperature.*
5. *The magnitude and location of prestressing forces.*
6. *Anchorage length of reinforcement and location and length of lap splices.*
7. *Type and location of mechanical and welded splices of reinforcement.*
8. *Details and location of contraction or isolation joints specified for plain concrete.*
9. *Minimum concrete compressive strength at time of posttensioning.*
10. *Stressing sequence for post-tensioning tendons.*
11. *For structures assigned to Seismic Design Category D, E or F, a statement if slab on grade is designed as a structural diaphragm.*
12. *Openings larger than 12 inches (305 mm) in any dimension shall be detailed on the structural drawings.*

1901A.6 Special inspections and tests. *Special inspections and tests of concrete elements of buildings and structures and concreting operations shall be as required by Chapter 17A and Section 1910A.*

...

SECTION 1903A

SPECIFICATIONS FOR TESTS AND MATERIALS

1903A.1 General. Materials used to produce concrete, concrete itself and testing thereof shall comply with the applicable standards listed in ACI 318.

...

1903A.2 Special Inspections. Where required, special inspections and tests shall be in accordance with Chapter 17A and Section 1910A.1913A.

...

1903A.4 Flat wall insulating concrete form (ICF) systems. Insulating concrete form material used for forming flat concrete walls shall conform to ASTM E 2634.

1903A.4 Reporting Requirements — Modify ACI 318 Section 3.2.1 by adding the following:

Each component (a) through (g), when present, as a percentage of total cementitious materials shall be reported for each mix design.

1903A.5 1903A.6 Aggregates - Modify ACI 318 Section 3.3.2 26.4.1.2.1(a).(1) as follows: by adding the following:

Aggregate size limitations waiver shall be approved by the enforcement agency.

Evidence that the aggregate used is not reactive in the presence of alkalis may be required by the enforcement agency. If new aggregate sources are to be used or if past experience indicates problems with existing aggregate sources, test the aggregate for potential alkali-silica reactivity in accordance with to ASTM C 1260 or C 1293 to determine the potential alkali-silica reactivity of the aggregate. If the results indicate an expansion greater than 0.10 percent at 16 days age with ASTM C 1260, or an expansion greater than 0.04 percent at 12 months age with ASTM C 1293, provide mitigation with one of the cementitious material systems noted below such that an expansion of less than 0.10 percent at 16 days age is obtained with ASTM C 1567:

1. Low-alkali portland cement containing not more than 0.6 percent total alkali when calculated as sodium oxide, as determined by the method given in ASTM C 114.
2. Blended hydraulic cement, Type IS or IP, conforming to ASTM C 595, except that Type IS cement shall not contain less than 40 percent slag cement.
3. Replacement of not less than 15 percent by weight of the portland cement with a pozzolan conforming to ASTM C 618 for Class N or F materials (Class C is not permitted).
4. Replacement of not less than 40 percent by weight of the portland cement with slag cement conforming to ASTM C 989.
5. Replacement of not less than 5 percent nor more than 10 percent by weight of Portland cement with silica fume conforming to ASTM C 1240.
6. Replacement of portland cement with a ternary blend of portland cement, slag cement and pozzolan such that the resulting blend contains not more than 70 percent portland cement.

ASTM C 1567 test shall be performed separately on the fine and coarse aggregate with one requiring the higher percentage of supplementary cementitious materials dictating the required replacement.

ASTM C 1260, ASTM C 1293 and ASTM C 1567 tests must have been performed within the past three years.

(1) **Normal weight aggregate:** Aggregate shall be non-reactive as determined by one of the methods in ASTM C33 Appendix XI Methods for Evaluating Potential for Deleterious Expansion Due to Alkali Reactivity of an Aggregate. Aggregates deemed to be deleterious or potentially deleterious may be used with the addition of a material that has been shown to prevent harmful expansion in accordance with Appendix XI of ASTM C33, when approved by the building official.

1903A.6 ~~Reserved for OSHPD~~ **1903A.5 Fly Ash** – Add ACI 318 Section 3.2.3 as follows:

Fly ash or other pozzolan can be used as a partial substitute for ASTM C 150 portland cement, as follows:

1. Fly ash or other pozzolan shall conform to ASTM C 618 for Class N or Class F materials (Class C is not permitted), and
2. More than 15 percent by weight of fly ash or other pozzolans shall be permitted to be substituted for ASTM C 150 portland cement if the mix design is proportioned per ACI 318 Section 5.3. See Section 1904A for durability requirements.
3. More than 40 percent by weight of ground granulated blast furnace slag conforming to ASTM C 989 shall be permitted to be substituted for ASTM C 150 portland cement if the mix design is proportioned per ACI 318 Section 5.3. See Section 1904A for durability requirements.

1903A.7 1903A.7 Discontinuous Steel Fibers fiber reinforcement - Not permitted. – Modify ACI 318 Section 3.5.1 by adding the following:

Discontinuous steel fibers are not permitted.

1903A.8 1903A.8 Welding of reinforcing bars - Modify ACI 318 Section 3.5.2 26.6.4.1(b) by adding the following:

If mill test reports are not available, chemical analysis shall be made of bars representative of the bars to be welded. Bars with a carbon equivalent (C.E.) above 0.75 shall not be welded. Welding shall not be done on or within two bar diameters of any bent portion of a bar that has been bent cold. Welding of crossing bars shall not be permitted for assembly of reinforcement unless authorized by the structural engineer and approved by the enforcement agency per approved procedures.

Shop fusion welded stirrup/tie cage (or spiral assemblies) consisting of low-alloy steel reinforcing stirrups/ties conforming to ASTM A706 and longitudinal holding wires, conforming to ASTM A1064 shall be permitted. The fusion welds shall be made by machines using electric resistance welds. Tack welding of primary reinforcing bars together or to stirrups/ties is not permitted. Fusion welding of holding wires is not permitted on any portion of a reinforcing bar that is or will be bent in accordance with ACI 318 Section 25.3.

SECTION 1904A
DURABILITY REQUIREMENTS

...

1904A.1 Structural concrete. Structural concrete shall conform to the durability requirements of ACI 318.

~~*Exception: For Group R-2 and R-3 occupancies not more than three stories above grade plane, the specified compressive strength, f'_c , for concrete in basement walls, foundation walls, exterior walls and other vertical surfaces exposed to the weather shall be not less than 3,000 psi (20.7 MPa).*~~

...

SECTION 1905A
MODIFICATIONS TO ACI 318

1905A.1 General. The text of ACI 318 shall be modified as indicated in Sections 1905A.1.1 through ~~1905.1.24~~ 1905A.1.16.

~~**1905A.1.1 ACI 318, Section 2.3.** Modify existing definitions and add the following definitions to ACI 318, Section 2.3.~~

~~**DESIGN DISPLACEMENT.** Total lateral displacement expected for the design basis earthquake, as specified by Section 12.8.6 of ASCE 7.~~

~~**DETAILED PLAIN CONCRETE STRUCTURAL WALL.** A wall complying with the requirements of Chapter 14, including 14.6.2.~~

~~**ORDINARY PRECAST STRUCTURAL WALL.** A precast wall complying with the requirements of Chapters 1 through 13, 15, 16 and 19 through 26.~~

~~**ORDINARY REINFORCED CONCRETE STRUCTURAL WALL.** A cast-in-place wall complying with the requirements of Chapter 14, excluding 14.6.2.~~

~~**ORDINARY STRUCTURAL PLAIN CONCRETE WALL.** A wall complying with the requirements of Chapter 22, excluding 22.6.7.~~

SPECIAL STRUCTURAL WALL. A cast-in-place or precast wall complying with the requirements of 18.2.4 through 18.2.8, 18.10 and 18.11, as applicable, in addition to the requirements for ordinary reinforced concrete structural walls or ordinary precast structural walls, as applicable. ~~Where ASCE 7 refers to a "special reinforced concrete structural wall," it shall be deemed to mean a "special structural wall."~~

1905A.1.1 1905A.1.14 ACI 318 Section 4.12.2.2 18.2.4. ~~Modify ACI 318 Section 4.12.2.2 18.2.4 by adding the following:~~

~~Where prestressed concrete elements are restrained from movement, an analysis of the stresses in the prestressed elements and loads in the adjoining structural system induced by the above-described effects shall be made in accordance with PCI Design Handbook, 7TH Edition.~~

1905A.1.2 1905A.1.13 ACI 318, Section 4.12.2.3 18.2.3. ~~Modify ACI 318 Section 4.12.2.3 18.2.3 by adding the following:~~

~~For prestressed concrete members with recessed or dapped ends, an analysis of the connections shall be made in accordance with procedures given in PCI Design Handbook, 7TH Edition.~~

1905A.1.3 1905A.1.6 ACI 318, Section 9.6.1.3. 10.5.3. ~~Modify ACI 318 Section 9.6.1.3. 10.5.3 by adding the following:~~

~~This section shall not be used for members that resist seismic loads, except that reinforcement provided for foundation elements for one-story wood-frame or one-story light steel buildings need not be more than one-third greater than that required by analysis for all loading conditions.~~

1905A.1.4 1905A.1.8 ACI 318, Section 11.2.4.1 14.2.6. ~~Replace ACI 318 Section 11.2.4.1 14.2.6 as follows:~~

~~11.2.4.1 14.2.6 - Walls shall be anchored to intersecting elements such as floors or roofs; or to columns, pilasters, buttresses, of intersecting walls; and footings with reinforcement at least equivalent to No. 4 bars at 12 inches (305 mm) on center for each layer of reinforcement.~~

1905A.1.5 1905A.1.11 ACI 318 Section 16.11.7. ~~Add Section 11.7.6 16.11 to ACI 318 as follows:~~

11.7.6 ~~46.44~~ - Reinforcement. Perimeters of precast walls shall be reinforced continuously with a minimum of one No. 5 bar extending the full height and width of the wall panel. Bars shall be continuous around corners. Where wall panels do not connect to abut columns or other wall panels to develop at least 75 percent of the horizontal wall steel as noted below, vertical perimeter bars shall be retained by hooked wall bars. Edges of openings in precast walls shall be reinforced with a minimum of one No. 5 bar continuous past corners sufficient to develop the bar.

A continuous tie or bond beam shall be provided at the roof line either as a part of the roof structure or part of the wall panels as described in the next paragraph below. This tie may be designed as the edge member of the roof diaphragm but, in any case, shall not be less than equivalent to two No. 6 bars continuous. A continuous tie equivalent to two No. 5 bars minimum shall also be provided either in the footing or with an enlarged section of the floor slab.

Wall panels of shear wall buildings shall be connected to columns or to each other in such a manner as to develop at least 75 percent of the horizontal wall steel. No more than $\frac{1}{2}$ of this continuous horizontal reinforcing shall may be concentrated in bond or tie beams at the top and bottom of the walls and at points of intermediate lateral support. If possible, cast in-place joints with reinforcing bars extending from the panels into the joint a sufficient distance to meet the splice requirements of ACI 318 Section 25.5.2 ~~42.15~~ for Class A shall be used. The reinforcing bars or welded tie details shall not be spaced over eight times the wall thickness vertically nor fewer than four used in the wall panel height. Where wall panels are designed for their respective overturning forces, the panel connections need not comply with the requirements of this paragraph.

Where splicing of reinforcement must be made at points of maximum stress or at closer spacing than permitted by ACI 318 Section 7.6, welding may be used when the entire procedure is suitable for the particular quality of steel used and the ambient conditions. Unless the welds develop 125 percent of the specified yield strength of the steel used, reinforcement in the form of continuous bars or fully anchored dowels shall be added to provide 25 percent excess steel area and the welds shall develop not less than the specified yield strength of the steel.

Exception: Nonbearing, nonshear panels such as nonstructural architectural cladding panels or column covers are not required to meet the provisions of this Section.

1905A.1.6 ~~1905A.1.10~~ ACI 318, Section 11.9. 14.9. Modify ACI 318 by adding Section 11.9 14.9 as follows:

11.9 14.9 - Foundation Walls. Horizontal reinforcing of concrete foundation walls for wood-frame or light-steel buildings shall consist of the equivalent of not less than one No. 5 bar located at the top and bottom of the wall. Where such walls exceed 3 feet (914 mm) in height, intermediate horizontal reinforcing shall be provided at spacing not to exceed 2 feet (610 mm) on center. Minimum vertical reinforcing shall consist of No. 3 bars at 24 inches (610 mm) on center.

Where concrete foundation walls or curbs extend above the floor line and support wood-frame or light-steel exterior, bearing or shear walls, they shall be doweled to the foundation wall below with a minimum of No. 3 bars at 24 inches (610 mm) on center. Where the height of the wall above the floor line exceeds 18 inches (457 mm), the wall above and below the floor line shall meet the requirements of ACI 318 Section 11.6 and 11.7. 14.3.

1905A.1.7 ACI 318, Section 12.7.3. Add Section 12.7.3.4 to ACI 318 as follows:

1905A.1.20 ACI 318, Section 21.11.7. Modify ACI 318 Section 21.11.7 by adding Section 21.11.7.7 as follows:

21.11.7.7 — Where boundary members are not required by ACI 318 Section 21.11.7.5, minimum reinforcement parallel to the edges of all diaphragms and the boundaries of all openings shall consist of twice the cross sectional area of the minimum shear reinforcement required per linear foot of diaphragm.

12.7.3.4 – At least two No. 5 bars in diaphragms having two layers of reinforcement in both directions and one No. 5 bar in diaphragms having a single layer of reinforcement in both directions shall be provided around openings larger than 12 inches in any dimension in addition to the minimum reinforcement required by Section 12.6.

1905A.1.8 ~~1905A.1.21~~ (Chapter 19, Section 1905.1.8) ACI 318, Section 17.2.3. Modify ACI 318 Sections 17.2.3.4.2, 17.2.3.4.3(d) and 17.2.3.5.2 to read as follows:

17.2.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same

load combination, anchors and their attachments shall be designed in accordance with 17.2.3.4.3. The anchor design tensile strength shall be determined in accordance with 17.2.3.4.4.

Exception: *Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 and Section 1604A.8.2 of this code shall be deemed to satisfy Section 17.2.3.4.3(d).*

17.2.3.4.3(d) - The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include **E**, with **E** increased by Ω_0 . The anchor design tensile strength shall be calculated from 17.2.3.4.4.

17.2.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with 17.2.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with 17.5.

Exceptions:

1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with 17.5.2 and 17.5.3 need not be computed and 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:

1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AWC NDS Table 11E for lateral design values parallel to grain.

1.2. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).

1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).

1.4. Anchor bolts are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.

1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.

1.6. The sill plate is 2-inch or 3-inch nominal thickness.

2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with 17.5.2 and 17.5.3 need not be computed and 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:

2.1. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).

2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).

2.3. Anchors are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the track.

2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.

2.5. The track is 33 to 68 mil designation thickness.

Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.

3. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to $\frac{5}{8}$ 1" inch [16mm] in diameter attaching sill plate or track to foundation or foundation stem wall need not satisfy 17.2.3.5.3(a) through (c) when the design strength of the anchors is determined in accordance with 17.5.2.1(c).

1905A.1.9 1905A.1.1 ACI 318, Table 19.2.1.1 Section 5.1.1. Modify ACI 318 Table 19.2.1.1 Section 5.1.1 as follows.

For concrete designed and constructed in accordance with this chapter, f'_c , shall not be less than 3,000 psi (20.7 MPa). Reinforced normal weight concrete with specified compressive strength higher than 8,000 psi (55 MPa) shall require prior approval of structural design method and acceptance criteria by the enforcement agency.

1905A.1.3 ACI 318, Section 8.13.5. Replace ACI 318 Section 8.13.5 as follows:

8.13.5 – Permanent burned clay or concrete tile fillers shall be considered only as forms and shall not be included in the calculations involving shear or bending moments.

The thickness of the concrete slab on the permanent fillers shall be designed as described in ACI 318 Section 8.13.6 as modified in Section 1905A.1.4.

1905A.1.4 ACI 318, Section 8.13.6. Replace ACI 318 Section 8.13.6 as follows:

8.13.6 – Where removable forms or fillers are used, the thickness of the concrete slab shall not be less than 1/12 of the clear distance between joists and in no case less than 2 1/2 inches (64 mm). Such slab shall be reinforced at right angles to the joists with at least the amount of reinforcement required for flexure, considering load concentrations, if any, but in no case shall the reinforcement be less than that required by ACI 318 Section 7.12.

1905A.1.5 ACI 318, Section 8.13. Add Section 8.13.9 to ACI 318 as follows:

8.13.9 Concrete bridging. Concrete bridging shall be provided as follows: one near the center of spans for 20 to 30 feet (6096 mm to 9144 mm) spans and two near the third points of spans over 30 feet (9144 mm). Such bridging shall be either:

(a) A continuous concrete web having a depth equal to the joist and a width not less than 3 1/2 inches (89 mm) reinforced with a minimum of one No. 4 bar in the top and bottom; or

(b) Any other concrete element capable of transferring a concentrated load of 1,000 pounds (4.5 kN) from any joist to the two adjacent joists.

Such bridging shall not be required in roof framing if an individual member is capable of carrying dead load plus a concentrated load of 1,500 pounds (6.7 kN) at any point.

~~1905A.1.7 ACI 318, Section 12.14.3. Add Section 12.14.3.6 to ACI 318 as follows:~~

~~12.14.3.6 Welded splices and mechanical connections shall maintain the clearance and coverage requirements of ACI Sections 7.6 and 7.7.~~

~~1905A.1.9 ACI 318, Section 14.5– Empirical design method. Not permitted by DSA.~~

~~1905A.1.12 ACI 318, Section 17.5.1. Modify ACI 318 Section 17.5.1 by adding Sections 17.5.1.1 and 17.5.1.2 as follows:~~

~~17.5.1.1 Full transfer of horizontal shear forces may be assumed when all of the following are satisfied:~~

~~1. Contact surfaces are clean, free of laitance, and intentionally roughened to full amplitude of approximately 1/4 inch (6.4 mm);~~

~~2. Minimum ties are provided in accordance with ACI 318 Section 17.6;~~

~~3. Web members are designed to resist total vertical shear, and~~

~~4. All shear reinforcement is fully anchored into all interconnected elements.~~

~~17.5.1.2 If any of the requirements of ACI 318 Section 17.5.1.1 is not satisfied, horizontal shear shall be investigated in accordance with ACI 318 Section 17.5.3 or 17.5.4.~~

~~1905.1.2 ACI 318, Section 18.2.1. Modify ACI 318 Sections 18.2.1.2 and 18.2.1.6 to read as follows:~~

~~18.2.1.2 Structures assigned to Seismic Design Category A shall satisfy requirements of Chapters 1 through 17 and 19 through 26; Chapter 18 does not apply. Structures assigned to Seismic Design Category B, C, D, E or F also shall satisfy 18.2.1.3 through 18.2.1.7, as applicable. Except for structural elements of plain concrete complying with Section 1905.1.7 of the International~~

~~Building Code, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F.~~

~~18.2.1.6 — Structural systems designated as part of the seismic force-resisting system shall be restricted to those permitted by ASCE 7. Except for Seismic Design Category A, for which Chapter 18 does not apply, the following provisions shall be satisfied for each structural system designated as part of the seismic force-resisting system, regardless of the Seismic Design Category:~~

- ~~(a) Ordinary moment frames shall satisfy 18.3.~~
- ~~(b) Ordinary reinforced concrete structural walls and ordinary precast structural walls need not satisfy any provisions in Chapter 18.~~
- ~~(c) Intermediate moment frames shall satisfy 18.4.~~
- ~~(d) Intermediate precast structural walls shall satisfy 18.5.~~
- ~~(e) Special moment frames shall satisfy 18.6 through 18.9.~~
- ~~(f) Special structural walls shall satisfy 18.10.~~
- ~~((g) Special structural walls constructed using precast concrete shall satisfy 18.11.~~

~~All special moment frames and special structural walls shall also satisfy 18.2.4 through 18.2.8.~~

1905A.1.18 ACI 318, Section 21.9.4. Modify ACI 318 by adding Section 21.9.4.6 as follows:

21.9.4.6 — Walls and portions of walls with $P_u > 0.35P_g$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.13.

1905A.1.10 1905A.1.16 (Chapter 19, Section 1905.1.3) ACI 318, Section 18.5. [DSA-SS] Modify ACI 318, Section 18.5, by replacing Section 18.5.2.1, adding new Section 18.5.2.2 and renumbering existing Sections 18.5.2.2 and 18.5.2.3 to become 18.5.2.3 and 18.5.2.4, respectively:

18.5.2.1 — In connections between wall panels, yielding shall be restricted to steel elements or reinforcement. In connections between wall panels and the foundation, they shall be designed per Section 1616A.1.16.

18.5.2.2 – Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at deformation induced by the design displacement or shall use type 2 mechanical splices.

18.5.2.3 – Elements of the connection that are not designed to yield shall develop at least 1.5 S_y .

18.5.2.4 – In structures assigned to SDC D, E or F, Wall piers shall be designed in accordance with 18.10.8 or 18.14 in ACI 318.

1905A.1.11 1905A.1.17 ACI 318, Section 18.10.6.5 21.9.2.2. Modify ACI 318.

Section 18.10.6.5 21.9.2.2 by adding the following:

(c) Where boundary members are not required by ACI 318 Section 18.10.6.2 or 18.10.6.3 21.9.6, minimum reinforcement parallel to the edges of all structural walls and the boundaries of all openings shall consist of twice the cross-sectional area of the minimum shear reinforcement required per lineal foot of wall. Horizontal extent of boundary element shall be per in accordance with ACI 318 Section 18.10.6.4 (a), (b) and (c). 21.9.6.4 (a) & (b).

1908.1.4 ACI 318, Section 18.11. Modify ACI 318, Section 18.11.2.1, to read as follows:

18.11.2.1 – Special structural walls constructed using precast concrete shall satisfy all the requirements of 18.10 for cast-in-place special structural walls in addition to Section 18.5.2.

1905A.1.12 1905A.1.19 ACI 318, Section 18.12.6 21.11.4. Add Section 18.12.6.2 to ACI 318 as follows: Modify ACI 318 Section 21.11.4 by adding the following:

18.12.6.2 Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or 6 d_b thick, where d_b is the diameter of the largest reinforcement in the topping slab.

1905A.1.13 (Chapter 19, Section 1905.1.5) 1905.1.5 ACI 318, Section 18.13.1.1. Modify ACI 318, Section 18.13.1.1, to read as follows:

18.13.1.1 – Foundations resisting earthquake-induced forces or transferring earthquake-induced forces between a structure and ground shall comply with the requirements of Section 18.13 and other applicable provisions of ACI 318 unless modified by Chapter 18A of the California Building Code.

1905.1.6 ACI 318, Section 14.6. Modify ACI 318, Section 14.6, by adding new Section 14.6.2 to read as follows:

~~14.6.2.1 – Detailed plain concrete structural walls.~~

~~14.6.2.1 – Detailed plain concrete structural walls are walls conforming to the requirements of ordinary structural plain concrete walls and 14.6.2.2.~~

~~14.6.2.2 – Reinforcement shall be provided as follows:~~

~~(a) Vertical reinforcement of at least 0.20 square inch (129 mm²) in cross-sectional area shall be provided continuously from support to support at each corner, at each side of each opening and at the ends of walls. The continuous vertical bar required beside an opening is permitted to substitute for one of the two No. 5 bars required by 14.6.1.~~

~~(b) Horizontal reinforcement at least 0.20 square inch (129 mm²) in cross-sectional area shall be provided:~~

- ~~1. Continuously at structurally connected roof and floor levels and at the top of walls;~~
- ~~2. At the bottom of load-bearing walls or in the top of foundations where doweled to the wall; and~~
- ~~3. At a maximum spacing of 120 inches (3048 mm).~~

~~Reinforcement at the top and bottom of openings, where used in determining the maximum spacing specified in Item 3 above, shall be continuous in the wall.~~

1905.1.7 ACI 318, Section 14.1.4. Delete ACI 318, Section 14.1.4, and replace with the following:

~~14.1.4 – Plain concrete in structures assigned to Seismic Design Category C, D, E or F.~~

~~14.1.4.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:~~

~~(a) Structural plain concrete basement, foundation or other walls below the base are permitted in detached one and two-family dwellings three stories or less in height constructed with stud-bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall~~

~~shall not exceed 8 feet (2438 mm), the thickness shall not be less than 7 1/2 inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 14.6.1.~~

~~(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.~~

~~**Exception:** In detached one- and two-family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.~~

~~(c) Plain concrete footings supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. For footings that exceed 8 inches (203 mm) in thickness, a minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.~~

Exceptions:

- ~~1. In Seismic Design Category A, B, and C, detached one- and two-family dwellings three stories or less in height and constructed with stud-bearing walls, plain concrete footings without longitudinal reinforcement supporting walls are permitted.~~
- ~~2. For foundation systems consisting of a plain concrete footing and a plain concrete stemwall, a minimum of one bar shall be provided at the top of the stemwall and at the bottom of the footing.~~
- ~~3. Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.~~

1905A.1.14 ACI 318, Table 21.2.2. Replace Table 21.2.2 as follows.:

Table 21.2.2 – Strength reduction factor ϕ for moment, axial force, or combined moment and axial force

Net tensile	Classification	ϕ
-------------	----------------	--------

strain ϵ_t		Type of transverse reinforcement			
		Spirals conforming to 25.7.3		Other	
$\epsilon_t \leq \epsilon_{ty}$	Compression-controlled	0.75	(a)	0.65	(b)
$\epsilon_{ty} < \epsilon_t < 0.005$	Transition ^{[1][2]}	$0.75 + 0.15 \frac{\epsilon_t - \epsilon_{ty}}{\epsilon_t^* - 0.005 - \epsilon_{ty}}$	(c)	$0.65 + 0.25 \frac{\epsilon_t - \epsilon_{ty}}{\epsilon_t^* - 0.005 - \epsilon_{ty}}$	(d)
$\epsilon_t \geq 0.005$	Tension-controlled ^[3]	0.9	(e)	0.9	(f)

^[1] For sections classified as transition, it shall be permitted to use ϕ corresponding to compression-controlled sections.

^[2] ϵ_t^* is the greater of net tensile strain calculated for $P_n = 0.1A_g f'_c$ and 0.005.

^[3] For sections with factored axial compression force $P_u \geq 0.1A_g f'_c$, ϕ shall be calculated using equation (c) or (d) for sections classified as transition, as applicable.

1905A.1.15 1905A.1.15 ACI 318, Section 24.2.1-18.2. Add Section 24.2.1.1-18.2.7 to ACI 318 as follows:

24.2.1.1 18.2.7 - Span to Depth Ratio. Prestressed Beam and Slab Span to depth ratios for continuous prestressed concrete members shall not exceed the following, except when calculations of deflections and vibration effects prove that greater values may be used without adverse effects:

<u>Beams</u>	<u>30</u>
<u>One-way Slabs</u>	<u>40</u>
<u>Two-way Floor Slabs</u>	<u>40</u>
<u>Two-way Roof Slabs</u>	<u>44</u>

These ratios should be decreased for special conditions such as heavy loads and simple spans.

Maximum deflection criteria shall be in accordance with ACI 318 Sections 24.2.2.9-5

1905A.1.16 1905A.1.2 ACI 318, Section 5.6.2.1 26.12.2.1(a). Replace ACI 318 Section 5.6.2.1 26.12.2.1(a) by the following.

26.12.2.1(a) 5-6.2.4 Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards (345m³) of concrete, or not less than once for each 2,000 square feet (186 m²) of surface area for slabs or walls. Additional samples for seven-day compressive strength tests shall be taken for each class of concrete at the beginning of the concrete work or whenever the mix or aggregate is changed.

SECTION 1906A STRUCTURAL PLAIN CONCRETE

Not permitted by DSA-SS.

1906.1 Scope. The design and construction of structural plain concrete, both cast in place and precast, shall comply with the minimum requirements of ACI 318, as modified in Section 1905.

Exception: For Group R-3 occupancies and buildings of other occupancies less than two stories above grade plane of light frame construction, the required footing thickness of ACI 318 is permitted to be reduced to 6 inches (152 mm), provided that the footing does not extend more than 4 inches (102 mm) on either side of the supported wall.

...

SECTION 1908A SHOTCRETE

1908A.1 General. Shotcrete is mortar or concrete that is pneumatically projected at high velocity onto a surface. Except as specified in this section, shotcrete shall conform to the requirements of this chapter for plain or reinforced concrete and the provisions of ACI 506. The specified compressive strength of shotcrete shall not be less than 3,000 psi (20.69 MPa).

Concrete or masonry to receive shotcrete shall have the entire surface thoroughly cleaned and roughened by sand blasting, and just prior to receiving shotcrete, shall be thoroughly cleaned of all debris, dirt and dust. Concrete and masonry shall be wetted before shotcrete is deposited, but not so wet as to overcome suction. Sand for sand blasting shall be clean, sharp and uniform in size, with no particles that will pass a 50-mesh screen.

...

1908A.3 Aggregate. Coarse aggregate, if used, shall not exceed $\frac{3}{4}$ inch (19.1 mm).

For shear walls, when total rebar in any direction is more than 0.31 in² / ft. or rebar size is larger than # 5, shotcrete shall conform to course aggregate grading No. 2 per Table 1.1 of ACI 506.

...

1908A.5 Preconstruction tests. Where preconstruction test are required by Section 1908.4, a- A test panel shall be shot, cured, cored or sawn, examined and tested prior to commencement of the project. The sample panel shall be representative of the project and simulate job conditions as closely as possible. The panel thickness and reinforcing shall reproduce the thickest and most congested area specified in the structural design. It shall be shot at the same angle, using the same nozzleman and with

the same concrete mix design that will be used on the project. The equipment used in preconstruction testing shall be the same equipment used in the work requiring such testing, unless substitute equipment is *approved* by the *building official*. Reports of preconstruction tests shall be submitted to the *building official* as specified in Section 1704A.5.

...

1908A.7 Joints. Except where permitted herein, unfinished work shall not be allowed to stand for more than 30 minutes unless edges are sloped to a thin edge. For structural elements that will be under compression and for construction joints shown on the approved construction documents, square joints are permitted. Before placing additional material adjacent to previously applied work, sloping and square edges shall be cleaned and wetted.

The film of laitance which forms on the surface of the shotcrete shall be removed within approximately two hours after application by brushing with a stiff broom. If this film is not removed within two hours, it shall be removed by thorough wire brushing or sand blasting. Construction joints over eight hours old shall be thoroughly cleaned with air and water prior to receiving shotcrete.

...

1908A.10 Strength tests. Strength tests for shotcrete shall be made *in accordance with ASTM C1604 standards* by an approved agency on specimens that are representative of the work and which have been water soaked for at least 24 hours prior to testing. When the maximum-size aggregate is larger than $\frac{3}{8}$ inch (9.5 mm), specimens shall consist of not less than three 3-inch-diameter (76 mm) cores or 3-inch (76 mm) cubes. When the maximum-size aggregate is $\frac{3}{8}$ inch (9.5 mm) or smaller, specimens shall consist of not less than 2-inch-diameter (51 mm) cores or 2-inch (51 mm) cubes.

1908A.10.1 Sampling. Specimens shall be taken from the in-place work or from test panels, and shall be taken at least once each shift, but not less than one for each 50 cubic yards (38.2 m³) of shotcrete.

1908A.10.2 Panel criteria. When the maximum-size aggregate is larger than $\frac{3}{8}$ inch (9.5 mm), the test panels shall have minimum dimensions of 18 inches by 18 inches (457 mm by 457 mm). When the maximum-size aggregate is $\frac{3}{8}$ inch (9.5 mm) or smaller, the test panels shall have minimum dimensions of 12 inches by 12 inches (305 mm by 305 mm). Panels shall be shot in the same position as the work, during the course of the work and by the nozzlemen doing the work. The conditions under which the panels are cured shall be the same as the work. *Approval from the enforcement agency shall be obtained prior to performing the test panel method.*

...

1908A.11 ~~1910A.11~~ Forms and Ground Wires for Shotcrete. Forms for shotcrete shall be substantial and rigid. Forms shall be built and placed so as to permit the escape of air and rebound.

Adequate ground wires, which are to be used as screeds, shall be placed to establish the thickness, surface planes and form of the shotcrete work. All surfaces shall be rodded to these wires.

1908A.12 ~~1910A.12~~ Placing. Shotcrete shall be placed in accordance with ACI 506.

~~Repealed in Section 2911A~~ **SECTION 1911A**
-REINFORCED GYPSUM CONCRETE

1911A.1 General. Reinforced gypsum concrete shall comply with the requirements of ASTM C 317 and ASTM C 956. ~~Reinforced gypsum concrete shall be considered as an alternative system.~~

...

~~Amendments in the CBC 2013 Sections 1909A and 1909A are deleted except those relocated as noted below. Since model code deleted those sections:~~

~~Relocated to Section 1616A.1.20~~ **1908A.1.1 Power actuated fasteners.** Power actuated fasteners qualified in accordance with ICC-ES AC 70 shall be deemed to satisfy the requirements of this section.

~~Power actuated fasteners shall be permitted in seismic shear for components exempt from permit requirements by Section 1616A.1.18 of this code and for interior nonbearing non-shear wall partitions. Power actuated fastener shall not be used to anchor exterior cladding or curtain wall systems.~~

...

~~Relocated to Section 1616A.1.19~~ **1909A.1.1 Specialty inserts.** Specialty inserts, including cast-in-place specialty inserts, tested in accordance with ICC-ES AC 193 shall be deemed to satisfy the requirements of this section.

...

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SECTION 1909A
RESERVED

...

SECTION 1910A 1913A
CONCRETE, REINFORCEMENT AND ANCHOR TESTING

1910A.1 1913A.1 Cementitious material. The concrete supplier shall furnish to the enforcement agency certification that the cement proposed for use on the project has been manufactured and tested in compliance with the requirements of ASTM C 150 for portland cement and ASTM C 595 or ASTM C 1157

for blended hydraulic cement, whichever is applicable. When a mineral admixture or ground granulated blast-furnace slag is proposed for use, the concrete supplier shall furnish to the enforcement agency certification that they have been manufactured and tested in compliance with ASTM C 618 or ASTM C 989, whichever is applicable. The concrete producer shall provide copies of the cementitious material supplier's Certificate of Compliance that represents the materials used by date of shipment for concrete. Cementitious materials without Certification of Compliance shall not be used.

1910A.2 1913A.2 Tests of reinforcing bars. ~~Where s~~Samples shall be taken from bundles as delivered from the mill, with the bundles identified as to heat number and ~~provided the accompanying mill certificate. analyses accompany the report.~~ One tensile test and one bend test shall be made from a sample specimen from each 10 tons (9080 kg) or fraction thereof of each size of reinforcing steel.

Where positive identification of the heat number cannot be made or where random samples are to be taken, one series of tests shall be made from each 2 1/2 tons (2270 kg) or fraction thereof of each size of reinforcing steel.

Tests of reinforcing bars may be waived by the structural engineer with the approval of the Building Official for one-story buildings or non-building structures provided they are identified in the construction documents and certified mill test reports are provided to the inspector of record for each shipment of such reinforcement.

1910A.3 1913A.3 Tests for prestressing steel and anchorage. All wires or bars of each size from each mill heat and all strands from each manufactured reel to be shipped to the site shall be assigned an individual lot number and shall be tagged in such a manner that each lot can be accurately identified at the jobsite. Each lot of tendon and anchorage assemblies and bar couplers to be installed shall be likewise identified.

The following samples of materials and tendons selected by the engineer or the designated testing laboratory from the prestressing steel at the plant or jobsite shall be furnished by the contractor and tested by an approved independent testing agency:

1. For wire, strand or bars, 7-foot-long (2134 mm) samples shall be taken of the coil of wire or strand reel or rods. A minimum of one random sample per 5,000 pounds (2270 kg) of each heat or lot used on the job shall be selected.
2. For prefabricated prestressing tendons other than bars, one completely fabricated tendon 10 feet (3048 mm) in length between grips with anchorage assembly at one end shall be furnished for each size and type of tendon and anchorage assembly.

Variations of the bearing plate size need not be considered.

The anchorages of unbonded tendons shall develop at least 95 percent of the minimum specified ultimate strength of the pre-stressing steel. The total elongation of the tendon under ultimate load shall not be less than 2 percent measured in a minimum gage length of 10 feet (3048 mm).

Anchorages of bonded tendons shall develop at least 90 percent of the minimum specified strength of the prestressing steel tested in an unbonded state. All couplings shall develop at least 95 percent of the minimum specified strength of the prestressing steel and shall not reduce the elongation at rupture below the requirements of the tendon itself.

3. If the prestressing tendon is a bar, one 7-foot (2134 mm) length complete with one end anchorage shall be furnished and, in addition, if couplers are to be used with the bar, two 4-foot (1219 mm) lengths of bar fabricated to fit and equipped with one coupler shall be furnished.
4. Mill tests of materials used for end anchorages shall be furnished. In addition, at least one Brinnell hardness test shall be made of each thickness of bearing plate.

1910A.4 1913A.4 Composite construction cores. Cores of the completed composite concrete construction shall be taken to demonstrate the shear strength along the contact surfaces. The cores shall be tested when the cast-in-place concrete is approximately 28 days old and shall be tested by a shear loading parallel to the joint between the precast concrete and the cast-in-place concrete. The minimum unit shear strength of the contact surface area of the core shall not be less than 100 psi (689 kPa).

At least one core shall be taken from each building for each 5,000 square feet (465m²) of area of composite concrete construction and not less than three cores shall be taken from each project. The architect or structural engineer in responsible charge of the project or his or her representative shall designate the location for sampling.

~~1913A.5 Tests of shotcrete.~~ Testing of shotcrete shall follow the provisions of Section 1910A and the general requirements of ACI 318 Section 5.6.

~~1913A.6 Gypsum field tests.~~ Field tests shall be made during construction to verify gypsum strength. One sample consisting of three specimens shall be made for each 5,000 square feet (465 m²) or fraction thereof of all gypsum poured, but not less than one sample shall be taken from each half day's pour.

1910A.5 1913A.7 Tests for Post-Installed Anchors in Concrete. When post-installed anchors are used in lieu of cast-in place bolts, the installation verification test loads, frequency, and acceptance criteria shall be in accordance with this section.

1910A.5.1 1913A.7.1 General. Test loads or torques and acceptance criteria shall be shown on the construction documents.

If any anchor fails testing, all anchors of the same type shall be tested, which are installed by the same trade, not previously tested until twenty (20) consecutive anchors pass, then resume the initial test frequency.

1910A.5.2 1913A.7.5 Testing Procedure. The test procedure shall be as permitted by an approved test evaluation report using criteria adopted in this code. All other post-installed anchors shall be tension tested.

Exception [DSA-SS]: Torque controlled post installed anchors and screw type anchors shall be permitted to be tested using torque based on an approved test report using criteria adopted in this code.

Alternatively, the Manufacturer's recommendation for testing may be approved by the enforcement agency based on an approved test report using criteria adopted in this code.

1910A.5.3 1913A.7.3 Test Frequency. When post-installed anchors are used for sill plate bolting applications, 10 percent of the anchors shall be tested.

When post-installed anchors are used for other structural applications, all such anchors shall be tested.

When post-installed anchors are used for nonstructural applications such as equipment anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tested.

The testing of the post-installed anchors shall be done in the presence of the special inspector and a report of the test results shall be submitted to the enforcement agency.

Exceptions:

1. *Undercut anchors that allow visual confirmation of full set shall not require testing.*
2. *Where the factored design tension on anchors is less than 100 lbs. and those anchors are clearly noted on the approved construction documents, only 10 percent of those anchors shall be tested.*
3. *Where adhesive anchor systems are used to install reinforcing dowel bars in hardened concrete, only 25% of the dowels shall be tested if all of the following conditions are met:*
 - a. *The dowels are used exclusively to transmit shear forces across joints between existing and new concrete.*
 - b. *The number of dowels in any one member equals or exceeds 12.*
 - c. *The dowels are uniformly distributed across seismic force resisting members (such as shear walls, collectors and diaphragms).*

Anchors to be tested shall be selected at random by the special inspector/Inspector Of Record (IOR).

4. *Testing of shear dowels across cold joints in slabs on grade, where the slab is not part of the lateral force-resisting system shall not be required.*
5. *Testing is not required for power actuated fasteners used to attach tracks of interior non-shear wall partitions for shear only, where there are at least three fasteners per segment of track.*

1910A.5.4 1943A.7.2 Test Loads. *Required test loads shall be determined by one of the following methods:*

1. *Twice the maximum allowable tension load or one and a quarter (1- 1/4) times the maximum design strength of anchors as provided in an approved test report using criteria adopted in this code or determined in accordance with Chapter 17 Appendix D of ACI 318.*

Tension test load need not exceed 80% of the nominal yield strength of the anchor element ($= 0.8 A_{se} f_{ya}$).

2. *The manufacturer's recommended installation torque based on an approved test report using criteria adopted in this code.*

1910A.5.5 1943A.7.4 Test Acceptance Criteria. *Acceptance criteria for post-installed anchors shall be based on an approved test report using criteria adopted in this code. Field tests shall satisfy the following minimum requirements.*

1. Hydraulic Ram Method:

Anchors tested with a hydraulic jack or spring loaded devices apparatus shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.

For adhesive anchors, where other than bond is being tested, the testing apparatus support device shall not be located within 1.5 times the anchor's embedment depth to avoid restricting the concrete shear cone type failure mechanism from occurring.

2. Torque Wrench Method:

Torque controlled post installed A anchors tested with a calibrated torque wrench shall must attain the specified torque within ½ turn of the nut; or one-quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.

Exceptions: _____

a. Wedge or Sleeve type: _____

One-quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.

b. [DSA-SS] Screw Threaded T type: anchors tested with a calibrated torque wrench shall attain the specified torque within One-quarter (1/4) turn of the screw after initial seating of the screw head.

SECTION 1911A 1914A
EXISTING CONCRETE STRUCTURES

1911A.1 1914A.1 Existing Concrete Structures.

The structural use of existing concrete with a core strength less than 1,500 psi (10.3MPa) is not permitted in rehabilitation work.

For existing concrete structures, sufficient cores shall be taken at representative locations throughout the structure, as designated by the architect or structural engineer, so that knowledge will be had of the in-place strength of the concrete. At least three cores shall be taken from each building for each 4,000 square feet (372 m2) of floor area, or fraction thereof. Cores shall be at least 4 inches (102 mm) in diameter. Cores as small as 2.75 inches (70 mm) in diameter may be allowed by the enforcement agency when reinforcement is closely spaced and the coarse aggregate does not exceed 3/4 inch (19 mm).

1911A.2 1914A.2 Crack Repair by Epoxy Injection. Crack Repair of concrete and masonry member by epoxy injection shall conform to all requirements of ACI 503.7.

1911A.3 1914A.3 Concrete Strengthening by Externally Bonded Fiber Reinforced Polymer (FRP). Design and construction of externally bonded FRP systems for strengthening concrete structures shall be in accordance with ACI 440.2R.

Exceptions: 1) Near-Surface Mounted (NSM) FRP bars shall not be permitted.
2) Strengthening of shear walls and diaphragms (including chords and collectors)

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter			
Adopt entire chapter as amended	X	X	
Adopt only those sections listed below			
PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments

shall be considered as an alternative system.

Design capacities, reliability, serviceability of FRP materials shall be permitted to be established in accordance with ICC-ES AC 125. Minimum inspection requirements of FRP composite systems shall be in accordance with ICC-ES AC 178.

~~All existing amendments that are not revised above shall continue without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

CHAPTER 20

ALUMINUM

Adopt and/or codify chapter as amended below:

Adopt entire chapter			
Adopt entire chapter as amended	X	X	
Adopt only those sections listed below			

~~All existing California amendments that are not based on the 2015 International Building Code shall remain.~~

SECTION 2001 GENERAL

2001.1 Scope. This chapter shall govern the quality, design, fabrication and erection of aluminum.

SECTION 2002 MATERIALS

2002.1 General. Aluminum used for structural purposes in buildings and structures shall comply with AA ASM 35 and AA ADM 1. The nominal loads shall be the minimum design loads required by Chapter 16.

SECTION 2003 - INSPECTION

2003.1 Inspection. *[DSA –SS & DSA –SS/CC]* Inspection of Aluminum shall be required in accordance with the requirements for steel in Chapter 17A.

~~All existing amendments are continued without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 21

MASONRY

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	-	X	
Adopt only those sections listed below			
2101.1.1		X	
2101.1.2		X	
2101.1.3		X	
2101.1.4		X	
2114		X	
2114.1		X	
2114.2		X	
2114.3		X	
2114.4		X	
2114.5		X	
2114.6.1		X	
2114.7		X	
2114.8		X	
2114.9.1		X	
2114.9.2.1		X	
2114.9.3		X	
2114.10		X	
2114.11.1		X	
2114.11.2		X	
2114.12		X	
2114.13		X	
2114.14		X	

All existing California amendments that are not revised below shall continue without change.

SECTION 2101

GENERAL

2101.1 Scope. This chapter shall govern the materials, design, construction and quality of masonry.

2101.1.1 Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC)

Community college buildings regulated by the Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC) as listed in Section 1.9.2.2.

2101.1.2 Amendments in this chapter. DSA-SS/CC adopts this chapter and all amendments.

Exception: *Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC) amendments appear in this chapter preceded with the appropriate acronym, as follows:*

[DSA-SS/CC] - *For community college buildings listed in Section 1.9.2.2.*

2101.1.3 Reference to other chapters. [DSA-SS/CC] *Where reference within this chapter is made to sections in Chapters 17 and 18, the provisions in Chapters 17A and 18A respectively shall apply instead.*

2101.1.4 Amendments. [DSA-SS/CC] *See Section 2114 for additional requirements.*

...

SECTION 2114

ADDITIONAL REQUIREMENTS FOR COMMUNITY COLLEGES [DSA-SS/CC]

2114.1 General. *In addition to the provisions of this chapter, the following requirements shall apply to community college buildings regulated by the Division of the State Architect- Structural Safety/Community Colleges (DSA-SS/CC).*

2114.1.1 Prohibitions. *The following design, systems and materials are not permitted by DSA:*

- 1. Unreinforced masonry*
- 2. Autoclaved aerated concrete (AAC) masonry*
- 3. Empirical design of masonry*
- 4. Ordinary reinforced masonry shear walls*
- 5. Intermediate reinforced masonry shear walls*
- 6. Prestressed masonry shear walls*
- 7. Direct design of masonry*

2114.2 Mortar. *Type S mortar conforming to ASTM C 270 shall be used for glass unit masonry.*

2114.3 Additives and Admixtures.

2114.3.1 General. ~~Additives and admixtures to mortar or grout shall not be used unless approved by the enforcement agency.~~

2114.3.2 Antifreeze compounds. ~~Antifreeze liquids, chloride salts or other such substances shall not be used in mortar or grout.~~

2114.2 2114.3.3 Air entrainment. ~~Air-entraining substances shall not be used in mortar or grout unless tests are conducted to determine compliance with the requirements of this code.~~

2114.4 Tolerances. ~~The maximum thickness of the initial bed joint in fully grouted masonry walls shall not exceed 1 1/4 in. (31.7 mm).~~

2114.5 Glass unit masonry. ~~All mortar for glass unit masonry contact surfaces shall be treated to ensure adhesion between mortar and glass.~~

2114.3 2114.6 Grouted masonry.

2114.3.1 2114.6.1 General conditions. Prior to grouting, the grout space shall be clean so that all spaces to be filled with grout do not contain mortar projections greater than 1/4 inch (6.4 mm), mortar droppings and other foreign material.

All cells shall be solidly filled with grout, ~~except as provided in Section 2114.14.~~

Exception: ~~Reinforced hollow-unit masonry laid in running bond used for freestanding site walls fences and or interior nonbearing non-shear wall partitions may be of hollow-unit masonry construction grouted only in cells containing vertical and horizontal reinforcement.~~

Reinforcement and embedded items shall be clean, properly positioned and securely anchored against moving prior to grouting. Bolts shall be accurately set with templates or by approved equivalent means and held in place to prevent dislocation during grouting. Reinforcement, embedded items and bolts shall be solidly embedded in grout. Anchor bolts in the face shells of hollow masonry units shall be positioned to maintain a minimum of 1/2 inch of grout between the bolt and the face shell.

The grouting of any section of wall shall be completed in one day with no interruptions greater than one hour. At the time of laying, all masonry units shall be free of dust and dirt.

Grout pours greater than 12 inches (300 mm) in height shall be consolidated by mechanical vibration during placement to fill the grout space before loss of plasticity, and reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours less than 12 inches in height may be puddled.

Between grout pours or where grouting has been stopped more than an hour, a horizontal construction joint shall be formed by stopping all wythes at the same elevation and with the grout stopping a minimum of 1 1/2 inches (38 mm) below a mortar joint, except at the top of the wall. Where bond beams occur, the grout pour shall be stopped a minimum of 1/2 inch (12.7 mm) below the top of the masonry.

The construction documents shall completely describe grouting procedures, subject to approval of DSA.

2114.4 2114.7 Aluminum equipment. Grout shall not be handled nor pumped utilizing aluminum equipment unless it can be demonstrated with the materials and equipment to be used that there will be no deleterious effect on the strength of the grout.

2114.5 2114.8 Specified compressive strength. The specified compressive strength, f'_m , assumed in design shall be not less than ~~2,000~~ 4,500 psi (10.34 MPa) for all masonry construction using materials and details of construction required herein. Testing of the constructed masonry shall be provided in accordance with Section ~~2114.6.2~~ 2114.9.3.

In no case shall the f'_m assumed in design exceed 3,000 psi (20.68 MPa).

2114.6 2114.9 Additional testing requirements.

2114.6.1 2114.9.1 Mortar and grout tests. At the beginning of all masonry work, at least one test sample of the mortar and grout shall be taken on three successive working days and at least at one-week intervals thereafter. Where mortar is based on a proportion specification, mortar shall be sampled and tested during construction in accordance with ASTM C780 Annex 4 and 5 to verify the proportions specified in ASTM C270, Table 2. Where mortar is based on a property specification, mortar shall be laboratory prepared and tested prior to construction in accordance with ASTM C780 to verify the properties specified in ASTM C270, Table 1 and field sampled and tested during construction in accordance with ASTM C780 to verify the proportions with the laboratory tests. Mortar sampling and testing is not required for approved preblended mortars in conformance with ASTM C270.

Samples of grout shall be taken for each mix design, each day grout is placed, and not less than every 5,000 square feet of masonry wall area. The grout They shall meet the minimum strength requirement given in ASTM C476/TMS 602 Section 2.2. Sections 2103A.9 and 2103A.13 for mortar and grout, respectively. Test specimens for mortar and grout shall be made as set forth in ASTM C 1586 and ASTM C 1019.

Additional samples shall be taken whenever any change in materials or job conditions occur, as determined by the building official. ~~or whenever in the judgment of the architect, structural engineer or the enforcement agency such tests are necessary to determine the quality of the material. When the prism test method of Section 2105A.2.2.2 is used during construction, the tests in this section are not required.~~

Exception: For non-bearing non-shear masonry walls not exceeding total wall height of 12' above wall base, mortar test shall be permitted to be limited to those at the beginning of masonry work for each mix design.

2114.9.2 Prism test method.

~~2114.9.2.1 Number of prisms per test. Prior to the start of construction, three prisms shall be constructed and tested in accordance with ASTM C 1314. A set of three masonry prisms shall be built during construction in accordance with ASTM C 1314 for each 5,000 square feet (465 m²) of wall area, but not less than one set of three prisms for the project. Each set of prisms shall equal or exceed f 'm.~~

2114.6.2 2114.9.3 Masonry core testing. Not less than two cores shall be taken from each building for each 5,000 square feet (465 m²) of the greater of the masonry wall area or the floor area or fraction thereof. The architect or structural engineer in responsible charge of the project or his/her representative or the inspector of record shall select the areas for sampling. The inspector of record approved agency shall perform or observe the coring of the masonry walls and sample locations shall be subject to approval of the registered design professional.

Cores samples shall comply with the following:

1. Cored no sooner than 7 days after grouting of the selected area;
2. Be a minimum of 3-3/4" in nominal diameter; and
3. Sampled shall be taken in such a manner as to exclude any masonry unit webs, mortar joint, or and reinforcing steel. If all cells contain reinforcement, alternate core locations or means to detect void or delamination shall be selected by the registered design professional and approved by the building official.

~~If vertical reinforcing steel is placed such that cores will include reinforcing steel, core testing may be waived by the design professional in responsible charge, as approved by the enforcement agency.~~

~~Visual examination of all cores shall be made by an approved agency a laboratory acceptable to the building official and the condition of the cores reported as required by the California Administrative Code. The Shear test shall test both joints between the grout core and the outside wythes or face shell of the masonry. All cores taken shall be tested in shear 28 days after grouting of the sample area using a shear test apparatus acceptable to the enforcement agency. Shear testing apparatus shall be of a design approved by the enforcement agency. Core samples shall not be soaked before testing. Core samples to be tested shall be stored in sealed plastic bags or non-absorbent containers immediately after coring and for at least 5 days prior to testing. The average unit shear value for each pair of cores (4 shear tests) from each 5,000 square feet of wall area (or less) on the cross section of all the cores shall not be less than 2.5 f 'm psi.~~

~~All cores shall be submitted to an approved agency the laboratory, acceptable to the building official, for examination, regardless of whether even where the core specimens failed outside wythe or face shells separated during the cutting operation. The approved agency laboratory shall report the location where each core was taken, the findings of their visual examination of each core, identify which cores were selected for shear testing, and the results of the shear tests.~~

Exceptions:

1. Core sampling and testing is not required for non-bearing non-shear masonry walls, not exceeding total wall height of 12' above wall base, built with single-wythe hollow unit concrete masonry that attaches opposite face shells using webs

cast as single unit, when designed using an f'_m not exceeding 2,000 psi (13.79 MPa).

2. An infrared thermographic survey or other nondestructive test procedures, shall be permitted to be approved as an alternative system to detect voids or delamination in grouted masonry in-lieu of core sampling and testing.

2114.7 2114.10 Modifications to TMS 402/ACI 530/ASCE 5.

2114.7.1 2114.10.1 Modify TMS 402/ACI 530/ASCE 5, Section 7.4.4.1-18 as follows:

1. Minimum reinforcement requirements for masonry walls. The total area of reinforcement in reinforced masonry walls shall not be less than 0.003 times the sectional area of the wall. Neither the horizontal nor the vertical reinforcement shall be less than one third of the total. Horizontal and vertical reinforcement shall be spaced at not more than 24 inches (610 mm) center to center. The minimum reinforcing shall be No. 4, except that No. 3 bars may be used for ties and stirrups. Vertical wall reinforcement shall have dowels of equal size and equal matched spacing in all footings. Reinforcement shall be continuous around wall corners and through intersections. Only reinforcement which is continuous in the wall shall be considered in computing the minimum area of reinforcement. Reinforcement with splices conforming to TMS 402/ACI 530/ASCE 5 as modified by Sections 2107 and 2108 shall be considered as continuous reinforcement.

Horizontal reinforcing ~~ement bars in bond beams~~ shall be provided in the top of footings, at the top of wall openings, at roof and floor levels, and at the top of parapet walls. For walls 12 inches (nominal) (305 mm) or more in thickness, horizontal and vertical reinforcement shall be equally divided into two layers, except where designed as retaining walls. Where reinforcement is added above the minimum requirements, such additional reinforcement need not be so divided.

In bearing walls of every type of reinforced masonry, there shall be trim reinforcement of not less than one No. 5 bar or two No. 4 bars on all sides of, and adjacent to, every opening which exceeds 16 inches (406 mm) in either direction, and such bars shall extend not less than 48 diameters, but in no case less than 24 inches (610 mm) beyond the corners of the opening. The bars required by this paragraph shall be in addition to the minimum reinforcement elsewhere required.

When the reinforcement in bearing walls is designed, placed and anchored in position as for columns, the allowable stresses shall be as for columns.

Joint reinforcement shall not be used as principal reinforcement in masonry ~~designed by the strength design method.~~

2. Minimum reinforcement for masonry columns. The spacing of column ties shall be as follows: not greater than 8 bar diameters, 24 tie diameters, or one half the least dimension of the column for the full column height. Ties shall be at least 3/8 inch (10 mm) in diameter and shall be embedded in grout. Top tie shall be within 2 inches (51 mm) of

the top of the column or of the bottom of the horizontal bar in the supported beam.

3. **Anchor bolts.** Bent bar anchor bolts shall not be allowed. The maximum size anchor shall be 1/2-inch (13 mm) diameter for 6-inch (152 mm) nominal masonry, 3/4-inch (19 mm) diameter for 8-inch (203 mm) nominal masonry, 7/8-inch (22 mm) diameter for 10-inch (254 mm) nominal masonry, and 1-inch (25mm) diameter for 12-inch (304.8 mm) nominal masonry.

2114.8 2114.11 Additional requirements for allowable stress design.

2114.8.1 2114.11.1 TMS 402/ACI 530/ASCE 5 [DSA-SS/CC] Modify by adding Section 8.1.7 2-1.8 as follows:

8.1.7 2-1.8 – Walls and piers.

Thickness of walls. For thickness limitations of walls as specified in this chapter, nominal thickness shall be used. Stresses shall be determined on the basis of the net thickness of the masonry, with consideration for the reduction, such as raked joints.

The thickness of masonry walls shall be designed so that allowable maximum stresses specified in this chapter are not exceeded. Also, no masonry wall shall exceed the height or length-to-thickness ratio or the minimum thickness as specified in this chapter and as set forth in Table 2114.8.1 2114.11.1.

Piers. Every pier or wall section which width is less than three times its thickness shall be designed and constructed as required for columns if such pier is a structural member. Every pier or wall section which width is between three and five times its thickness or less than one half the height of adjacent openings shall have all horizontal steel in the form of ties except that in walls 12 inches (305 mm) or less in thickness such steel may be in the form of hair-pins.

2114.8.2 2114.11.2 TMS 402/ACI 530/ASCE 5, Section 2.1.7.7.1.1, lap splices. Modify the requirements of Section 2107.2.1 by adding the following:

Lap splices need not be greater than 72 bar diameters.

TABLE 2114.8.1 2114.11.1
MINIMUM THICKNESS OF MASONRY WALLS^{1, 2} [DSA-SS/CC]

TYPE OF MASONRY	MAXIMUM RATIO UNSUPPORTED HEIGHT OR LENGTH TO THICKNESS ^{2,3}	NOMINAL MINIMUM THICKNESS (inches)
BEARING OR SHEAR WALLS:		
1. Stone masonry	14	16
2. Reinforced grouted masonry	25	6

3. Reinforced hollow-unit masonry	25	6
NONBEARING WALLS:		
4. Exterior reinforced walls	30	6
5. Interior partitions reinforced	36	4

For walls of varying thickness, use the least thickness when determining the height or length to thickness ratio.

2. In determining the height or length-to-thickness ratio of a cantilevered wall, the dimension to be used shall be twice the dimension of the end of the wall from the lateral support.

3. Cantilevered walls not part of a building and not carrying applied vertical loads need not meet these minimum requirements but their design must comply with stress and overturning requirements

2114.9 2114.12 Glass unit masonry construction. Masonry of glass blocks walls or panels shall be designed for seismic forces. ~~permitted in non-load-bearing exterior or interior walls and shall conform to the requirements of Section 2115A. Stresses in glass block shall not be utilized. Glass block may be solid or hollow and may contain inserts.~~

2114.13 Nonbearing walls. All nonbearing masonry walls shall be reinforced as specified in Section 2114.10.1.1. Fences and interior nonbearing nonshear walls may be of hollow-unit masonry construction grouted in cells containing vertical and horizontal reinforcement. Nonbearing walls may be used to carry a superimposed load of not more than 200 pounds per linear foot (2.92 kN/m).

1. **Thickness.** Every nonbearing masonry wall shall be so constructed and have a sufficient thickness to withstand all vertical loads and horizontal loads, but in no case shall the thickness of such walls be less than the values set forth in Table 2114.11.1. Plaster shall not be considered as contributing to the thickness of a wall in computing the height-to-thickness ratio.

2. **Anchorage.** All nonbearing walls shall be anchored as required by Section 1604.8.2 and ASCE 7 Chapter 13. Suspended ceilings or other nonstructural elements shall not be used to provide anchorage for masonry walls.

2114.14 Masonry screen walls. Masonry units may be used in nonbearing decorative screen walls. Units may be laid up in panels with units on edge with the open pattern of the unit exposed in the completed wall.

1. **Horizontal forces.** The panels shall be capable of spanning between supports to resist the horizontal forces specified in Chapter 16. Wind loads shall be based on gross projected area of the block.

2. **Mortar joints.** Horizontal and vertical joints shall not be less than 1/4 inch (6 mm) thick. All joints shall be completely filled with mortar and shall be "shove joint" work. The units of a panel shall be so arranged that either the horizontal or the vertical joint containing reinforcing is continuous without offset. This continuous joint shall be reinforced with a minimum of 0.03 square inch (19 mm²) of reinforcing steel and maximum spacing of 16 in. on center. Reinforcement may be embedded in mortar.

~~3. **Reinforcement.** Joint reinforcement may be composed of two wires made with welded ladder or trussed wire cross ties. In calculating the resisting capacity of the system, compression and tension in the spaced wires may be utilized. Ladder wire reinforcement shall not be spliced and shall be the widest that the mortar joint will accommodate, allowing 1/2 inch (13 mm) of mortar cover.~~

~~4. **Size of panels.** The maximum size of panels shall be 144 square feet (13.4 m²), with the maximum dimension in either direction of 15 feet (4572 mm). The specified thickness of the units for exterior applications shall not be less than 37/8 in.~~

~~5. **Panel support.** Each panel shall be supported on all edges by a structural member of concrete, masonry or steel. Supports at the top and ends of the panel shall be by means of confinement of the masonry by at least 1 inch (25 mm) into and between the flanges of a steel channel. The space between the end of the panel and the web of the channel shall be filled with resilient material. The use of equivalent configuration in other steel section or in masonry or concrete is acceptable.~~

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 21A

MASONRY

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter			
Adopt entire chapter as amended	X	-	
Adopt only those sections listed below			

~~All existing California amendments that are not revised below shall continue without change.~~

SECTION 2101A

GENERAL

2101A.1 Scope. This chapter shall govern the materials, design, construction and quality of masonry.

2101A.1.1 Application. The scope of application of Chapter 21A is as follows:

1. Applications listed in Section 1.9.2.1 regulated by the Division of the State Architect-Structural Safety (DSASS). These applications include public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings.

2. ~~Reserved for DS/PO.~~

2101A.1.2 Amendments in this chapter. DSA-SS adopt this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. Division of the State Architect-Structural Safety:
[DSA-SS] For applications listed in Section 1.9.2.1.

2. ~~Reserved for DS/PO.~~

2101A.1.3 Prohibition: The following design methods, systems, and materials are not permitted by DSA-SS:

1. Unreinforced Masonry.
2. Autoclaved Aerated Concrete (AAC) Masonry.
3. Empirical Design of Masonry.
4. Adobe Construction.
5. Ordinary Reinforced Masonry Shear Walls.
6. Intermediate Reinforced Masonry Shear Walls.
7. Prestressed Masonry Shear Walls.
8. Direct Design of Masonry.

...

2101A.2 Design methods. Masonry shall comply with the provisions of TMS402/ACI 530/ASCE 5 or ~~TMS 403~~ as well as applicable requirements of this chapter.

...

SECTION 2102A
DEFINITIONS AND NOTATIONS

2102A.1 General. The following terms are defined in Chapter 2, except those defined below which shall, for the purposes of this chapter, have the meanings shown herein:

...

WALL. ...

....

Hollow-unit Masonry Wall. Type of construction made with hollow masonry units in which the units are laid and set in mortar, reinforced, and grouted, ~~solid, except as provided in Section 2114A.~~

...

SECTION 2103A
MASONRY CONSTRUCTION MATERIALS

2103A.1 Masonry units. Concrete masonry units, clay or shale masonry units, and glass unit masonry and AAC masonry units shall comply with Article 2.3 of TMS 602/ACI 530.1/ASCE 6. Architectural cast stone shall conform to ASTM C 1364.

...

2103A.3 Grout. Grout shall comply with Article 2.2 of TMS 602/ACI 530.1/ASCE 6.

~~**2103A.13.1 Water.** Water content shall be adjusted to provide proper workability and to enable proper placement under existing field conditions, without segregation.~~

~~**2103A.13.2 Selecting Proportions.** Proportions of ingredients and any additives shall be based on laboratory or field experience with the grout ingredients and the masonry units to be used. Coarse grout proportioned by weight shall contain not less than 564 pounds of cementitious material per cubic yard (335 kg / m³).~~

2103A.3.1 ~~2103A.13.3~~ Aggregate. Coarse grout shall be used in grout spaces between wythes of 2 inches (51 mm) or more in width as determined in accordance with TMS 602 Table 7, footnote 3, and in all grouted filled-cells of hollow unit masonry construction.

...

2103A.15 Additives and Admixtures.

2103A.15.1 General. ~~Additives and admixtures to mortar or grout shall not be used unless approved by the enforcement agency.~~

2103A.15.2 Antifreeze compounds. ~~Antifreeze liquids, chloride salts or other such substances shall not be used in mortar or grout.~~

2103A.5 ~~2103A.15.3~~ Air entrainment. Air-entraining substances shall not be used in mortar or grout unless tests are conducted to determine compliance with the requirements of this code.

**SECTION 2104A
CONSTRUCTION**

2104A.1 Masonry construction. Masonry construction shall comply with the requirements of Sections 2104A.1.1 and ~~2104A.1.2~~ through 2104A.1.3 and with TMS 602/ACI 530.1/ASCE 6.

...

2104A.1.3 ~~2104A.5~~ Grouted Masonry.

2104A.1.3.1 ~~2104A.5.1~~ General conditions. Grouted masonry shall be constructed in such a manner that all elements of the masonry act together as a structural element. At the time of laying, all masonry units shall be free of dust and dirt. Prior to grouting, the grout space shall be clean so that all spaces to be filled with grout do not contain mortar projections greater than 1/4 inch (6.4 mm), mortar droppings and other foreign material. Grout shall be placed so that all spaces to be grouted do not contain voids.

Grout materials and water content shall be controlled to provide adequate fluidity for placement without segregation of the constituents, and shall be mixed thoroughly. Segregation of the grout materials and damage to the masonry shall be avoided during the grouting process.

Reinforcement and embedded items shall be clean, properly positioned and securely anchored against movement prior to grouting. Bolts shall be accurately set with templates or by approved equivalent means and held in place to prevent dislocation during grouting. Reinforcement, embedded items and bolts shall be solidly embedded in grout. Anchor bolts in the face shells of hollow masonry units shall be positioned to maintain a minimum of ½ in. of grout between the bolt and the face shell.

The grouting of any section of wall shall be completed in one day with no interruptions greater than one hour.

Grout pours greater than 12 inches (300 mm) in height shall be consolidated by mechanical vibration during placement before loss of plasticity in a manner to fill the grout space, and reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours less than 12 inches in height may be puddled.

Between grout pours or where grouting has been stopped more than an hour, a horizontal construction joint shall be formed by stopping all wythes at the same elevation and with the grout stopping a minimum of 1 1/2 inches (38 mm) below a mortar joint, except at the top of the wall. Where bond beams occur, the grout pour shall be stopped a minimum of 1/2 inch (12.7 mm) below the top of the masonry.

Grout shall not be handled nor pumped utilizing aluminum equipment unless it can be demonstrated with the materials and equipment to be used that there will be no deleterious effect on the strength of the grout.

2104A.1.3.1.1 ~~2104A.5.1.1~~ Reinforced grouted masonry.

2104A.1.3.1.1.1 ~~2104A.5.1.1.1~~ General. Reinforced grouted masonry is that form of construction made with clay or shale brick or made with solid concrete building brick in which interior joints of masonry are filled by pouring grout around reinforcement therein as the work progresses.

2104A.1.3.1.1.1.1 ~~2104A.5.1.1.1.1~~ Low-lift grouted construction. Requirements for construction shall be as follows:

1. All units in the two outer wythes shall be laid with full-shoved head joint and bed mortar joints. Masonry headers shall not project into the grout space.
2. The minimum grout space for low-lift grout masonry shall be 2 1/2 inches (64 mm). All reinforcement and wire ties shall be embedded in the grout. The thickness of the grout between masonry units and reinforcement shall be a minimum of one bar diameter.
3. One tier of a grouted reinforced masonry wall may be carried up 12 inches (305 mm) before grouting, but the other tier shall be laid up and grouted in lifts not to exceed one masonry unit in height. All grout shall be puddled with a mechanical vibrator or wood stick immediately after placing so as to completely fill all voids and to consolidate the grout. All vertical and horizontal steel shall be held firmly in place by a frame or suitable devices.
4. Toothing of masonry walls is prohibited. Racking is to be held to a minimum.

2104A.1.3.1.1.1.2 ~~2104A.5.1.1.1.2~~ High-lift grouted construction. Where high-lift grouting is used, the method shall be subject to the approval of the enforcement agency. Requirements for construction shall be as follows:

1. All units in the two wythes shall be laid with full head and bed mortar joints.
2. The two wythes shall be bonded together with wall ties. Ties shall not be less than No. 9 wire in the form of rectangles 4 inches (102 mm) wide and 2 inches (51 mm) in length less than the overall wall thickness. Kinks, water drips, or deformations shall not be permitted in the ties. One tier of the wall shall be built up not more than 16 inches (406 mm) ahead of the other tier. Ties shall be laid not to exceed 24 inches (610 mm) on center horizontally and 16 inches (406 mm) on center

vertically for running bond, and not more than 24 inches (610 mm) on center horizontally and 12 inches (305 mm) on center vertically for stack bond.

- 3. Cleanouts shall be provided for each pour by leaving out every other unit in the bottom tier of the section being poured or by cleanout openings in the foundation. The foundation or other horizontal construction joints shall be cleaned of all loose material and mortar droppings before each pour. The cleanouts shall be sealed after inspection and before grouting.*
- 4. The grout space in high-lift grouted masonry shall be a minimum of 3 1/2 inches (89 mm). All reinforcement and wire ties shall be embedded in the grout. The thickness of the grout between masonry units and reinforcement shall be a minimum of one bar diameter.*
- 5. Vertical grout barriers or dams of solid masonry shall be built across the grout space the entire height of the wall to control the flow of the grout horizontally. Grout barriers shall not more than 30 feet (9144 mm) apart.*
- 6. An approved admixture of a type that reduces early water loss and produces an expansive action shall be used in high-lift grout.*
- 7. Grouting shall be done in a continuous pour in lifts not exceeding 4 feet (1219 mm). Grout shall be consolidated by mechanical vibration only, and shall be reconsolidated after excess moisture has been absorbed, but before plasticity is lost. The grouting of any section of a wall between control barriers shall be completed in one day, with no interruptions greater than one hour.*

2104A.1.3.1.2 ~~2104A.5.1.2~~ Reinforced hollow-unit masonry.

2104A.1.3.1.2.1 ~~2104A.5.1.2.1~~ General. Reinforced hollow-unit masonry is that type of construction made with hollow-masonry units in which cells are continuously filled with grout, and in which reinforcement is embedded. All cells shall be solidly filled with grout in reinforced hollow-unit masonry, ~~except as provided in Section 2114A.1.~~

Exception: ~~Repealed from 2013 CBC 21144.1)~~ Reinforced hollow-unit masonry laid in running bond used for freestanding site walls fences and or interior nonbearing non-shear wall partitions may be of hollow-unit masonry construction grouted only in cells containing vertical and horizontal reinforcement.

Construction shall be one of the two following methods: The low-lift method where the maximum height of construction laid before grouting is 4 feet (1220 mm), or the high-lift method where the full height of construction between horizontal cold joints is grouted in one operation. General requirements for construction shall be as follows:

1. Bond shall be provided by lapping units in successive vertical courses. Where stack bond is used in reinforced hollow-unit masonry, the open-end type of unit shall be used with vertical reinforcement spaced a maximum of 16 inches (406 mm) on center.
2. Vertical cells to be filled shall have vertical alignment sufficient to maintain a clear grout space dimension ~~unobstructed, continuous vertical cell measuring of~~ not less than 2 inches by 3 inches (51 mm by 76 mm), except the minimum cell dimension for high-lift grout shall be 3 inches (76 mm), as determined in accordance with TMS 602 Table 7, footnote 3.
3. Grout shall be a workable mix suitable for placing without segregation and shall be thoroughly mixed. Grout shall be placed by pumping or an approved alternate method and shall be placed before initial set or hardening occurs. Grout shall be consolidated by mechanical vibration during placing and reconsolidated after excess moisture has been absorbed, but before workability is lost.
4. All reinforcement and wire ties shall be embedded in the grout. The space between masonry unit surfaces and reinforcement shall be a minimum of one bar diameter.
5. Horizontal reinforcement shall be placed in bond beam units with a minimum grout cover of 1 inch (25 mm) above steel for each grout pour. The depth of the bond beam channel below the top of the unit shall be a minimum of 1 1/2 inches (38 mm) and the width shall be 3 inches (76 mm) minimum.

2104A.1.3.1.2.2 ~~2104A.5.1.2.2~~ Low-lift grouted construction. Units shall be laid a maximum of 4 feet (1220 mm) before grouting. Grouting shall follow each 4 feet (1220 mm) of construction laid and shall be consolidated so as to completely fill all voids and embed all reinforcing steel. Horizontal reinforcement shall be fully embedded in grout in an uninterrupted pour.

2104A.1.3.1.2.3 ~~2104A.5.1.2.3~~ High-lift grouted construction. Where high-lift grouting is used, the method shall be approved by the enforcement agency. Cleanout openings shall be provided in every cell at the bottom of each pour of grout. Alternatively, if the course at the bottom of the pour is constructed entirely of inverted double open-end bond beam units, cleanout openings need only be provided for access to every reinforced cell at the bottom of each pour of grout. The cleanouts shall be sealed before grouting. An approved admixture that reduces early water loss and produces an expansive action shall be used in the grout.

SECTION 2105A QUALITY ASSURANCE

...

2105A.2 Compressive Strength, f'_m The specified compressive strength, f'_m , assumed in design shall be 2,000 psi (13.79 MPa) ~~4,500 psi (10.34 MPa)~~ for all masonry construction using materials and details of construction required herein. Testing of the constructed masonry shall be provided in accordance with Section 2105A.4 ~~2105A.5~~ **[DSA-SS]**.

Exception: [DSA-SS] Subject to the approval of the enforcement agency, higher values of f'_m may be used in the design of reinforced grouted masonry and reinforced hollow-unit masonry. The approval shall be based on prism test results submitted by the architect or engineer which demonstrate the ability of the proposed construction to meet prescribed performance criteria for strength and stiffness. The design shall take into account the mortar joint depth. In no case shall the f'_m assumed in design exceed 3,000 psi (20.7 MPa).

Where an f'_m greater than 2,000 psi (13.79 MPa) ~~4,500 psi (10.34 MPa)~~ is approved, the architect or structural engineer shall establish a method of quality control of the masonry construction acceptable to the enforcement agency which shall be described in the contract specifications. Compliance with the requirements for the specified compressive strength of constructed masonry f'_m shall be provided using prism test method in accordance with Section 2105A.2.2.1 or 2105A.2.2.2 and core shear testing in accordance with Section 2105A.4. Substantiation for the specified compressive strength

prior to the start of construction shall be obtained by using prism test method in accordance with Section 2105A.2.2.2.2 and Section 2105A.3. Testing of the constructed masonry shall be provided in accordance with Section 2105A.5.

2105A.3 ~~2105A.2.2.1.4~~ Mortar and grout tests. These tests are to establish whether the masonry components meet the specified component strengths.

At the beginning of all masonry work, at least one test sample of the mortar ~~and grout~~ shall be taken on three successive working days and at least at one-week intervals thereafter. Samples of grout shall be taken for each mix design, each day grout is placed, and not less than every 5,000 square feet of masonry wall area. They shall meet the minimum strength requirement given in ASTM C270 Table 1 and ASTM C476/TMS 602 Section 2.2 Sections 2103A.9 and 2103A.13 for mortar and grout respectively. Additional samples shall be taken whenever any change in materials or job conditions occur, as determined by the building official. ~~or whenever in the judgment of the architect, structural engineer or the enforcement agency such tests are necessary to determine the quality of the material.~~ When the prism test method of ~~Section 2105A.2.2.2~~ is used during construction, the tests in this section are not required.

Test specimens for mortar and grout shall be made as set forth in ASTM C 1586 and ASTM C 1019.

Exceptions:

1. For non-bearing non-shear masonry walls not exceeding total wall height of 12' above wall base, mortar test shall be permitted to be limited to those at the beginning of masonry work for each mix design.

2. ~~[DSA-SS]~~ Mortar sampling and testing shall be as follows: At the beginning of all masonry work, mortar test samples shall be taken on three successive working days and at least at one-week intervals thereafter. Where mortar is based on a proportion specification, mortar shall be sampled and tested during construction in accordance with ASTM C780 Annex 4 and 5 to verify the proportions specified in ASTM C270, Table 2. Where mortar is based on a property specification, mortar shall be laboratory prepared and tested prior to construction in accordance with ASTM C780 to verify the properties specified in ASTM C270, Table 1 and field sampled and tested during construction in accordance with ASTM C780 to verify the proportions with the laboratory tests. Mortar sampling and testing is not required for approved preblended mortars in conformance with ASTM C270.

2105A.4 Masonry core testing. ~~[OSHPD 1 & 4]~~ Not less than two cores shall be taken from each building for each 5,000 square feet (465 m²) of the greater of the masonry wall area or the floor area or fraction thereof. The architect or structural engineer in responsible charge of the project or his/her representative or the inspector of record shall select the areas for sampling. The inspector of record approved agency shall perform or observe the coring of the masonry walls and sample locations shall be subject to approval of the registered design professional.

Cores samples shall comply with the following:

1. Cored no sooner than 7 days after grouting of the selected area;
2. Be a minimum of 3-3/4" in nominal diameter; and
3. Sampled shall be taken in such a manner as to exclude any masonry unit webs, mortar joint, or and reinforcing steel. If all cells contain reinforcement, alternate core locations or means to detect void or delamination shall be selected by the registered design professional and approved by the building official.

Visual examination of all cores shall be made by an approved agency a laboratory acceptable to the building official and the condition of the cores reported as required by the California Administrative Code. The sShear test shall test both joints between the grout core and the outside wythes or face shell of the masonry One half of the number of cores taken shall be tested in shear 28 days after grouting of the sample area using a shear test apparatus acceptable to the enforcement agency. Shear testing apparatus shall be of a design approved by the enforcement agency. Core samples shall not be soaked before testing. Core samples to be tested shall be stored in sealed plastic bags or non-absorbent containers immediately after coring and for at least 5 days prior to testing. The average unit shear value

for each pair of cores (4 shear tests) from each 5,000 square feet of wall area (or less) on the cross section of the core shall not be less than $2.5 \sqrt{f'_m}$ psi.

~~All cores shall be submitted to an approved agency the laboratory, acceptable to the building official, for examination, regardless of whether even where the core specimens failed during the cutting operation. The approved agency laboratory shall report the location where each core was taken, the findings of their visual examination of each core, identify which cores were selected for shear testing, and the results of the shear tests.~~

Exceptions:

1. Core sampling and testing is not required for non-bearing non-shear masonry walls, not exceeding total wall height of 12' above wall base, built with single-wythe hollow unit concrete masonry that attaches opposite face shells using webs cast as single unit, when designed using an f'_m not exceeding 2,000 psi (13.79 MPa).
2. An infrared thermographic survey or other nondestructive test procedures, shall be permitted to be approved as an alternative system to detect voids or delamination in grouted masonry in-lieu of core sampling and testing.

2105A.5 Masonry core testing. [DSA-SS] ~~Not less than two cores shall be taken from each building for each 5,000 square foot (465 m²) of the greater of the masonry wall area or the floor area or fraction thereof. The architect or structural engineer in responsible charge of the project or his/her representative or the inspector of record shall select the areas for sampling. Cores shall be a minimum of 3 3/4 inches (76mm) in diameter and shall be taken in such a manner as to exclude masonry unit webs and reinforcing steel. If vertical reinforcing steel is placed such that cores will include reinforcing steel, core testing may be waived by the design professional in responsible charge, as approved by the enforcement agency. The inspector of record shall observe the coring of the masonry walls.~~

~~Visual examination of all cores shall be made by a laboratory acceptable to the building official and the condition of the cores reported as required by the California Administrative Code. All cores taken shall be tested in shear. The shear test shall test both joints between the grout core and the outside wythes or face shell of the masonry. Shear testing apparatus shall be of a design approved by the enforcement agency. Core samples shall not be soaked before testing. The average unit shear on the cross section of all the cores shall not be less than $2.5 \sqrt{f'_m}$ psi.~~

~~All cores shall be submitted to the laboratory, acceptable to the building official, for examination, regardless of whether the outside wythe or face shells separated during the cutting operation. The~~

~~laboratory shall report the location where each core was taken, the findings of their visual examination of each core, and the results of the shear tests.~~

SECTION 2106A SEISMIC DESIGN

2106A.1 Seismic design requirements for masonry. Masonry structures and components shall comply with the requirements in Chapter 7 of TMS 402/ACI 530/ASCE 5 depending on the structure's *Seismic Design Category*.

2106A.1.1 Modifications to TMS 402 / ACI 530 / ASCE 5. Modify TMS 402 / ACI 530 / ASCE 5 Section 7.4.4 ~~4.18~~ as follows:

1. - Minimum reinforcement requirements for Masonry Walls The total area of reinforcement in reinforced masonry walls shall not be less than 0.003 times the sectional area of the wall. Neither the horizontal nor the vertical reinforcement shall be less than one third of the total. Horizontal and vertical reinforcement shall be spaced at not more than 24 inches (610 mm) center to center. The minimum reinforcing shall be No. 4, except that No. 3 bars may be used for ties and stirrups. Vertical wall reinforcement shall have dowels of equal size and equal matched spacing in all footings. Reinforcement shall be continuous around wall corners and through intersections. Only reinforcement which is continuous in the wall shall be considered in computing the minimum area of reinforcement. Reinforcement with splices conforming to TMS 402 / ACI 530 / ASCE 5 ~~as modified by Section 2107A and 2108A~~ shall be considered as continuous reinforcement.

Horizontal reinforcing ~~ement~~ bars in bond beams shall be provided in the top of footings, at the top of wall openings, at roof and floor levels, and at the top of parapet walls. For walls 12 inches (nominal) (305 mm) or more in thickness, horizontal and vertical reinforcement shall be equally divided into two layers, except where designed as retaining walls. Where reinforcement is added above the minimum requirements, such additional reinforcement need not be so divided.

In bearing walls of every type of reinforced masonry, there shall be trim reinforcement of not less than one No. 5 bar or two No. 4 bars on all sides of, and adjacent to, every opening which exceeds 16 inches (406 mm) in either direction, and such bars shall extend not less than 48 diameters, but in no case less than 24 inches (610 mm) beyond the corners of the opening. The

bars required by this paragraph shall be in addition to the minimum reinforcement elsewhere required.

When the reinforcement in bearing walls is designed, placed and anchored in position as for columns, the allowable stresses shall be as for columns.

Joint reinforcement shall not be used as principal reinforcement in masonry. ~~designed by the strength design method.~~

2. - Minimum reinforcement for masonry columns. *The spacing of column ties shall be as follows: not greater than 8 bar diameters, 24 tie diameters, or one half the least dimension of the column for the full column height. Ties shall be at least 3/8" in diameter and shall be embedded in grout. Top tie shall be within 2 inches (51 mm) of the top of the column or of the bottom of the horizontal bar in the supported beam.*

3. Lateral support. *Lateral support of masonry may be provided by cross walls, columns, pilasters, counterforts or buttresses where spanning horizontally or by floors, beams, girts or roofs where spanning vertically. Where walls are supported laterally by vertical elements, the stiffness of each vertical element shall exceed that of the tributary area of the wall.*

4. Anchor Bolts. *Bent bar anchor bolts shall not be allowed. The maximum size anchor shall be 1/2-inch (13 mm) diameter for 6-inch (152 mm) nominal masonry, 3/4-inch (19 mm) diameter for 8-inch (203 mm) nominal masonry, 7/8-inch (22 mm) diameter for 10-inch (254 mm) nominal masonry, and 1-inch (25mm) diameter for 12-inch (304.8 mm) nominal masonry.*

SECTION 2107A

ALLOWABLE STRESS DESIGN

2107A.1 General. *The design of masonry structures using allowable stress design shall comply with Section 2106A and the requirements of Chapters 1 through 8 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107A.2 through 2107A.4 2107A.6.*

...

2107A.2 TMS 402/ACI 530/ASCE 5, Section 8.1.6.7.1.1, lap splices. In lieu of Section 8.1.6.7.1.1, it shall be permitted to design lap splices in accordance with Section 2107A.2.1.

2107A.2.1 Lap splices. The minimum length of lap splices for reinforcing bars in tension or compression, l_d , shall be

$$l_d = 0.002d_b f_s \quad \text{(Equation 21A-1)}$$

For SI: $l_d = 0.29d_b f_s$

but not less than 12 inches (305) mm). In no case shall the length of the lapped splice be less than 40 bar diameters, and need not be greater than 72 bar diameters.

where:

...

2107A.5 Modify TMS 402 / ACI 530/ASCE 5 by adding Section 8.1.7 ~~2.1.8~~ as follows:

8.1.7 ~~2.1.8~~ - Walls and Piers.

Thickness of Walls. For thickness limitations of walls as specified in this chapter, nominal thickness shall be used. Stresses shall be determined on the basis of the net thickness of the masonry, with consideration for reduction, such as raked joints.

The thickness of masonry walls shall be designed so that allowable maximum stresses specified in this chapter are not exceeded. Also, no masonry wall shall exceed the height or length-to-thickness ratio or the minimum thickness as specified in this chapter and as set forth in Table 2107A.5. ~~below.~~

Piers. Every pier or wall section which width is less than three times its thickness shall be designed and constructed as required for columns if such pier is a structural member. Every pier or wall section which width is between three and five times its thickness or less than one half the height of adjacent openings shall have all horizontal steel in the form of ties except that in walls 12 inches (305 mm) or less in thickness such steel may be in the form of hair-pins.

TABLE 2107A.5 - MINIMUM THICKNESS OF MASONRY WALLS^{1, 2}

TYPE OF MASONRY	MAXIMUM RATIO UNSUPPORTED HEIGHT OR LENGTH TO THICKNESS ^{2,3}	NOMINAL MINIMUM THICKNESS (inches)
BEARING OR SHEAR WALLS:		
1. Stone masonry	14	16
2. Reinforced grouted masonry	25	6
3. Reinforced hollow-unit masonry	25	6
NONBEARING WALLS:		
4. Exterior reinforced walls	30	6
5. Interior partitions reinforced	36	4

¹For walls of varying thickness, use the least thickness when determining the height or length to thickness ratio.

²In determining the height or length-to-thickness ratio of a cantilevered wall, the dimension to be used shall be twice the dimension of the end of the wall from the lateral support.

³Cantilevered walls not part of a building and not carrying applied vertical loads need not meet these minimum requirements but their design must comply with stress and overturning requirements.

2107A.6

SECTION 2108A STRENGTH DESIGN OF MASONRY

2108.1 General. The design of masonry structures using strength design shall comply with Section 2106 and the requirements of Chapters 1 through 7 and Chapter 9 of TMS 402/ACI 530/ASCE 5, except as modified by Sections 2108.2 through 2108.3.

Exception: AAC masonry shall comply with the requirements of Chapters 1 and 8 of TMS 402/ACI 530/ASCE 5.

...

SECTION 2109A
EMPIRICAL DESIGN OF MASONRY

Not permitted by DSA.

~~Existing amendment deleting Section 2109 of IBC is retained and deleted Section 2109 is not shown here for clarity.~~

SECTION 2110A
GLASS UNIT MASONRY

2110A.1 General. Glass unit masonry construction shall comply with Chapter 13 of TMS402/ACI 530/ASCE 5 and this section.

~~Masonry of glass blocks walls or panels shall be designed for seismic forces. permitted in non-load-bearing exterior or interior walls and shall conform to the requirements of Section 2115A. Stresses in glass block shall not be utilized. Glass block may be solid or hollow and may contain inserts.~~

...

SECTION 2114A
NONBEARING WALLS

~~**2114A.1 General.** All nonbearing masonry walls shall be reinforced as specified in Section 2106A.1.1. Fences and interior nonbearing nonshear walls may be of hollow unit masonry construction grouted in cells containing vertical and horizontal reinforcement. Nonbearing walls may be used to carry a superimposed load of not more than 200 pounds per linear foot (2.92 kN/m).~~

~~**1. Thickness.** Every nonbearing masonry wall shall be so constructed and have a sufficient thickness to withstand all vertical loads and horizontal loads, but in no case shall the thickness of such walls be less than the values set forth in Table 2107A.5.
Plaster shall not be considered as contributing to the thickness of a wall in computing the height-to-thickness ratio.~~

~~2. **Anchorage.** All nonbearing walls shall be anchored as required by Sections 1604A.8.2 and ASCE 7 Chapter 13. Suspended ceilings or other nonstructural elements shall not be used to provide anchorage for masonry walls.~~

SECTION 2115A

MASONRY SCREEN WALLS

2115A.1 General. ~~Masonry units may be used in nonbearing decorative screen walls. Units may be laid up in panels with units on edge with the open pattern of the unit exposed in the completed wall.~~

- ~~1. **Horizontal Forces.** The panels shall be capable of spanning between supports to resist the horizontal forces specified in Chapter 16A. Wind loads shall be based on gross projected area of the block.~~
- ~~2. **Mortar Joints.** Horizontal and vertical joints shall not be less than 1/4 inch (6 mm) thick. All joints shall be completely filled with mortar and shall be "shoved joint" work. The units of a panel shall be so arranged that either the horizontal or the vertical joint containing reinforcing is continuous without offset. This continuous joint shall be reinforced with a minimum of 0.03 square inch (19 mm²) of reinforcing steel and maximum spacing of 16 inches on center. Reinforcement may be embedded in mortar.~~
- ~~3. **Reinforcement.** Joint reinforcement may be composed of two wires made with welded ladder or trussed wire cross ties. In calculating the resisting capacity of the system, compression and tension in the spaced wires may be utilized. Ladder wire reinforcement shall not be spliced and shall be the widest that the mortar joint will accommodate, allowing 1/2 inch (13 mm) of mortar cover.~~
- ~~4. **Size of Panels.** The maximum size of panels shall be 144 square feet (13.4 m²), with the maximum dimension in either direction of 15 feet (4572 mm). The specified thickness of the units for exterior applications shall not be less than 3 7/8 inches.~~
- ~~5. **Panel Support.** Each panel shall be supported on all edges by a structural member of concrete, masonry or steel. Supports at the top and ends of the panel shall be by means of confinement of the masonry by at least 1 inch (25 mm) into and between the flanges of a steel channel. The space between the end of the panel and the web of the channel shall be filled with resilient material. The use of equivalent configuration in other steel section or in masonry or concrete is acceptable.~~

All existing amendments, except where section is deleted in the model code, that are not revised above shall continue without any change.

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

CHAPTER 22

STEEL

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	-	X	
Adopt only those sections listed below			
2201.1.1		X	
2201.1.2		X	
2201.1.3		X	
2201.1.4		X	
2212		X	
2212.1		X	
2212.1.1		X	
2212.2		X	
2212.3		X	
2212.4		X	
2212.5		X	
2212.6		X	

All existing California amendments that are not revised below shall continue without change.

SECTION 2201

GENERAL

2201.1 Scope. *The provisions of this chapter govern the quality, design, fabrication and erection of steel used structurally in buildings or structures.*

2201.1.1 Application. [DSA-SS/CC] *The scope of application of Chapter 22 is as follows:*

Community college buildings regulated by the Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC), as listed in Section 1.9.2.2.

2201.1.2 Identification of amendments. [DSA-SS/CC]

Division of the State Architect-Structural Safety/Community Colleges amendments appear in this chapter preceded with the appropriate acronym, as follows:

[DSA-SS/CC] - *For community college buildings listed in Section 1.9.2.2*

2201.1.3 Reference to other chapters. [DSA-SS/CC] *Where reference within this chapter is made to sections in Chapter 17 the provisions in Chapter 17A, shall apply instead.*

2201.1.4 Amendments. [DSA-SS/CC] *See Section 2212 for additional requirements.*

...

SECTION 2212

ADDITIONAL REQUIREMENTS FOR COMMUNITY COLLEGES [DSA-SS/CC]

2212.1 Connections.

2212.1.1 Column base plate. *When shear and/or tensile forces are intended to be transferred between column base plates and anchor bolts, provision shall be made in the design to eliminate the effects of oversized holes permitted in base plates by AISC 360 by use of shear lugs and/or welded shear transfer plates or other means acceptable to the enforcement agency, when the oversized holes are larger than the anchor bolt by more than 1/8 inch (3.2 mm). When welded shear transfer plates and shear lugs or other means acceptable to the enforcement agency are not used, the anchor bolts shall be checked for the induced bending stresses in combination with the shear stresses.*

2212.2 Modifications to AISC 341.

2212.2.1 Section A4. *Replace Section A4.1 item (3) as follows:*

(3) Locations and dimensions of protected zones, including provision by the owner or owner's' designated representative for construction to permanently mark and maintain the protection.

2212.2.2 2212.2.4 Section D1. *Add Section D1.6 as follows:*

6. Diaphragm bracing systems. *The required strength of diagonal bracing members used as the diaphragm shall be determined from either of the following:*

(1) *The load effect resulting from the diaphragm analysis per the applicable building code provided the members satisfy all of the following requirements:*

1. *Diagonal bracing members comply with Section D1.1 for moderately ductile members.*

2. *Each diagonal bracing member resists no more than 30 percent of the diaphragm shear at each line of resistance.*

3. *Diagonal bracing members shall not support gravity loads other than self-weight.*

4. *The slenderness ratio (KL/r) of diagonal bracing members shall not exceed $4\sqrt{E/F_y}$, except tension-only bracing.*

(2) *The load effect required for collectors using the load combinations stipulated in the applicable building code.*

2212.2.3 ~~2212.2.2~~ Section D2. *Modify Section D2.6c(b)(ii) as follows:*

(ii) *the moment calculated using the load combinations of the applicable building code, including the amplified seismic load, provided the connection or other mechanism within the column base is designed to have the ductility necessary to accommodate the column base rotation resulting from the design story drift.*

2212.2.4 ~~2212.2.3~~ Section D2. *Add Section D2.9 as follows:*

9. Diaphragm bracing systems. *The required strength of the connections of diagonal bracing members used as the diaphragm shall be the load effect required for collectors using the load combinations stipulated in the applicable building code.*

2212.2.5 ~~2212.2.4~~ Section F2. *Modify Section F2.3 Exception (2)(a) as follows:*

(a) *The maximum of the forces determined using load combination stipulated by the applicable building code including the amplified seismic load, applied to the building frame model in which all compression braces have been removed and those determined with no compression braces removed per D1.4a(2).*

2212.2.6 Section F1. *Add Section F1.4c as follows:*

4c. Multi-tiered Braced Frames: *Braced-frames configured with two or more tiers of bracing between diaphragm levels or locations of out-of-plane support shall comply with the additional requirements of section F2.4e.*

2212.2.7 ~~2212.2.5~~ Section F2. *Modify Section F2.4a by adding the following:*

Where each framing bay on a line of resistance does not have opposing diagonal braces within the same column bay, then the collector forces along that line shall be designed considering the redistribution of seismic forces to other bays as a result of the post buckled redistribution of loads using the analysis requirements of Section F2.3. The collector shall not be designed for a load less than that stipulated by the applicable building code:

The required strength of the collector need not exceed the forces determined using load combination stipulated by the applicable building code including the amplified seismic load, applied to the building model in which all compression braces have been removed.

2212.2.8 Section F2. Add Section F2.4e as follows:

4c. Multi-tiered Braced Frames: Braced-frames configured with two or more tiers of bracing between diaphragm levels or locations of out-of-plane support shall comply with the additional requirements of this section:

- (1) Braces shall be used in symmetrical pairs at every tier level.
- (2) Horizontal beams at intermediate tier levels for V- and inverted V-brace configurations shall have out-of-plane strength, stiffness, and beam-to-column connections adequate to resist torsional moments arising from brace buckling when braces are designed to buckle out-of-plane.
- (3) Columns shall be restrained against rotation about their longitudinal axis at each intermediate tier level and shall resist out-of-plane bending moments due to second-order effects, geometric imperfections, and out-of-plane brace buckling.

2212.3 Seismic requirements for composite structural steel and concrete construction. In addition to the requirements of Section 2206.2, steel and concrete composite special moment frame with the approved moment connections in accordance with AISC 358 Chapter 10 shall be permitted provided:

1. Beams are provided with reduced beam sections (RBS),
- ~~2. Columns shall be hollow structural sections (HSS) and completely filled with structural concrete having unit weight not less than 110 pounds per cubic foot (17 kN/m³). Concrete shall have 28-day compressive strength not less than 4,000 psi (28 MPa).~~
- ~~2.~~ 3. Web extension to beam web two sided fillet weld welds are sized to develop expected strength of the beam web and shall not be less than a ¼ inch fillet weld, and
- ~~4. The high strength bolt design shall consider interaction between shear and tension as required by AISC 360, and~~
3. 5. The built-up box column wall thickness shall not be less than 1.25" and the HSS column wall thickness shall not be less than 1/2 inch.

2212.4 Steel joists.

2212.4.1 Design approval. Joist and joist girder design calculations and profiles with member sizes and connection details, and joist placement plans shall be provided to the enforcement agency and approved prior to joist fabrication, in accordance with Title 24, Part 1. Joist and joist girder design calculations and profiles with member sizes and connection details shall bear the signature and stamp or seal of the registered engineer or licensed architect responsible for the joist design. Alterations to the approved joist and joist girder design calculations and profiles with member sizes and connection details, or to fabricated joists are subject to the approval of the enforcement agency.

2212.4.2 Joist chord bracing. The chords of all joists shall be laterally supported at all points where the chords change direction.

2212.5 Cold-formed steel light-frame construction.

2212.5.1 Trusses.

2212.5.1.1 Analysis submittals. Complete engineering analysis and truss design drawings shall accompany the construction documents submitted to the enforcement agency for approval. When load testing is required the test report shall be submitted with the truss design drawings and engineering analysis to the enforcement agency.

2212.5.1.2 Deferred submittals. AISI S214 Section B4.2 shall not be deleted.

2212.5.2 Anchorage for shear. Cold formed steel stud foundation plates or sills shall be bolted or fastened to the foundation or foundation wall in accordance with Section 2304.3.4, Item 2.

2212.5.3 Limitations on shear wall assemblies. Shear wall assemblies in accordance with ~~per~~ Section C2.2 3 of AISI- S213 are not permitted within the seismic force-resisting system of buildings or structures assigned to Occupancy Category II, III, IV., or buildings designed to be relocatable.

2212.6 Testing.

2212.6.1 Tests of high-strength bolts, nuts and washers. High-strength bolts, nuts and washers shall be sampled and tested by an approved independent testing laboratory for conformance with the requirements of Section 2205.

2212.6.2 Tests of end-welded studs. End-welded studs shall be sampled and tested in accordance with ~~per~~ the requirements of the AWS D1.1.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 22A STEEL

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter as amended	X	-	
Adopt only those sections listed below			

All existing amendments that are not revised below shall continue without any change.

...

SECTION 2201A GENERAL

2201A.1 Scope. The provisions of this chapter govern the quality, design, fabrication and erection of steel construction.

2201A.1.1 Application. *The scope of application of Chapter 22A is as follows:*

1. Structures regulated by the Division of the State Architect-Structural Safety (DSA-SS), which include those applications listed in Section 1.9.2.1. These applications include public elementary and secondary schools, community colleges and state- owned or state-leased essential services buildings.
2. **Reserved for OSHPD.**

Exception: **Reserved for OSHPD.**

2201A.1.2 Identification of amendments. *DSA-SS adopts this chapter and all amendments.*

Exception: *Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:*

1. Division of the State Architect-Structural Safety: **[DSA-SS]** For applications listed in Section 1.9.2.1.

2. **Reserved for OSHPD**

SECTION 2202A DEFINITIONS

2202A.1 Definitions. The following terms are defined in Chapter 2.

...

SECTION 2204A CONNECTIONS

2204A.1 Welding. The details of design, workmanship and technique for welding and qualification of welding personnel shall be in accordance with the specifications listed in Sections 2205A, 2206A, 2207A, 2208A, 2210A and 2211A. For *Special inspection* of welding, see Section 1705A.2.

...

2204A.4 2204A.2.2 Column base plate. When shear and / or tensile forces are intended to be transferred between column base plates and anchor bolts, provision shall be made in the design to eliminate the effects of oversized holes permitted in base plates by AISC 360 by use of shear lugs and / or welded shear transfer plates or other means acceptable to the enforcement agency, when the oversized holes are larger than the anchor bolt by more than 1/8 inch (3.2 mm). When welded shear transfer plates and shear lugs or other means acceptable to the enforcement agency are not used, the anchor bolts shall be checked for the induced bending stresses in combination with the shear stresses.

SECTION 2205A STRUCTURAL STEEL

2205A.1 General. The design, fabrication and erection of structural steel elements in buildings, structures and portions thereof shall be in accordance with AISC 360.

Exception: **Reserved for OSHPD**

2205A.2 Seismic Design. Where required, the seismic design, fabrication and erection of buildings, structures and portions thereof shall be in accordance with Section 2205A.2.1 or 2205A.2.2.

~~**2205A.2.1 Seismic Design Category A, B or C.** Not permitted by DSA-SS.~~

2205A.2.1 Structural steel seismic force-resisting system. The design, detailing, fabrication and erection of structural steel seismic force-resisting systems shall be in accordance with the provisions of Section 2205A.2.1.1 or 2205A.2.1.2, as applicable.

~~**2205A.2.1.1 Seismic Design Category B or C.** Not permitted by DSA. Structures assigned to Seismic Design Category B or C shall be of any construction permitted in Section 2205. Where a response modification coefficient, R , in accordance with ASCE 7, Table 12.2-1 is used for the design of structural steel structures assigned to Seismic Design Category B or C, the structures shall be designed and detailed in accordance with the requirements of AISC 341.~~

~~**Exception:** The response modification coefficient, R , designated for "Steel systems not specifically detailed for seismic resistance, excluding cantilever column systems" in ASCE 7, Table 12.2-1 shall be permitted for systems designed and detailed in accordance with AISC 360, and need not be designed and detailed in accordance with AISC 341.~~

2205A.2.1.2 Seismic Design Category D, E or F. Structures assigned to *Seismic Design Category D, E or F* shall be designed and detailed in accordance with AISC 341, except as permitted in ASCE 7, Table 15.4-1.

2205A.2.2 Structural steel elements. The design, detailing, fabrication and erection of structural steel elements in seismic force-resisting system other than those covered in Section 2205A.2.1, including struts, collectors, chords and foundation elements shall be in accordance with AISC 341, where either of following applies:

- ~~1. The structure is assigned to seismic design category D, E or F, except as permitted in ASCE 7, Table 15.4-1.~~
- ~~2. A response modification coefficient, R , greater than 3 in accordance with ASCE 7, Table 12.2-1, is used for the design of structure assigned to seismic design category B or C.~~

2205A.3 Modifications to AISC 341. [DSA-SS]

2205A.3.1 Section A4. Replace Section A4.1 item (3) as follows:

(3) Locations and dimensions of protected zones, including provision by the owner or owner's' designated representative for construction to permanently mark and maintain the protection.

2205A.3.2 2205A.3.1 Section D1. Add Section D1.6 as follows:

6. Diaphragm bracing systems. The required strength of diagonal bracing members used as the diaphragm shall be determined from either of the following:

(1) The load effect resulting from the diaphragm analysis per the applicable building code provided the members satisfy all of the following requirements:

1. Diagonal bracing members comply with Section D1.1 for moderately ductile members.
2. Each diagonal bracing member resists no more than 30 percent of the diaphragm shear at each line of resistance.
3. Diagonal bracing members shall not support gravity loads other than self-weight.
4. The slenderness ratio (KL/r) of diagonal bracing members shall not exceed $4\sqrt{E/F_y}$, except tension-only bracing.

(2) The load effect required for collectors using the load combinations stipulated in the applicable building code.

2205A.3.3 2205A.3.2 Section D2. Modify Section D2.6c(b)(ii) as follows:

(ii) the moment calculated using the load combinations of the applicable building code, including the amplified seismic load, provided the connection or other mechanism within the column base is designed to have the ductility necessary to accommodate the column base rotation resulting from the design story drift.

2205A.3.4 2205A.3.3 Section D2. Add Section D2.9 as follows:

9. Diaphragm bracing systems. The required strength of the connections of diagonal bracing members used as the diaphragm shall be the load effect required for collectors using the load combinations stipulated in the applicable building code.

2205A.3.5 Section F1. Add Section F1.4c as follows:

4c. Multi-tiered Braced Frames: Braced-frames configured with two or more tiers of bracing between diaphragm levels or locations of out-of-plane support shall comply with the additional requirements of section F2.4e.

2205A.3.6 2205A.3.4 Section F2. Modify Section F2.3 Exception (2)(a) as follows:

(a) The maximum of the forces determined using load combination stipulated by the applicable building code including the amplified seismic load, applied to the building frame model in which all compression braces have been removed and those determined with no compression braces removed per D1.4a(2).

2205A.3.7 2205A.3.5 Section F2. Modify Section F2.4a by adding the following:

Where each framing bay on a line of resistance does not have opposing diagonal braces within the same column bay, then the collector forces along that line shall be designed considering the redistribution of seismic forces to other bays as a result of the post-buckled redistribution of loads using the analysis requirements of Section F2.3. The collector shall not be designed for a load less than that stipulated by the applicable building code.

The required strength of the collector need not exceed the forces determined using load combination stipulated by the applicable building code including the amplified seismic load, applied to the building model in which all compression braces have been removed.

2205A.3.8 Section F2. Add Section F2.4e as follows:

4c. Multi-tiered Braced Frames: Braced-frames configured with two or more tiers of bracing between diaphragm levels or locations of out-of-plane support shall comply with the additional requirements of this section:

- (1) Braces shall be used in symmetrical pairs at every tier level.
- (2) Horizontal beams at intermediate tier levels for V- and inverted V-brace configurations shall have out-of-plane strength, stiffness, and beam-to-column connections adequate to resist torsional moments arising from brace buckling when braces are designed to buckle out-of-plane.
- (3) Columns shall be restrained against rotation about their longitudinal axis at each intermediate tier level and shall resist out-of-plane bending moments due to second-order effects, geometric imperfections, and out-of-plane brace buckling.

2205A.4 MODIFICATIONS TO AISC 341. Reserved for 03/1/20

2205A.5 MODIFICATIONS TO AISC 358. ~~Reserved for OSHPD~~

**SECTION 2206A
COMPOSITE STRUCTURAL STEEL AND
CONCRETE STRUCTURES**

2206A.1 General. Systems of structural steel elements acting compositely with reinforced concrete shall be designed in accordance with AISC 360 and ACI 318, excluding ACI 318 Chapter 14.

2206A.2 Seismic Design. Where required, the seismic design, fabrication and erection of composite steel and concrete systems shall be in accordance with the additional provisions of Section 2206A.2.1.

2206A.2.1 Seismic requirements for composite structural steel and concrete construction. Where a response modification coefficient, R , in accordance with ASCE 7, Table 12.2-1 is used for the design of systems of structural steel acting compositely with reinforced concrete, the structures shall be designed and detailed in accordance with the requirements of AISC 341 *and shall be considered as an alternative system.*

Exception: *Steel and concrete composite special moment frame with the approved moment connections in accordance with AISC 358 Chapter 10 shall be permitted provided:*

1. Beams are provided with Reduced Beam Sections (RBS),
- ~~2. Columns shall be Hollow Structural Sections (HSS) and completely filled with structural concrete having unit weight not less than 110 pounds per cubic foot (17 kN/m³). Concrete shall have 28-day compressive strength not less than 4,000 psi (28 MPa).~~
2. 3-Web extension to beam web two sided fillet weld welds are sized to develop expected strength of the beam web and shall not be less than a ¼ inch fillet weld, and
- ~~4. The high strength bolt design shall consider interaction between shear and tension as required by AISC 360, and~~
3. 5. The built-up box column wall thickness shall not be less than 1.25" and ~~7~~ the HSS column wall thickness shall not be less than ½ inch.

...

**SECTION 2207A
STEEL JOISTS**

...

2207A.4 Steel joist drawings. Steel joist placement plans shall be provided to show the steel joist products as specified on the *approved construction documents* and are to be utilized for field installation in accordance with specific project requirements as stated in Section 2207A.2. Steel joist placement plans shall include, at a minimum, the following:

...

~~Steel joist placement plans do not require the seal and signature of the joist manufacturer's registered design professional.~~

...

2207A.4.1 Design approval. [DSA-SS] *Joist and joist girder design calculations and profiles with member sizes and connection details, and joist placement plans shall be provided to the enforcement agency and approved prior to joist fabrication, in accordance with the California Administrative Code (Title 24, Part 1). Joist and joist girder design calculations and profiles with member sizes and connection details shall bear the signature and stamp or seal of the registered engineer or licensed architect responsible for the joist design. Alterations to the approved joist and joist girder design calculations and profiles with member sizes and connection details, or to fabricated joists are subject to the approval of the enforcement agency.*

...

2207A.6 Joist Chord Bracing. *The chords of all joists shall be laterally supported at all points where the chords change direction.*

...

SECTION 2208A STEEL CABLE STRUCTURES

2208A.1 General. The design, fabrication and erection including related connections, and protective coatings of steel cables for buildings shall be in accordance with ASCE 19.

~~2208.2 Seismic requirements for steel cable.~~ The design strength of steel cables shall be determined by the provisions of ASCE 19 except as modified by these provisions.

1. A load factor of 1.1 shall be applied to the prestress force included in T_3 and T_4 as defined in Section 3.12.

2. In Section 3.2.1, Item (c) shall be replaced with " $1.5 T_3$ " and Item (d) shall be replaced with " $1.5 T_4$."

...

SECTION 2210A COLD-FORMED STEEL

2210A.1 General. The design of cold-formed carbon and low alloy steel structural members shall be in accordance with AISI S100. The design of cold-formed stainless-steel structural members shall be in accordance with ASCE 8. Cold formed steel light-frame construction shall also comply with Section 2211A. Where required, the seismic design of cold formed steel structures shall be in accordance with the additional provisions of Section 2210A.2.

2210A.1.1 Steel decks. The design and construction of cold formed steel decks shall be in accordance with this section.

2210A.1.1.1 Noncomposite steel floor decks. Noncomposite steel floor decks shall be permitted to be designed and constructed in accordance with ANSI/SDI-NC1.0.

2210A.1.1.2 Steel roof deck. Steel roof decks shall be permitted to be designed and constructed in accordance with ANSI/SDI-RD1.0. *The base material thickness of steel deck shall not be less than 0.0359 inch (0.9 mm) (20 gage).*

Exception: [DSA-SS] *For single-story open structures, the minimum deck thickness may be waived if the steel roof deck need not be used as the diaphragm and there are no suspended hangers or bracing for nonstructural components attached to the deck.*

~~**2210A.1.1.3 Composite slabs on steel decks.** Composite slabs of concrete and steel deck shall be permitted to be designed and constructed in accordance with ANSI/SDI-C.~~

2210A.1.1.3 Composite slabs on steel decks. Composite slabs of concrete and steel deck shall be permitted to be designed and constructed in accordance with SDI-C.

2210A.2 Seismic requirements for cold-formed steel structures. Where a response modification coefficient, R , in accordance with ASCE 7, Table 12.2-1 is used for the design of cold-formed steel structures, the structures shall be designed and detailed in accordance with the requirements of AISI S100, and ASCE 8. ~~or, for cold-formed steel special bolted moment frames, AISI S110.~~

SECTION 2211A COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION

2211A.1 General. The design and installation of structural and nonstructural members utilized in cold-formed steel light-frame construction where the specified minimum base steel thickness is not greater than 0.1180 inches (2.997 mm) shall be in accordance with AISI S200 and Sections 2211A.2 through 2211A.7, or AISI S220, as applicable.

...

2211A.3 Truss design. Cold-formed steel trusses shall be designed in accordance with AISI S214, Sections 2211A.3.1 through 2211A.3.4 and accepted engineering practice.

Complete engineering analysis and truss design drawings shall accompany the construction documents submitted to the enforcement agency for approval. When load testing is required, the test report shall be submitted with the truss design drawings and engineering analysis to the enforcement agency.

2211A.3.1 Truss design drawings. The truss design drawings shall conform to the requirements of Section B2.3 of AISI S214 and shall be provided with the shipment of trusses delivered to the job site. The truss design drawings shall include the details of permanent individual truss member

restraint/bracing in accordance with Section B 6(a) or B 6(e) of AISI S214 where these methods are utilized to provide restraint/bracing.

2211A.3.2 Deferred submittals. ~~AISI S214 Section B4.2 shall be deleted.~~ *Not permitted by DSA-SS.*

...

2211A.4 Structural wall stud design. Structural wall studs shall be designed in accordance with either AISI S211 or AISI S100.

Cold formed steel stud foundation plates or sills shall be bolted or fastened to the foundation or foundation wall in accordance with Section 2304.3.4, Item 2.

...

2211A.6 Lateral design. Light-frame shear walls, diagonal strap bracing that is part of a structural wall and diaphragms used to resist wind, seismic and other in-plane lateral loads shall be designed in accordance with AISI S213.

Shear wall assemblies in accordance with per Section C2.2.3 of AISI S213 are not permitted within the seismic force-resisting system of buildings.

2211A.7 Prescriptive framing. ~~Not permitted by DSA-SS. Detached one- and two-family dwellings and townhouses, less than or equal to three stories above grade plane, shall be permitted to be constructed in accordance with AISI S230 subject to the limitations therein.~~

SECTION 2212A [DSA-SS]
LIGHT MODULAR STEEL MOMENT FRAMES FOR
PUBLIC ELEMENTARY AND SECONDARY
SCHOOLS, AND COMMUNITY COLLEGES

2212A.1 General.

2212A.1.1 Configuration. *Light modular steel moment frame buildings shall be constructed of factory-assembled modules comprising a single-story moment-resisting space frame supporting a floor and roof. Individual modules shall not exceed a width of 14 feet (4.25 m) nor a length of 72*

feet (22 m). All connections of beams to corner columns shall be designed as moment-resisting in accordance with the criteria of Section 2212A.2. Modules may be stacked to form multistory structures not exceeding 35 feet or two stories in height. When stacked modules are evaluated separately, seismic forces on each module shall be distributed in accordance with Section 12.8.3 of ASCE 7, considering the modules in the stacked condition. See Section 2212A.2.5 of this code.

2212A.1.2 Design, fabrication and erection. The design, fabrication and erection of light modular steel moment frame buildings shall be in accordance with the AISC Specification for Structural Steel Buildings (ANSI/AISC 360) and the AISI North American Specification for the Design of Cold Formed Structural Members (AISI/COS/ NASPEC), as applicable, and the requirements of this section. The maximum dead load of the roof and elevated floor shall not exceed 25 psf and 50 psf (1197 Pa and 2394 Pa), respectively. The maximum dead load of the exterior walls shall not exceed 45 psf (2155 Pa).

2212A.2 Seismic requirements. In addition to the other requirements of this code, the design, materials and workmanship of light modular steel moment frames shall comply with the requirements of this section. The response modification coefficient R shall be equal to 31/2. C_d and Ω_0 shall be equal to 3.0.

2212A.2.1 Base materials. Beams, columns and connection materials shall be limited to those materials permitted under the AISC Specification for Structural Members (ANSI/AISC 360) and the AISI North American Specification for the Design of Cold Formed Structural Members (AISI/COS/NASPEC).

2212A.2.2 Beam-to-column strength ratio. At each moment-resisting connection the following shall apply:

$$\frac{\sum S_{bi} F_{ybi}}{\sum S_{cj} F_{ycj}} \geq 1.4 \quad (\text{Equation 22A-1})$$

where:

F_{ybi} = The specified yield stress of beam "i."

F_{ycj} = The specified yield stress of column "j."

S_{bi} = The flexural section modulus of each beam "i" that is moment connected to the column "j" at

the connection.

S_{cj} = *The flexural section modulus of each column "j" that is moment connected to the beam "i" at the connection.*

Exceptions:

1. *Beam-to-column connections at the floor level beams of first or second-story modules need not comply with this requirement.*
2. *Beam-to-column strength ratios less than 1.4 are allowed if proven to be acceptable by analysis or testing.*

2212A.2.3 Welding. *Weld filler metals shall be capable of producing weld metal with a minimum Charpy V-Notch toughness of 20 ft-lb at 0°F. Where beam bottom flanges attach to columns with complete joint penetration groove welds and weld backing is used at the bottom surface of the beam flange, such backing shall be removed and the root pass back-gouged, repaired and reinforced with a minimum 3/16 inch (5 mm) fillet weld.*

2212A.2.4 Connection design. *Connections of beams to columns shall have the design strength to resist the maximum seismic load effect, E_m , calculated in accordance with Section 12.4.3 of ASCE 7.*

2212A.2.5 Multistory assemblies. *Analysis of multistory assemblies shall be permitted to consider the stacked modules as a single assembly, with restraint conditions between the stacked units that represent the actual method of attachment. Alternatively, it shall be permitted to analyze the individual modules of stacked assemblies independently, with lateral and vertical reactions from modules above applied as concentrated loads at the top of the supporting module.*

SECTION 2213A

TESTING AND FIELD VERIFICATION

2213A.1 Tests of High-strength Bolts, Nuts and Washers. *High-strength bolts, nuts and washers shall be sampled and tested by an approved independent testing laboratory for conformance with the requirements of applicable ASTM standards.*

2213A.2 Tests of End-welded Studs. *End-welded studs shall be tested in accordance with ~~per~~ the requirements of the AWS D1.1, Sections 7.7 and 7.8.*

All existing amendments that are not revised above shall continue without any change.

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

CHAPTER 23

WOOD

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	X	X	
Adopt only those sections listed below			
<i>2301.1.1</i>	X	X	
<i>2301.1.2</i>	X	X	
<i>2301.1.3</i>	X	X	
<i>2301.1.3.1</i>	X	-	
<i>2301.1.3.2</i>	-	X	
<i><u>2301.1.4</u></i>	X	X	
<i>2301.2, Item 4, Exception</i>	X	X	
<i>2303.1.3.1</i>	X	X	
<i><u>2303.1.4.1</u></i>	X	X	
<i>2303.4.1.4.1, Exception 3</i>	X	X	
<i>2303.4.3.1</i>	X	X	
<i>2304.3.4</i>	X	X	
<i>2304.4.1</i>	X	X	
<i>2304.5</i>	X	X	
<i>2304.6.1, Exception</i>	X	-	

<u>2304.10.1.1</u> 2304.9.1.1	X	-	
<u>2304.12.1.2</u> 2304.11.2.2, Exception	X	X	
<u>2304.12.1.4.1</u> 2304.11.2.4.1	X	-	
<u>2305.1.2</u>	X	X	
<u>2305.2, Exception</u>	X	-	
<u>2305.3, Exception</u>	X	X	
<u>2306.2, Exception</u>	X	X	
<u>2306.3, Exception</u>	X	X	
<u>2308.2.7</u> 2308.2, Item 8	X	X	
<u>2309.1.1</u>	<u>X</u>	<u>X</u>	

~~All existing California amendments that are not revised below shall continue without change.~~

SECTION 2301 GENERAL

2301.1 Scope. The provisions of this chapter shall govern the materials, design, construction and quality of wood members and their fasteners.

2301.1.1 Application. *[DSA-SS & DSA-SS/CC] The scope of application of Chapter 23 is as follows:*

1. Applications listed in Sections 1.9.2.1 and 1.9.2.2, regulated by the Division of the State Architect-Structural Safety (DSA-SS, and DSA-SS/CC). These applications include public elementary and secondary schools, community colleges and state-owned or state-leased essential services buildings.

2. ~~Reserved for OSHPD.~~

2301.1.2 Identification of amendments. *[DSA-SS & DSA-SS/CC] Amendments appear in this chapter preceded with the appropriate acronym, as follows:*

1. Division of the State Architect - Structural Safety:

[DSA-SS] - For applications listed in Section 1.9.2.1.

[DSA-SS/CC] - For applications listed in Section 1.9.2.2

2. ~~Reserved for DSHPC~~

2301.1.3 Reference to other chapters.

2301.1.3.1 [DSA-SS] Where reference within this chapter is made to sections in Chapters 16, 17, 18, 19, 21, and 22, ~~and 34~~, the provisions in Chapters 16A, 17A, 18A, 19A, 21A, and 22A, ~~and 34A~~ respectively shall apply instead.

Exception: For DSA-SS, the requirements of Chapter 34 shall apply instead of Chapter 34A

2301.1.3.2 [DSA-SS/CC] Where reference within this chapter is made to sections in Chapters 17 and 18, the provisions in Chapters 17A and 18A respectively shall apply instead.

2301.1.4 Prohibition. ~~Repealed from 2013 CBC, Section 2301.1.4~~ **[DSA-SS & DSA-SS/CC]** The following design methods, systems, and materials are not permitted by DSA:

1. Straight-sheathed horizontal lumber diaphragms ~~are not permitted.~~
2. Gypsum-based sheathing shear walls and portland cement plaster shear walls ~~are not permitted.~~
3. Shear wall foundation anchor bolt washers ~~shall be provided in accordance with AF & PA SDPWS Section 4.3.6.4.3. The exception to AF & PA AWC SDPWS Section 4.3.6.4.3. shall not apply.~~
4. Wood structural panel shear walls and diaphragms using staples as fasteners ~~are not permitted.~~
5. Unblocked shear walls ~~are not permitted.~~
6. Any wood structural panel sheathing used for diaphragms and shear walls that are part of the seismic force-resisting system, shall be not applied directly to framing members.
7. Single and double diagonally sheathed lumber walls ~~shall not be~~ used to resist seismic forces.
8. ~~Repealed from 2013 CBC, 2301.2 item 4~~ Log structures in accordance with ICC 400 ~~are not permitted by DSA.~~
9. Cross-laminated timber used as part of the seismic force resisting system, unless approved as

an alternative system in accordance with Section 104.11.

2301.2 General design requirements. The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, shall be in accordance with one of the following methods:

...

5. The design and construction of log structures shall be in accordance with the provisions of ICC 400.

~~Relocated to 2301.1.4 Item 1.~~ **Exception:** ~~[DSA-SS & DSA-SS/CC] Log structures are not permitted by DSA.~~

...

SECTION 2302 DEFINITIONS

2302.1 Definitions. The following terms are defined in Chapter 2:

...

NATURALLY DURABLE WOOD.

Decay resistant.

Termite resistant.

...

SECTION 2303 MINIMUM STANDARDS AND QUALITY

2303.1 General. Structural sawn lumber; end-jointed lumber; prefabricated wood I-joists; structural glued-

laminated timber; wood structural panels, fiberboard sheathing (when used structurally); hardboard siding (when used structurally); particleboard; preservative-treated wood; structural log members; structural composite lumber; round timber poles and piles; fire-retardant-treated wood; hardwood plywood; wood trusses; joist hangers; nails; and staples shall conform to the applicable provisions of this section.

...

2303.1.3 Structural glued-laminated timber. Glued-laminated timbers shall be manufactured and identified as required in ANSI/AITC A190.1 and ASTM D 3737.

2303.1.3.1 Additional requirements. [DSA-SS & DSA-SS/CC] *The construction documents shall indicate the following:*

1. *Dry or wet service conditions.*
2. *Laminating combinations and stress requirements.*
3. *Species group.*
4. *Preservative material and retention, when preservative treatment is required.*
5. *Provisions for protection during shipping and field handling, such as sealing and wrapping in accordance with AITC 111.*

When mechanical reinforcement such as radial tension reinforcement is required, such reinforcement shall comply with AITC 404 and shall be detailed accordingly in the construction documents. Construction documents shall specify that the moisture content of laminations at the time of manufacture shall not exceed 12% for dry conditions of use.

The design of fasteners and connections shall comply with AITC 117, Section I, Item 6 (Connection Design), and NDS Appendix E.

~~Refer to Section 1705A.5.4 for special inspection requirements during fabrication of structural glued laminated timbers.~~

2303.1.4 Structural glued cross-laminated timber. Cross-laminated timbers shall be manufactured and identified as required in ANSI/APA PRG 320.

2303.1.4.1 Additional requirements. [DSA-SS & DSA-SS/CC] *Requirements in Section 2303.1.3.1 shall apply to glued cross-laminated timber.*

...

2303.4.1.4.1 Truss design drawings. Where required by the *registered design professional*, the *building official*, or the statutes of the jurisdiction in which the project is to be constructed, each individual truss design drawing shall bear the seal and signature of the truss designer.

Exceptions:

1. Where a cover sheet and truss index sheet are combined into a single sheet and attached to the set of truss design drawings, the single cover/truss index sheet is the only document required to be signed and sealed by the truss designer.
2. When a cover sheet and a truss index sheet are separately provided and attached to the set of truss design drawings, the cover sheet and the truss index sheet are the only documents required to be signed and sealed by the truss designer.

3. *[DSA-SS, DSA-SS/CC] Exceptions 1 and 2 are not permitted by DSA.*

2303.4.2 Truss placement diagram. The truss manufacturer shall provide a truss placement diagram that identifies the proposed location for each individually designated truss and references the corresponding truss design drawing. The truss placement diagram shall be provided as part of the truss submittal package, and with the shipment of trusses delivered to the job site. Truss placement diagrams that serve only as a guide for installation and do not deviate from the *permit* submittal drawings shall not be required to bear the seal or signature of the truss designer.

2303.4.3 Truss submittal package. The truss submittal package provided by the truss manufacturer shall consist of each individual truss design drawing, the truss placement diagram, the permanent individual truss member restraint/bracing method and details and any other structural details germane to the trusses; as applicable, the cover/truss index sheet.

2303.4.3.1 Additional Requirements. *[DSA-SS, DSA-SS/CC] In addition to Sections 2303.4.1 and 2303.4.2, the following requirements apply:*

1. **Construction Documents.** *The construction documents prepared by the registered engineer or licensed architect for the project shall indicate all requirements for the truss design, including:*

1.1 Deflection criteria.

1.2 Connection details to structural and non-structural elements (e.g. non-bearing partitions).

2. Requirements for Approval. *The truss design drawings and engineering analysis shall be provided to the enforcement agency and approved prior to truss fabrication, in accordance with the California Administrative Code. Alterations to the approved truss design drawings or manufactured trusses are subject to the approval of the enforcement agency.*

~~**3. Special inspection during truss manufacture.** *Refer to Section 1705A.5.5 for special inspection requirements during the manufacture of open-web trusses.*~~

2303.4.4 Anchorage. The design for the transfer of loads and anchorage of each truss to the supporting structure is the responsibility of the *registered design professional*.

2303.4.5 Alterations to trusses. Truss members and components shall not be cut, notched, drilled, spliced or otherwise altered in any way without written concurrence and approval of a *registered design professional*. Alterations resulting in the addition of loads to any member (e.g., HVAC equipment, piping, additional roofing or insulation, etc.) shall not be permitted without verification that the truss is capable of supporting such additional loading.

2303.4.6 TPI 1 Specifications. In addition to Sections 2303.4.1 through 2303.4.5, the design, manufacture and quality assurance of metal-plate-connected wood trusses shall be in accordance with TPI 1. Job-site inspections shall be in compliance with Section 110.4, as applicable.

2303.4.7 Truss quality assurance. Trusses not part of a manufacturing process in accordance with either Section 2303.4.6 or a standard listed in Chapter 35, which provides requirements for quality control done under the supervision of a third-party quality control agency, shall be manufactured in compliance with Sections 1704.2 and 1704.6, as applicable.

...

SECTION 2304 GENERAL CONSTRUCTION REQUIREMENTS

2304.1 General. The provisions of this section apply to design methods specified in Section 2301.2.

2304.2 Size of structural members. Computations to determine the required sizes of members shall be based on the net dimensions (actual sizes) and not nominal sizes.

2304.3 Wall framing. The framing of exterior and interior walls shall be in accordance with the provisions

specified in Section 2308 unless a specific design is furnished.

2304.3.1 Bottom plates. Studs shall have full bearing on a 2-inch-thick (actual 1¹/₂-inch, 38 mm) or larger plate or sill having a width at least equal to the width of the studs.

2304.3.2 Framing over openings. Headers, double joists, trusses or other approved assemblies that are of adequate size to transfer loads to the vertical members shall be provided over window and door openings in load-bearing walls and partitions.

2304.3.3 Shrinkage. Wood walls and bearing partitions shall not support more than two floors and a roof unless an analysis satisfactory to the building official shows that shrinkage of the wood framing will not have adverse effects on the structure or any plumbing, electrical or mechanical systems, or other equipment installed therein due to excessive shrinkage or differential movements caused by shrinkage. The analysis shall also show that the roof drainage system and the foregoing systems or equipment will not be adversely affected or, as an alternate, such systems shall be designed to accommodate the differential shrinkage or movements.

2304.3.4 Additional requirements. *[DSA-SS, DSA-SS/CC]* The following additional requirements apply:

1. *Engineering analysis shall be furnished that demonstrates compliance of wall framing elements and connections with Section 2301.2, Item 1 or 2.*
2. *Construction documents shall include detailing of sill plate anchorage to supporting masonry or concrete for all exterior and interior bearing, non-bearing and shear walls. Unless specifically designed in accordance with item 1 above, sills under exterior walls, bearing walls and shear walls shall be bolted to masonry or concrete with 5/8" diameter by 12 inch (16 mm by 305 mm) bolts spaced not more than four (4) feet (1219 mm) on center, with a minimum of two (2) bolts for each piece of sill plate. Anchor bolts shall have a 4 inch minimum and a 12 inch maximum clearance to the end of the sill plate, and 7 inch minimum embedment into concrete or masonry.*

Unless specifically designed in accordance with item 1 above, sill plates under non-bearing interior partitions on concrete floor slabs shall be anchored at not more than four (4) feet (1219 mm) on center to resist a minimum allowable stress shear of 100 pounds per linear foot (1.4 kN/m) acting either parallel or perpendicular to the wall.

3. *Construction documents shall include detailing and limitations for notches and bored holes in wall studs, plates and sills.*

2304.4 Floor and roof framing. The framing of wood-joisted floors and wood framed roofs shall be in accordance with the provisions specified in Section 2308 unless a specific design is furnished.

2304.4.1 Additional requirements. [DSA-SS, DSA-SS/CC] *The following additional requirements apply:*

- 1. Engineering analysis shall be furnished that demonstrates compliance of floor, roof and ceiling framing elements and connections with Section 2301.2, Items 1 or 2.*
- 2. Construction documents shall include detailing and limitations for notches and bored holes in floor and roof framing members.*

...

2304.6.1 Wood structural panel sheathing.

...

~~**Exception: [DSA-SS]** *Wind pressure shall be calculated in accordance with Section 1609A.*~~

...

2304.10 Connections and fasteners.

...

2304.10.1 Fastener requirements. Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2301.2. The number and size of fasteners connecting wood members shall not be less than that set forth in Table 2304.10.1.

2304.10.1.1 ~~2304.9.1.1~~ Additional requirements. [DSA-SS] *Fasteners used for the attachment of exterior wall coverings shall be of hot-dipped zinc-coated galvanized steel, mechanically deposited zinc-coated steel, stainless steel, silicon bronze or copper. The coating weights for hot-dipped zinc-coated fasteners shall be in accordance with ASTM A 153. The coating weights for mechanically deposited zinc coated fasteners shall be in accordance with ASTM B 695, Class 55 minimum.*

...

2304.12.1.2 Wood supported by exterior foundation walls. Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8 inches (203 mm) from exposed earth shall be of naturally durable or preservative-treated wood.

***Exception: [DSA-SS]** At exterior walls where the earth is paved with an asphalt or concrete slab at least 18 inches (457 mm) wide and draining away from the building, the bottom of sills are permitted to be 6 inches (152 mm) above the top of such slab. Other equivalent means of termite and decay protection may be accepted by the enforcement agency.*

...

2304.12.1.4 Sleepers and sills. Sleepers and sills on a concrete or masonry slab that is in direct contact with earth shall be of naturally durable or preservative-treated wood.

***2304.12.1.4.1 2304.11.2.4.1 Additional Requirements. [DSA-SS]** Stud walls or partitions at shower or toilet rooms with more than two plumbing fixtures, excluding floor drains, and stud walls adjacent to unroofed paved areas shall rest on a concrete curb extending at least 6 inches (152 mm) above finished floor or pavement level.*

...

SECTION 2305

GENERAL DESIGN REQUIREMENTS FOR LATERAL-FORCE-RESISTING SYSTEMS

...

2305.1.1 Openings in shear panels. Openings in shear panels that materially affect their strength shall be detailed on the plans, and shall have their edges adequately reinforced to transfer all shearing stresses.

2305.1.2 Additional Requirements. [DSA-SS, DSA-SS/CC] See Section 2301.1.4 for modifications to AWC SDPWS. The following limitations shall apply:

~~Relocated to Section 2301.1.4~~

- ~~1. Straight sheathed horizontal lumber diaphragms are not permitted.~~
- ~~2. Gypsum-based sheathing shear walls and portland cement plaster shear walls are not~~

~~permitted.~~

- ~~3. Shear wall foundation anchor bolt washers shall be provided in accordance with AF & PA SDPWS Section 4.3.6.4.3. The exception to AF & PA SDPWS Section 4.3.6.4.3 shall not apply.~~
- ~~4. Wood structural panel shear walls and diaphragms using staples as fasteners are not permitted.~~
- ~~5. Unblocked shear walls are not permitted.~~
- ~~6. Any wood structural panel sheathing used for diaphragms and shear walls that are part of the seismic force resisting system shall be applied directly to framing members.~~
- ~~7. Single and double diagonally sheathed lumber walls shall not be used to resist seismic forces.~~

2305.2 Diaphragm deflection.

...

~~Exception: [DSA-SS, DSA-SS/CC] Section 2305.2 is not permitted by DSA~~

...

2305.3 Shear wall deflection

...

~~Exception: [DSA-SS, DSA-SS/CC] Section 2305.3 is not permitted by DSA.~~

...

SECTION 2306 ALLOWABLE STRESS DESIGN

2306.1 Allowable stress design. The structural analysis and construction of wood elements in structures using *allowable stress design* shall be in accordance with the following applicable standards:

...

2306.2 Wood-frame diaphragms. Wood-frame diaphragms shall be designed and constructed in accordance with AWC SDPWS. Where panels are fastened to framing members with staples,

requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.2(1) or 2306.2(2) shall be permitted. The allowable shear values in Tables 2306.2(1) and 2306.2(2) are permitted to be increased 40 percent for wind design.

~~**Exception:** [DSA-SS, DSA-SS/CC] Wood structural panel diaphragms using staples as fasteners are not permitted by DSA.~~

...

2306.3 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with AWC SDPWS. Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.3(1), 2306.3(2) or 2306.3(3) shall be permitted. The allowable shear values in Tables 2306.3(1) and 2306.3(2) are permitted to be increased 40 percent for wind design. Panels complying with ANSI/APA PRP-210 shall be permitted to use design values for Plywood Siding in the AWC SDPWS.

~~**Exception:** [DSA-SS, DSA-SS/CC] Wood structural panel shear walls using staples as fasteners are not permitted by DSA.~~

...

SECTION 2308 CONVENTIONAL LIGHT-FRAME CONSTRUCTION

...

2308.2.7 8. Additional requirements [DSA-SS & DSA-SS/CC] The use of conventional light-frame construction provisions in this section is permitted, subject to the following conditions:

1. ~~8.1.~~ The design and construction shall also comply with Section 2304 and Section 2305.
2. ~~8.2.~~ In conjunction with the use of provisions in Section 2308.6 ~~2308.3~~ (~~Braced Wall Lines~~ bracing), engineering analysis shall be furnished that demonstrates compliance of lateral-force-resisting systems with Section 2305.

3. ~~8-3.~~ In addition to the use of provisions in Section 2308.4 ~~2308.8~~ (Floor framing ~~Joists~~), engineering analysis shall be furnished that demonstrates compliance of floor framing elements and connections with Section 2301.2, Item 1 or 2.
4. ~~8-4.~~ In addition to the use of provisions in Section 2308.5 ~~2308.9~~ (Wall construction Framing), engineering analysis shall be furnished that demonstrates compliance of wall framing elements and connections with Section 2301.2, Item 1 or 2.
5. ~~8-5.~~ In addition to the use of provisions in Section 2308.7 ~~2308.10~~ (Roof and Ceiling Framing), engineering analysis shall be furnished demonstrating compliance of roof and ceiling framing elements and connections with Section 2301.2, Item 1 or 2.

...

SECTION 2309

WOOD FRAME CONSTRUCTION MANUAL

2309.1 Wood Frame Construction Manual. Structural design in accordance with AWC WFCM shall be permitted for buildings assigned to Risk Category I or II subject to the limitations of Section 1.1.3 of the AWC WFCM and the load assumption contained therein. Structural elements beyond these limitations shall be designed in accordance with accepted engineering practice.

2309.1.1 Additional requirements [DSA-SS & DSA-SS/CC] The use of the AWC WFCM is permitted provided the design and construction also comply with Sections 2304, 2305, and 2301.2, Item 1 or 2 and engineering analysis is furnished demonstrating compliance.

~~All existing amendments that are not revised above shall continue without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 24

GLASS AND GLAZING

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA- SS	DSA- SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	X	X	
Adopt only those sections listed below			
2403.2.1	X	X	
Table 2403.2.1	X	X	
2410	X	X	

All existing amendments that are not revised below shall continue without any change.

...

SECTION 2401 GENERAL

2401.1 Scope. The provisions of this chapter shall govern the materials, design, construction and quality of glass, light-transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in buildings and structures.

...

SECTION 2403 GENERAL REQUIREMENTS FOR GLASS

2403.1 Identification. Each pane shall bear the manufacturer's mark designating the type and thickness of the glass or glazing material. The identification shall not be omitted unless approved and an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with approved construction documents that comply with the provisions of this chapter. Safety glazing shall be identified in accordance with Section 2406.2.

...

2403.2 Glass supports. Where one or more sides of any pane of glass are not firmly supported, or are subjected to unusual load conditions, detailed construction documents, detailed shop drawings and analysis or test data ensuring safe performance for the specific installation shall be prepared by a registered design professional.

2403.2.1 Additional Requirements. [DSA-SS, DSA-SS/CC] In addition to the requirements of Section 2403.2, glass supports shall comply with the following:

1. The construction documents and analysis or test data required per Section 2403.2 shall be submitted to the enforcement agency for approval.
2. Glass firmly supported on all four edges shall be glazed with minimum laps and edge clearances set forth in Table 2403.2.1.

TABLE 2403.2.1
MINIMUM GLAZING REQUIREMENTS

Fixed Windows and Openable Windows Other Than Horizontal Siding					
GLASS AREA	UP TO 6 SQ. FT.	6 TO 14 SQ. FT.	14 TO 32 SQ. FT.	32 TO 50 SQ. FT.	OVER 50 SQ. FT.
× 0.0929 for m ² , × 25.4 for mm					
1. Minimum Frame Lap	1/4"	1/4"	5/16"	3/8"	1/2"
2. Minimum Glass Edge Clearance	1/8" ^{1,2}	1/8" ^{1,2}	3/16" ¹	1/4"	1/4" ¹
3. Continuous Glazing Rabbet and Glass Retainer ³	Required				
4. Resilient Setting Material ⁴	Not Required	Required			
Sliding Doors and Horizontal Sliding Windows					
GLASS AREA	UP TO 14 SQ. FT.	14 TO 32 SQ. FT.	32 TO 50 SQ. FT.	OVER 50 SQ. FT.	
× 0.0929 for m ² , × 25.4 for mm					
5. Minimum Glass Frame Lap	1/4"	5/16"	3/8"	1/2"	

6. Minimum Glass Edge Clearance	1/8" ²	3/16"	1/4"	1/4"
7. Continuous Glazing Rabbet and Glass Retainer ³	Required above third story	Required		
8. Resilient Setting Material ⁴	Not Required		Required	

¹ Glass edge clearance in fixed openings shall not be less than required to provide for wind and earthquake drift.

² Glass edge clearance at all sides of pane shall be a minimum of 3/16 inch (4.8 mm) where height of glass exceeds 3 feet (914 mm).

³ Glass retainers such as metal, wood or vinyl face stops, glazing beads, gaskets, glazing clips and glazing channels shall be of sufficient strength and fixation to serve this purpose.

⁴ Resilient setting material shall include preformed rubber or vinyl plastic gaskets or other materials which are proved to the satisfaction of the building official to remain resilient.

...

Section 2410 [DSA-SS, DSA-SS/CC] Structural Sealant Glazing (SSG)

2410.1 General. The requirements of this section address the use of Structural Sealant Glazing (SSG). These requirements shall not be used for butt joint glazing, point supported glass, and glass fins.

Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections 2410.1.1 through 2410.1.4.

2410.1.1 Design. Design of Structural Sealant Glazing (SSG) shall satisfy the following requirements:

1. SSG shall be weather tight and serviceable, as defined in AAMA 501.4, under design story drifts associated with the Design Earthquake and no glass fallout shall occur at the drifts determined by ASCE 7 Section 13.5.9.

2. *The sealant utilized in the insulated glass units used in SSG shall be designed in accordance with ASTM C 1249. The insulated glass unit design shall be in accordance with ASTM C 1249 Section 6.7.2.*
3. *Allowable stress for SSG shall not exceed 20 psi and shall have a minimum factor of safety of 5 in accordance with ASTM C 1401.*
4. *Design methodology shall address seismic movement in accordance with ASTM C 1401 Section 30.3.4.*
5. *SSG systems shall be supported for self-weight and lateral loading at each floor level of the building.*
6. *Unitized SSG framing shall be anchored to the building floor bearing plate by screws or bolts and shall not rely upon gravity or frictional forces for attachment.*
7. *Framing shall satisfy the out-of-plane deflection requirements of this code.*

2410.1.2 Testing and Inspection. *Testing and inspection of Structural Sealant Glazing (SSG) shall satisfy the following requirements:*

- a. *The seismic drift capability of structural sealant glazing shall be determined by tests in accordance with AAMA 501.6, AAMA 501.4 and ASCE 7 Section 13.5.9.2.*
- b. *The applicability of the specific AAMA 501.6 and AAMA 501.4 testing shall be subject to approval by the building official.*
- c. *The panel test specimens used in the AAMA 501.6 and AAMA 501.4 testing shall include all glass types (annealed, heat strengthened, laminated, tempered) and insulated glass units that comprise more than 5% of the total glass curtain wall area used in the building.*
- d. *AAMA 501.4 test specimen shall include the same materials, sections, connections, and attachment details to the test apparatus as used in the building.*

- e. Serviceability tests of SSG test specimen shall be performed in accordance with AAMA 501.4 after seismic displacement tests to the design story drift.
- f. The window wall system using structural sealant by different manufacturer/product category shall be qualified in accordance with AAMA 501.6 and AAMA 501.4 testing for the seismic drift required. Analysis as an alternative to testing is not acceptable for the purposes of satisfying the seismic drift requirements of the SSG system.
- g. Where unitized SSG is used with horizontal stack joints at each floor level and split vertical mullions that can move independently, only a story height single unit need to be tested under AAMA 501.6. Where continuous horizontal bands of SSG are used in the building, either two or four sided, the aspect ratio (height-to-length) of the test specimen shall be less than 1.0, contain not less than two interior vertical joints and all joints (vertical in the case of two sided), including the perimeter of the glass, shall be glazed with SSG.
- h. Where SSG continues around corners, the AAMA 501.4 test specimen shall include one corner panel to verify the kinematics of the corner condition under seismic drift.
- i. Quality assurance and inspection requirements shall include formalized post-installation tests using the Point Load Testing procedure in accordance with ASTM C 1392. The Point Load Tests shall be done after the initial installation. ~~, then once every year for 3 years, not less than one test per elevation each time.~~

Exception: ~~[DSA-SS, DSA-SS/CC] For two-sided SSG systems where the horizontal edges are mechanically attached to mullions, the yearly point load test for 3 years is not required.~~

- j. Where the SSG is field assembled, hand pull tab tests in accordance with ASTM C1401 Section X2.1, one test every 100 linear feet, but not less than one test for each building elevation view shall be required.

Existing AAMA 501.4 and 501.6 test results satisfying the requirements of this section shall be permitted, in lieu of project specific tests, when approved by the building official.

2410.1.3 Monitoring. Short and Long term periodic performance monitoring shall be provided in accordance with ASTM C 1401, C 1392, and C 1394. Inspection frequencies recommended in ASTM C 1392 Section 5.1 shall be followed.

After every significant seismic event, where the Peak g Ground shaking a Acceleration (PGA) at the site exceeds 0.3g, or the acceleration at any monitored building level (if any) exceeds 0.8g, as measured by the seismic monitoring system in the building, the owner shall retain a structural engineer to make an inspection of the SSG system. The inspection shall include viewing the performance of the panel, structural sealant, glass, reviewing the strong motion records, and a visual examination of the overall performance for deterioration, offset or physical damage. A report for each inspection, including conclusions on the continuing adequacy of the SSG system, shall be submitted to the enforcement agency.

Exception: [DSA-SS, DSA-SS/CC] The inspection requirements triggered by specific ground shaking acceleration or measured building acceleration is not required.

2410.1.4 Construction Documents. Complete design of the SSG system for gravity, wind, and seismic forces shall be subject to review by the enforcement agency. Construction documents shall show structural details of glass and curtain wall system including:

1. A design narrative explaining how the SSG is supported by the building and the mechanism used to accommodate seismic racking.
2. Type of SSG and whether field or shop built.
3. The means of supporting the glass during structural sealant curing time shall be shown in the construction documents.
4. Typical curtain wall panel elevation, plan view, and sections.
5. Details of building corner joint to verify how the corner vertical mullion will move to accommodate the seismic drift.
6. Joints between panel and floors at top and bottom.
7. Joint between panels – including vertical & horizontal stack joints at intermediate and edge mullion.
8. Member sizes for curtain wall panels.
9. Glass pane sizes, thickness and type of glass.
10. Contact width and thickness of structural sealant and sealant materials for shop and field installation/re-glazing.

11. *Glass to aluminum joints (including primers, if any).*
12. *Maximum roof/floor dead and live load deflection of the roof/floor framing members supporting the exterior curtain wall system.*
13. *Required seismic separation or gap distance between the structural sealant glazing curtain wall and other adjacent cladding units.*
14. *Mitigation of galvanic reactions between the roof/floor slab anchors, steel screw connections of aluminum sections and the aluminum anchorage components, if any.*

All existing amendments that are not revised above shall continue without any change.

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 25

GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below	X	X	
Adopt only those sections listed below			
<u>2501.1.1</u> 2501.2	X	X	
2503.2	X	X	
2504.2	X	X	
2504.2.1	X	X	
2505.3	X	X	
2507.3	X	X	

2508.5.6	X	X	
<u>2514.1 Exception</u>	<u>X</u>	-	

All existing California amendments that are not revised below shall continue without change.

...

SECTION 2501 GENERAL

2501.1 Scope. Provisions of this chapter shall govern the materials, design, construction and quality of gypsum board, gypsum panel products, lath, gypsum plaster, cement plaster and reinforced gypsum concrete.

...

2501.1.1 ~~2501.2~~ Additional Requirements. *[DSA-SS, DSA-SS/CC] Details of attachment for wall and ceiling coverings which are not provided for in this code ~~these regulations~~ shall be detailed in the approved construction documents.*

...

SECTION 2503 INSPECTION

2503.1 Inspection. Lath, gypsum board and gypsum panel products shall be inspected in accordance with Section 110.3.5.

2503.2 Additional requirements for inspection and testing. *[DSA-SS, DSA-SS/CC]*

- 1. ~~Lath, and gypsum board and gypsum panel products~~ shall be inspected in accordance with Chapter 17A and the California Administrative Code.*
- 2. No ~~lath, gypsum board and gypsum panel products or gypsum wallboard~~ or their attachments shall be covered or finished until it has been inspected and approved by the inspector of record and/or special inspector.*

3. The enforcement agency may require tests in accordance with Table 2506.2 to determine compliance with the provisions of this code. ~~these regulations~~.
4. The testing of gypsum board and gypsum panel ~~and gypsum~~ products shall conform with standards listed in Table 2506.2.

...

SECTION 2504 VERTICAL AND HORIZONTAL ASSEMBLIES

2504.1 Scope. The following requirements shall be met where construction involves gypsum board, gypsum panel products or lath and plaster in vertical and horizontal assemblies.

...

2504.2 Additional Requirements. [DSA-SS, DSA-SS/CC] *In addition to the requirements of this section, the horizontal and vertical assemblies of plaster, ~~or~~ gypsum board or gypsum panel products shall be designed to resist the loads specified in this code. ~~For suspended acoustical ceiling systems, see Section 2506. For gypsum construction, see Section 2508.~~*

2504.2.1 Wood Furring Strips. Wood furring strips for ceilings fastened to floor or ceiling joist shall be nailed at each bearing with two common wire nails, one of which shall be a slant nail and the other a face nail, or by one nail having spirally grooved or annular grooved shanks approved by the enforcement agency for this purpose. All stripping nails shall penetrate not less than 1 3/4 inches (44.5 mm) into the member receiving the point. Holes in stripping at joints shall be subdrilled to prevent splitting.

Where common wire nails are used to support horizontal wood stripping for plaster ceilings, such stripping shall be wire tied to the joists 4 feet (1219 mm) on center with two strands of No. 18 W&M gage galvanized annealed wire to an 8d common wire nail driven into each side of the joist 2 inches (51 mm) above the bottom of the joist or to each end of a 16d common wire nail driven horizontally through the joist 2 inches (51 mm) above the bottom of the joist, and the ends of the wire secured together with three twists of the wire.

SECTION 2505
SHEAR WALL CONSTRUCTION

...

2505.3 [DSA-SS, DSA-SS/CC] *Section 2505.1 and 2505.2 are not permitted.*

...

SECTION 2507
LATHING AND PLASTERING

2507.1 General. Lathing and plastering materials and accessories shall be marked by the manufacturer's designation to indicate compliance with the appropriate standards referenced in this section and stored in such a manner to protect them from the weather.

2507.2 Standards. Lathing and plastering materials shall conform to the standards listed in Table 2507.2 and Chapter 35 and, where required for fire protection, shall also conform to the provisions of Chapter 7.

2507.3 Lath attachment to horizontal wood supports. [DSA-SS, DSA-SS/CC] *Where interior or exterior lath is attached to horizontal wood supports, either of the following attachments shall be used in addition to the methods of attachment described in referenced standards listed in Table 2507.2.*

- 1. Secure lath to alternate supports with ties consisting of a double strand of No. 18 W & M gage galvanized annealed wire at one edge of each sheet of lath. Wire ties shall be installed not less than 3 inches (76 mm) back from the edge of each sheet and shall be looped around stripping, or attached to an 8d common wire nail driven into each side of the joist 2 inches (51 mm) above the bottom of the joist or to each end of a 16d common wire nail driven horizontally through the joist 2 inches (51 mm) above the bottom of the joist and the ends of the wire secured together with three twists of the wire.*
- 2. Secure lath to each support with 1/2-inch-wide (12.7 mm), 1 1/2-inch-long (38mm) No. 9 W & M gage, ring shank, hook staple placed around a 10d common nail laid flat under the surface of the lath not more than 3 inches (76 mm) from edge of each sheet. Such staples may be placed over*

ribs of 3/8-inch (9.5 mm) rib lath or over back wire of welded wire fabric or other approved lath, omitting the 10d nails.

SECTION 2508 GYPSUM CONSTRUCTION

2508.1 General.

...

2508.5.6 Diaphragm ceiling connection to partitions. *[DSA-SS, DSA-SS/CC] Gypsum board shall not be used in diaphragm ceilings to resist lateral forces imposed by partitions. Connection of diaphragm ceiling to the vertical lateral force resisting elements shall be designed and detailed to transfer lateral forces.*

...

SECTION 2514 REINFORCED GYPSUM CONCRETE

2514.1 General. Reinforced gypsum concrete shall comply with the requirements of ASTM C 317 and ASTM C 956.

Exception: ~~Relocated from Section 1911A~~ **[DSA-SS]** Reinforced gypsum concrete shall be considered as an alternative system.

...

~~All existing amendments are continued without any change.~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 26
PLASTIC**

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			
<u>2603.11.1</u>	<u>X</u>	<u>X</u>	
<u>2603.12.3</u>	<u>X</u>	<u>X</u>	

...

**SECTION 2603
FOAM PLASTIC INSULATION**

...

2603.11 Cladding attachment over foam sheathing to masonry or concrete wall construction.

Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's installation instructions or an approved design. Foam sheathing shall be attached to masonry or concrete construction in accordance with the insulation manufacturer's installation instructions or an approved design. Furring and furring attachments through foam sheathing shall be designed to resist design loads determined in accordance with Chapter 16, including support of cladding weight as applicable. Fasteners used to attach cladding or furring through foam sheathing to masonry or concrete substrates shall be approved for application into masonry or concrete material and shall be installed in accordance with the fastener manufacturer's installation instructions.

Exceptions:

1. Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing and connection to a masonry or concrete substrate, those requirements

shall apply.

2. For exterior insulation and finish systems, refer to Section 1408.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

2603.11.1 Additional Requirements. [DSA-SS, DSA-SS/CC] *In addition to the requirements of Section 2603.11, cladding and foam sheathing supports and attachments shall be designed and submitted to the enforcement agency for approval.*

2603.12 Cladding attachment over foam sheathing to cold-formed steel framing. Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's approved installation instructions, including any limitations for use over foam plastic sheathing, or an approved design. Where used, furring and furring attachments shall be designed to resist design loads determined in accordance with Chapter 16. In addition, the cladding or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Sections 2603.12.1 and 2603.12.2, or an approved design for support of cladding weight.

Exceptions:

1. Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing, those requirements shall apply.
2. For exterior insulation and finish systems, refer to Section 1408.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

2603.12.1 Direct attachment. Where cladding is installed directly over foam sheathing without the use of furring, cladding minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.12.1.

2603.12.2 Furred cladding attachment. Where steel or wood furring is used to attach cladding over foam sheathing, furring minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.12.2. Where placed horizontally, wood furring shall be preservative-treated wood in accordance with Section 2303.1.9 or naturally durable wood and fasteners shall be corrosion resistant in accordance Section 2304.10.5. Steel furring shall have a minimum G60 galvanized coating.

2603.12.3 Additional Requirements. [DSA-SS, DSA-SS/CC] *In addition to the requirements of Section 2603.12, 2603.12.1, and 2603.12.2, cladding and foam sheathing supports and attachments shall be*

designed and submitted to the enforcement agency for approval.

...

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS**

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 31
SPECIAL CONSTRUCTION**

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with			

amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 32
ENCROACHMENTS INTO THE PUBIC RIGHT-OF-WAY**

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION**

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	

Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

CHAPTER 34

EXISTING STRUCTURES

SECTION 3401

GENERAL

...

~~Relocated to Section 301.1 Part 10, Title 24, C.C.R.~~

3401.1.1 Existing state-owned structures. The provisions of Sections 3417 through 3422 establish minimum standards for earthquake evaluation and design for retrofit of existing state-owned structures, including buildings owned by the University of California and the California State University.

The provisions of Sections 3417 through 3422 may be adopted by a local jurisdiction for earthquake evaluation and design for retrofit of existing buildings.

3401.1.2 Public school buildings. [DSA-SS] The provisions of Sections 3417 through 3423 establish minimum standards for earthquake evaluation and design for the rehabilitation of existing buildings for use as public school buildings under the jurisdiction of the Division of the State Architect-Structural Safety (DSA-SS, refer to Section 1.9.2.1) where required by Sections 4-307 and 4-309(c) of the California Administrative Code.

The provisions of Section 3417 through 3423 also establish minimum standards for earthquake evaluation and design for rehabilitation of existing public school buildings currently under the jurisdiction of DSA-SS.

3401.1.3 Community college buildings. [DSA-SS/CC] The provisions of Sections 3417 through 3423 establish minimum standards for earthquake evaluation and design for the rehabilitation of existing buildings for use as community college buildings under the jurisdiction of the Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC, refer to Section 1.9.2.2) where required by Sections 4-307 and 4-309(c) of the California Administrative Code.

The provisions of Section 3417 through 3423 also establish minimum standards for earthquake

evaluation and design for rehabilitation of existing community college buildings currently under the jurisdiction of DSA-SS/CC.

...

Relocated to Sections 317 through 323, Part 10, Title 24, C.C.R.

SECTION 3417 **EARTHQUAKE EVALUATION AND DESIGN FOR** **RETROFIT OF EXISTING BUILDINGS**

3417.1 Purpose.

....

3417.1.2 Public school buildings. The provisions of Sections 3417 through 3423 establish minimum standards for earthquake evaluation and design for the rehabilitation of existing buildings for use as public school buildings under the jurisdiction of the Division of the State Architect-Structural Safety (DSA-SS), refer to Section 1.9.2.1.

The provisions of Section 3417 through 3423 also establish minimum standards for earthquake evaluation and design for rehabilitation of existing public buildings currently under the jurisdiction of DSA-SS.

3417.1.2.1 Reference to other chapters. For public schools, where reference within this chapter is made to sections in Chapters 16, 17, 18, 19, 21 or 22, the provisions in Chapters 16A, 17A, 18A, 19A, 21A and 22A respectively shall apply instead.

3417.1.3 Community college buildings. The provisions of Sections 3417 through 3423 establish minimum standards for earthquake evaluation and design for the rehabilitation of existing buildings for use as community college buildings under the jurisdiction of the Division of the State Architect-Structural Safety/Community Colleges (DSA-SS/CC), refer to Section 1.9.2.2.

The provisions of Section 3417 through 3423 also establish minimum standards for earthquake evaluation and design for rehabilitation of existing community college buildings currently under the jurisdiction of DSA-SS/CC.

3417.1.3.1 Reference to other chapters. For community colleges, where reference within this chapter is made to sections in Chapters 17 or 18, the provisions in Chapters 17A and 18A respectively shall apply instead.

3417.2 Scope. All modifications, structurally connected additions and/or repairs to existing structures or portions thereof shall, at a minimum, be designed and constructed to resist the effects of seismic ground motions as provided in this section. The structural system shall be evaluated by a registered design professional and, if not meeting or exceeding the minimum seismic design performance requirements of this section, shall be retrofitted in compliance with these requirements.

Exception: Those structures for which Section 3417.3 determines that assessment is not required, or for which Section 3417.4 determines that retrofit is not needed, then only the requirements of Section 3417.11 apply.

3417.3 Applicability.

...

3417.3.2 Public school buildings. For public schools, the provisions of Section 3417 apply when required in accordance with Sections 4-307 and 4-309(c), Title 24, Part 1.

3417.3.3 Community college buildings. For community colleges, the provisions of Section 3417 apply when required in accordance with Sections 4-307 and 4-309(c), Title 24, Part 1.

3417.4 Evaluation required. If the criteria in Section 3417.3 apply to the project under consideration, the design professional of record shall provide an evaluation in accordance with Section 3417 to determine the seismic performance of the building in its current configuration and condition. If the structure's seismic performance as required by Section 3417.5 is evaluated as satisfactory and the peer reviewer(s), when Method B of Section 3421 is used, concur, then no structural retrofit is required.

3417.5 Minimum seismic design performance levels for structural and nonstructural components. Following the notations of ASCE 41, the seismic requirements for design and assessment are based upon a prescribed Earthquake Hazard Level (BSE-1, BSE-2, BSE-R or BSE-C), a specified structural performance level (S-1 through S-5) and a non-structural performance level (N-A through N-E). The minimum seismic performance criteria are given in Table 3417.5 according to the Building Regulatory Authority and the Risk Category as determined in Chapter 16, or by the regulatory authority. The building shall be evaluated at both the Level 1 and Level 2 performance levels, and the more restrictive requirements shall apply.

Basic Safety Earthquake 2 (BSE-2) in ASCE 41 shall be same as Risk Targeted Maximum Considered Earthquake (MCE_R) in ASCE 7. Probabilistic response spectra defining other Earthquake Hazard Levels shall be developed using site-specific ground motions in accordance with ASCE 7 Section 21.2 utilizing the Next Generation Attenuation (NGA) relations used for the 2008 USGS seismic hazards maps for Western United States (WUS). When supported by data and analysis, other NGA relations, that were not used for the 2008 USGS maps, shall be permitted as additions or substitutions. No fewer than three NGA relations shall be utilized. Response spectra shall incorporate the risk coefficient C_R per ASCE 7 Section 21.2.1.1.

Ground motion response history analysis shall be as set forth in ASCE 7 Chapter 16, Section 17.3 or Section 18.2.3.

Exception: If the floor area of an addition is greater than the larger of 50 per cent of the floor area of the original building or 1,000 square feet (93 m²), then the Table 3417.5 entries for BSE-R and BSE-C are replaced by BSE-1 and BSE-2, respectively.

3417.6 Retrofit required. Where the evaluation indicates the building does not meet the required performance objectives of this section, the owner shall take appropriate steps to ensure that the building's structural system is retrofitted in accordance with the provisions of Section 3417. Appropriate steps are either: 1) undertake the seismic retrofit as part of the additions, modifications and/or repairs of the structure; or 2) provide a plan, acceptable to the building official, to complete the seismic retrofit in a timely manner. The relocation or moving of an existing building is considered to be an alteration requiring filing of the plans and specifications approved by the building official.

3417.7 The additions, modification or repair to any existing building are permitted to be prepared in accordance with the requirements for a new building, Chapter 16, Part 2, Title 24, C.C.R., 2007 edition, applied to the entire building.

3417.8 The requirements of ASCE 41 Chapter 9 are to apply to the use of seismic isolation or passive energy systems for the repair, modification or retrofit of an existing structure. When seismic isolation or passive energy dissipation is used, the project must have project peer review as prescribed in Section 3422.

3417.9 Any construction required by this chapter shall include structural observation by the registered design professional who is responsible for the structural design in accordance with Section 3419.10.

3417.10 Where Method B of Section 3421 is used or is required by Section 3419.7, the proposed method of building evaluation and design procedures must be accepted by the building official prior to the commencement of the work.

3417.11 Voluntary lateral force-resisting system modifications. Where the exception of Section 3417.2 applies, modifications of existing structural components and additions of new structural components that are initiated for the purpose of improving the seismic performance of an existing structure and that are not required by other portions of this chapter are permitted under the requirements of Section 3419.12.

SECTION 3418 **DEFINITIONS**

3418.1. In addition to the definitions given in Section 3402, for the purposes of Sections 3417 through 3423, certain terms are defined as follows:

ADDITION means any work that increases the floor or roof area or the volume of enclosed space of an existing building, and is structurally attached to the existing building by connections that are required for transmitting vertical or horizontal loads between the addition and the existing structure.

ALTERATION means any change within or to an existing building, which does not increase and may decrease the floor or roof area or the volume of enclosed space.

BSE-C RESPONSE ACCELERATION PARAMETERS are the parameters (S_{xs} and S_{x1}) taken from 5-percent /50-year maximum direction spectral response acceleration curves or by a Site Specific Response Spectrum developed in accordance with Section 3417.5. Values for BSE-C need not be greater than those for BSE-2.

BSE-R RESPONSE ACCELERATION PARAMETERS are the parameters (S_{xs} and S_{x1}) taken from 20-percent /50-year maximum direction spectral response acceleration curves or by a Site Specific Response Spectrum developed in accordance with Section 3417.5. Values for BSE-R need not be greater than those for BSE-1.

BUILDING OFFICIAL is that individual within the agency or organization charged with responsibility for compliance with the requirements of this code. For some agencies this person is termed the "enforcement agent."

DESIGN is the procedure that includes both the evaluation and retrofit design of an existing component, element or structural system, and design of a new component, element or structural system.

ENFORCEMENT AGENCY (Authority Having Jurisdiction in ASCE 41) is the agency or organization charged with responsibility for agency or organization compliance with the requirements of this code.

METHOD A refers to the procedures prescribed in Section 3420.

METHOD B refers to the procedures allowed in Section 3421.

MODIFICATIONS. For this chapter, modification is taken to include repairs to structures that have been damaged.

N-A, N-B, N-C, N-D, N-E are seismic nonstructural component performance measures as defined in ASCE 41. N-A corresponds to the highest performance level, and N-D the lowest, while N-E is not considered.

PEER REVIEW refers to the procedures contained in Section 3422.

REPAIR as used in this chapter means the design and construction work undertaken to restore or enhance the structural and nonstructural load-resisting system participating in the lateral response and stability of a structure that has experienced damage from earthquakes or other destructive events.

S-1, S-2, S-3, S-4, S-5, S-6 are seismic structural performance measures as defined in ASCE 41. S-1 corresponds to the highest performance level, and S-5 the lowest, while S-6 is not considered.

SPECIFIC PROCEDURES are the procedures listed in Section 3419.1.1.

STRUCTURAL REPAIRS are any changes affecting existing or requiring new structural components primarily intended to correct the effects of damage, deterioration or impending or actual failure, regardless of cause.

TABLE 3417.5 SEISMIC PERFORMANCE REQUIREMENTS BY BUILDING REGULATORY AUTHORITY AND RISK CATEGORY. ALL BUILDINGS NOT REGULATED BY DSA ARE ASSIGNED AS "STATE-OWNED."

<u>Building Regulatory Authority</u>	<u>Risk Category</u>	<u>PERFORMANCE CRITERIA</u>	
		<u>Level 1</u>	<u>Level 2</u>
<u>State-Owned</u>	<u>I, II, III</u>	<u>BSE-R, S-3, N-D</u>	<u>BSE-C, S-5, N-E</u>
<u>State-Owned</u>	<u>IV</u>	<u>BSE-R, S-2, N-B</u>	<u>BSE-C, S-4, N-C</u>
<u>Division of the State Architect - Public schools</u>	<u>I</u>	<u>BSE-1, S-3, N-C</u>	<u>BSE-2, S-5, N-E</u>
<u>Division of the State Architect - Public schools</u>	<u>II, III</u>	<u>BSE-1, S-2, N-C</u>	<u>BSE-2, S-4, N-D</u>
<u>Division of the State Architect - Public schools</u>	<u>IV</u>	<u>BSE-1, S-2, N-C</u>	<u>BSE-2, S-4, N-C</u>
<u>Division of the State Architect - Community college</u>	<u>I, II, III</u>	<u>BSE-R, S-3, N-D</u>	<u>BSE-2, S-5, N-E</u>
<u>Division of the State Architect - Community college</u>	<u>IV</u>	<u>BSE-R, S-2, N-B</u>	<u>BSE-2, S-4, N-C</u>

1. ASCE 41 provides acceptance criteria (e.g. m, rotation) for Immediate Occupancy (S1), Life Safety (S3), and Collapse Prevention (S5), and specifies that values for S-2 and S-4 are to be determined by interpolation between the adjacent performance level values.

The required method of interpolation is as follows:

For level S-2, the acceptance value is $\frac{1}{3}$ of the sum of the tabulated value for Immediate Occupancy (IO level) and twice the tabulated value for the Life Safety (LS level).

For level S-4, the acceptance value is one half the sum of the value for the LS level and the value for the Collapse Prevention (CP) level.

For nonstructural components, N-A corresponds to the IO level, N-C to the LS level, and N-D to the Hazards Reduced (HR level).

For evaluation procedures, N-B shall be the same as for N-A. Where numerical values are used, the values for N-B are one half the sum of the appropriate IO and LS values. Where IO or CP values are not given by ASCE 41, then the LS values are permitted to be substituted.

2. Buildings evaluated and retrofitted to meet the requirements for a new building, Chapter 16, Part 2, Title 24, in accordance with the exception in Section 3419.1, are deemed to meet the seismic performance requirements of this section.

SECTION 3419
SEISMIC CRITERIA SELECTION FOR EXISTING BUILDINGS

3419.1 Basis for evaluation and design. This section determines what technical approach is to be used for the seismic evaluation and design for existing buildings. For those buildings or portions of buildings for which Section 3417 requires action, the procedures and limitations for the evaluation of existing buildings and design of retrofit systems and/or repair thereof shall be implemented in accordance with this section.

One of the following approaches must be used:

1. Method A of Section 3420;
2. Method B of Section 3421, with independent review of a peer reviewer as required in Section 3422;
or
3. For state-owned buildings only, the use of one of the specific procedures listed in Section 3419.1.1.

When Method B is chosen it must be approved by the building official, and, where applicable, by the peer reviewer. All referenced standards in ASCE 41 shall be replaced by referenced standards listed in Chapter 35 of this code.

Exceptions:

1. Reserved for BSC
2. **IDS-SS & DSA-SS/CC** For public schools and community colleges constructed to the requirements of California Building Code, 2007 or later edition, that code is permitted to be used in place of those specified in Section 3419.1 provided the building complies with Seismic Design Category D or higher.

3419.1.1 Specific procedures. For state-owned buildings, the following specific procedures taken from the International Existing Building Code (IEBC) Appendix A may be used, without peer review, for their respective types of construction to comply with the seismic performance requirements for Risk Category I, II or III buildings:

1. Seismic Strengthening Provisions for Unreinforced Masonry Bearing Wall Buildings (Chapter A1 of the IEBC);
2. Prescriptive Provisions for Seismic Strengthening of Cripple Walls and Sill Plate Anchorage of Light Wood Frame, Residential Buildings (Chapter A3 of the IEBC);
3. Earthquake Hazard Reduction in Existing Reinforced Concrete and Reinforced Masonry Wall Buildings with Flexible Diaphragms (Chapter A2 of the IEBC).

3419.1.2 When a design project is begun under Method B the selection of the peer reviewer is subject to the approval of the building official. Following approval by the peer reviewer, the seismic criteria for the project and the planned evaluation provisions must be approved by the building official. The approved seismic criteria and evaluation provisions shall apply. Upon approval of the building official these are permitted to be modified.

3419.1.3 For state-owned and community college buildings, where unreinforced masonry is not bearing, it may be used only to resist applied lateral loads. Where unreinforced masonry walls are part of the structure they must be assessed for stability under the applicable nonstructural evaluation procedure.

3419.1.4 Public schools. For public schools, unreinforced masonry shall not be used to resist in-plane or out of plane seismic forces or superimposed gravity loads.

3419.1.5 Public schools. For public schools of light-frame construction, horizontal diaphragms and vertical shear walls shall consist of either diagonal lumber sheathing or structural panel sheathing. Braced horizontal diaphragms may be acceptable when approved by DSA. Straight lumber sheathing may be used in combination with diagonal or structural panel sheathing as diaphragms or shear walls. Let in bracing, plaster (stucco), hollow clay tile, gypsum wallboard and particleboard sheathing shall not be assumed to resist seismic forces.

3419.2 Existing conditions. The existing condition and properties of the entire structure must be determined and documented by thorough inspection of the structure and site, review of all available related construction documents, review of geotechnical and engineering geologic reports, and performance of necessary testing and investigation. Where samples from the existing structure are taken or in-situ tests are performed, they shall be selected and interpreted in a statistically appropriate manner to ensure that the properties determined and used in the evaluation or design are representative of the conditions and structural circumstances likely to be encountered in the structure as a whole. Adjacent structures or site features that may affect the retrofit design shall be identified.

The entire load path of the seismic force resisting system shall be determined, documented and evaluated. The load path includes all the horizontal and vertical elements participating in the structural response: such as diaphragms, diaphragm chords, diaphragm collectors, vertical elements such as walls, frames, braces, foundations and the connections between the components and elements of the load path. Repaired or retrofitted elements and the standards under which the work was constructed shall be identified.

Data collection in accordance with ASCE 41 Section 2.2 shall meet the following minimum levels:

1. For state owned buildings, the requirements shall be met following the data collection requirements of ASCE 41, Section 2.2.
2. For public schools and community college buildings constructed in conformance with the Field Act, the "Usual" level as defined in ASCE 41, Section 2.2.6.2.
3. For public schools and community college buildings not constructed in conformance with the Field Act, the "Comprehensive" level as defined in ASCE 41, Section 2.2.6.3.

Concrete material requirements and testing for public school and community college buildings shall also comply with Sections 1914A and 1913.5, respectively.

Qualified test data from the original construction may be accepted, in part or in whole, by the enforcement agency to fulfill the data collection requirements.

Exceptions:

1. The number of samples for data collection may be adjusted with approval of the enforcement agency when it has been determined that adequate information has been obtained or additional information is required.
2. Welded steel moment frame connections of buildings that may have experienced potentially damaging ground motions shall be inspected in accordance with Chapters 3 and 4, FEMA 352, Recommended Post Earthquake Evaluation and Repair Criteria for Welded Moment-Frame Construction for Seismic Applications (July 2000).

Where original building plans and specifications are not available, "as built" plans shall be prepared that depict the existing vertical and lateral structural systems, exterior elements, foundations and nonstructural systems in sufficient detail to complete the design.

Data collection shall be directed and observed by the project structural engineer or design professional in charge of the design.

3419.3 Site geology and soil characteristics. Soil profile shall be assigned in accordance with the requirements of Chapter 18.

3419.4 Risk categories. For purposes of earthquake-resistant design, each structure shall be placed in one of the risk categories in accordance with the requirements of this code.

3419.5 Configuration requirements. Each structure shall be designated structurally regular or irregular in accordance with the requirements of ASCE 41, Sections 2.4.1.1.1. to 2.4.1.1.4.

3419.6 General selection of the design method. The requirements of Method B (Section 3421) may be used for any existing building.

3419.7 Prescriptive selection of the design method. The requirements of Method A (Section 3420) or the specific procedures for applicable building types given in Section 3419.1.1 are permitted to be used except under the following conditions, where the requirements of Method B (Section 3421) must be used.

3419.7.1 When the building contains prestressed or post-tensioned structural components (beams, columns, walls or slabs) or contains precast structural components (beams, columns, walls or flooring systems).

3419.7.2 When the building is classified as irregular in vertical or horizontal plan by application of ASCE/SEI 7 Section 12.3 and/or ASCE 41, Sections 2.4.1.1.1 to 2.4.1.1.4, unless the irregularity is demonstrated not to affect the seismic performance of the building.

Exception: If the retrofit design removes the configurational attributes that caused the building to be classified as irregular, then Section 3419.7.2 does not apply and Method A may be used.

3419.7.3 For any building that is assigned to Risk Category IV.

3419.7.4 For any building using undefined or hybrid structural systems.

3419.7.5 When seismic isolation or energy dissipation systems are used in the retrofit or repair, either as part of the existing structure or as part of the modifications.

3419.7.6 When the height of the structure exceeds 240 feet (73 152 mm).

3419.8 Strength requirements. All components of the lateral force-resisting system must have the strength to meet the acceptance criteria prescribed in ASCE 41, Chapter 3, or as prescribed in the applicable Appendix A chapter of the IEBC if a specific procedure in Section 3419.1.1 is used. Any component not having this strength shall have its capacity increased by modifying or supplementing its strength so that it exceeds the demand, or the demand is reduced to less than the existing strength by making other modifications to the structural system.

Exception: A component's strength is permitted to be less than that required by the specified seismic load combinations if it can be demonstrated that the associated reduction in seismic performance of the component or its removal due to the failure does not result in a structural system that does not comply with the required performance objectives of Section 3417. If this exception is taken for a component, then it cannot be considered part of the primary lateral-load-resisting system.

3419.9 Nonstructural component requirements. Where the nonstructural performance levels required by Section 3417, Table 3417.5 are N-D or higher, mechanical, electrical and plumbing components shall comply with the provisions of ASCE 41, Chapter 11, Section 11.2.

Exception: Modifications to the procedures and criteria may be made subject to approval by the building official, and concurrence of the peer reviewer if applicable. All reports and correspondence shall also be forwarded to the building official.

3419.10 Structural observation, testing and inspection. Structural, geotechnical and construction observation, testing and inspection as used in this section shall mean meeting the requirements of Chapter 17, with a minimum allowable level of investigation corresponding to seismic design category (SDC) D. At a minimum the project site will be visited by the responsible design professional to observe existing conditions and to review the construction work for general compliance with approved plans, specifications and applicable structural regulations. Such visits shall occur at significant construction stages and at the completion of the structural retrofit. Structural observation shall be provided for all structures. The plan for testing and inspection shall be submitted to the building official for review and approval with the application for permit.

Additional requirements: For public schools and community colleges, construction material testing, inspection and observation during construction shall also comply with Section 4-333, Part 1, Title 24.

3419.10.1 The registered design professional, or their designee, responsible for the structural design shall be retained to perform structural observation and independently report to the owner of observations and findings as they relate to adherence to the permitted plans and good workmanship.

3419.10.2 At the conclusion of construction, the structural observer shall submit to the enforcement agency and the owner a final written statement that the required site visits have been made, that the work, to the best of the structural observers knowledge and belief, is or is not in general conformity to the approved plans and that the observed structural deficiencies have been resolved and/or listing those that, to the best of the structural observers knowledge and belief, have not been satisfactorily corrected.

3419.10.2.1 The requirement for structural observation shall be noted and prominently displayed on the front sheet of the approved plans and incorporated into the general notes on the approved plans.

3419.10.2.2 Preconstruction meeting. A preconstruction meeting is mandatory for all projects which require structural observation. The meeting shall include, but is not limited to, the registered design professional, structural observer, general constructor, affected subcontractors, the project inspector and a representative of the enforcement agency (designated alternates may attend if approved by the structural observer). The structural observer shall schedule and coordinate this meeting. The purpose of the meeting is to identify and clarify all essential structural components and connections that affect the lateral and vertical load systems and to review scheduling of the required observations for the project's structural system retrofit.

3419.11 Temporary actions. When compatible with the building use, and the time phasing for both use and the retrofit program, temporary shoring or other structural support is permitted to be considered. Temporary bracing, shoring and prevention of falling hazards are permitted to be used to qualify for Exception 1 in Section 3419.12 that allows inadequate capability in some existing components, as long as the required performance levels given in Section 3417 can be provided by the permanent structure. The consideration for such temporary actions shall be noted in the design documents.

3419.12 Voluntary modifications to the lateral force resisting system. Where modifications of existing structural components and additions of new structural components are initiated for the purpose of improving the lateral force resisting strength or stiffness of an existing structure and they are not required by other sections of this code, then they are permitted to be designed to meet an approved seismic performance criteria provided that an engineering analysis is submitted that follows:

1. The capacity of existing structural components required to resist forces is not reduced, unless it can be demonstrated that reduced capacity meets the requirements of Section 3419.8.

2. The lateral loading to or strength requirement of existing structural components is not increased beyond their capacity.
3. New structural components are detailed and connected to the existing structural components as required by this code for new construction.
4. New or relocated nonstructural components are detailed and connected to existing or new structural components as required by this code for new construction.
5. A dangerous condition is not created.

3419.12.1 State-owned buildings. Voluntary modifications to lateral force-resisting systems conducted in accordance with Appendix A of the IEBC and the referenced standards of this code shall be permitted.

3419.12.1.1 Design documents. When Section 3419.12 is the basis for structural modifications, the approved design documents must clearly state the scope of the seismic modifications and the accepted criteria for the design. The approved design documents must clearly have the phrase "The seismic requirements of Chapter 34 for existing buildings have not been checked to determine if these structural modifications meet CBC requirements; the modifications proposed are to a different seismic performance standard than would be required in Section 3419 if they were not voluntary as allowed in Section 3419.12."

3419.12.2 Public schools and community colleges. When Section 3419.12 is the basis for structural modifications, the approved design documents must clearly indicate the scope of modifications and the acceptance criteria for the design.

SECTION 3420

METHOD A

3420.1 General. The retrofit design shall employ the Linear Static or Linear Dynamic Procedures of ASCE 41, Section 3.3.1 or 3.3.2, and comply with the applicable general requirements of ASCE 41, Chapters 2 and 3. The earthquake hazard level and performance level given specified in Section 3417.5 for the building's risk category shall be used. Structures shall be designed for seismic forces coming from any horizontal direction.

Exception: The ASCE 41 Simplified Rehabilitation Method of Chapter 10 may be used if the Level 1 seismic performance level is S-3 or lower, the building's structural system is one of the primary building types described in ASCE 41, Table 10-2, and ASCE 41, Table 10-1 permits its use for the building height.

SECTION 3421

METHOD B

3421.1 The existing or retrofitted structure shall be demonstrated to have the capability to sustain the deformation response due to the specified earthquake ground motions and meet the seismic performance requirements of Section 3417. The registered design professional shall provide an evaluation of the response of the existing structure in its modified configuration and condition to the ground motions specified. If the building's seismic performance is evaluated as satisfactory and the peer reviewer(s) and the enforcement agency concurs, then no further structural modifications of the lateral load-resisting system are required.

When the evaluation indicates the building does not meet the required performance levels given in Table 3417.5 for the risk category, then a retrofit and/or repair design shall be prepared that provides a structure that meets these performance objectives and reflects the appropriate consideration of existing conditions. Any approach to analysis and design is permitted to be used, provided that the approach shall be rational.

shall be consistent with the established principals of mechanics and shall use the known performance characteristics of materials and assemblages under reversing loads typical of severe earthquake ground motions.

Exception: Further consideration of the structure's seismic performance may be waived by the enforcement agency if both the registered design professional and peer reviewer(s) conclude that the structural system can be expected to perform at least as well as required by the provisions of this section without completing an analysis of the structure's compliance with these requirements. A detailed report shall be submitted to the responsible building official that presents the reasons and basis for this conclusion. This report shall be prepared by the registered design professional. The peer reviewer(s) shall concur in this conclusion and affirm to it in writing. The building official shall either approve this decision or require completion of the indicated work specified in this section prior to approval.

3421.2 The approach, models, analysis procedures, assumptions on material and system behavior and conclusions shall be peer reviewed in accordance with the requirements of Section 3422 and accepted by the peer reviewer(s).

Exceptions:

1. The enforcement agency may perform the work of peer review when qualified staff is available within the jurisdiction.
2. The enforcement agency may modify or waive the requirements for peer review when appropriate.

3421.2.1 The approach used in the development of the design shall be acceptable to the peer reviewer and the enforcement agency and shall be the same method as used in the evaluation of the building. Approaches that are specifically tailored to the type of building, construction materials and specific building characteristics may be used, if they are acceptable to the independent peer reviewer. The use of Method A allowed procedures may also be used under Method B.

3421.2.2 Any method of analysis may be used, subject to acceptance by the peer reviewer(s) and the building official. The general requirements given in ASCE 41, Chapter 2, shall be complied with unless exceptions are accepted by the peer reviewer(s) and building official. Use of other than ASCE 41 procedures in Method B requires building official concurrence before implementation.

3421.2.3 Prior to implementation, the procedures, methods, material assumptions and acceptance/rejection criteria proposed by the registered design professional will be peer reviewed as provided in Section 3422. Where nonlinear procedures are used, prior to any analysis, the representation of the seismic ground motion shall be reviewed and approved by the peer reviewer(s) and the building official.

3421.2.4 The conclusions and design decisions shall be reviewed and accepted by the peer reviewer(s) and the building official.

SECTION 3422
PEER REVIEW REQUIREMENTS

3422.1 General. Independent peer review is an objective, technical review by knowledgeable reviewer(s) experienced in the structural design, analysis and performance issues involved. The reviewer(s) shall examine the available information on the condition of the building, the basic engineering concepts employed and the recommendations for action.

3422.3 Qualifications and terms of employment. The reviewer(s) shall be independent from the design and construction team.

3422.3.1 The reviewer(s) shall have no other involvement in the project before, during or after the review, except in a review capacity.

3422.3.2 The reviewer(s) shall be selected and paid by the owner and shall have technical expertise in the evaluation and retrofit of buildings similar to the one being reviewed, as determined by the enforcement agency.

3422.3.3 The reviewer (or in the case of review teams, the chair) shall be a California-licensed structural engineer who is familiar with the technical issues and regulations governing the work to be reviewed.

Exception: Other individuals with acceptable qualifications and experience may be a peer reviewer(s) with the approval of the building official.

3422.3.4 The reviewer shall serve through completion of the project and shall not be terminated except for failure to perform the duties specified herein. Such termination shall be in writing with copies to the enforcement agency, owner and the registered design professional. When a reviewer is terminated or resigns, a qualified replacement shall be appointed within 10 working days, and the reviewer shall submit copies of all reports, notes and correspondence to the responsible building official, the owner and the registered design professional within 10 working days of such termination.

3422.3.5 The peer reviewer shall have access in a timely manner to all documents, materials and information deemed necessary by the peer reviewer to complete the peer review.

3422.4 Scope of review. Review activities shall include, where appropriate, available construction documents, design criteria and representative observations of the condition of the structure, all inspection and testing reports, including methods of sampling, analytical models and analyses prepared by the registered design professional and consultants, and the retrofit or repair design. Review shall include consideration of the proposed design approach, methods, materials, details and constructability. Changes observed during construction that affect the seismic-resisting system shall be reported to the reviewer in writing for review and recommendation.

3422.5 Reports. The reviewer(s) shall prepare a written report to the owner and building official that covers all aspects of the review performed, including conclusions reached by the reviewer(s). Reports shall be issued after the schematic phase, during design development, and at the completion of construction documents but prior to submittal of the project plans to the enforcement agency for plan review. When acceptable to the building official, the requirement for a report during a specific phase of the project development may be waived.

Such reports should include, at the minimum, statements of the following:

1. Scope of engineering design peer review with limitations defined.
2. The status of the project documents at each review stage.
3. Ability of selected materials and framing systems to meet performance criteria with given loads and configuration.
4. Degree of structural system redundancy and the deformation compatibility among structural and nonstructural components.
5. Basic constructability of the retrofit or repair system.
6. Other recommendations that would be appropriate to the specific project.
7. Presentation of the conclusions of the reviewer identifying any areas that need further review, investigation and/or clarification.
8. Recommendations.

The last report prepared prior to submittal of permit documents to the enforcement agency shall include a statement indicating that the design is in conformance with the approved evaluation and design criteria

3422.6 Response and resolutions. The registered design professional shall review the report from the reviewer(s) and shall develop corrective actions and responses as appropriate. Changes observed during construction that affect the seismic-resisting system shall be reported to the reviewer in writing for review and recommendations. All reports, responses and resolutions prepared pursuant to this section shall be submitted to the responsible enforcement agency and the owner along with other plans, specifications and calculations required. If the reviewer resigns or is terminated prior to completion of the project, then the reviewer shall submit copies of all reports, notes and correspondence to the responsible building official, the owner and the registered design professional within 10 working days of such termination.

3422.7 Resolution of conflicts. When the conclusions and recommendations of the peer reviewer conflict with the registered design professional's proposed design, the enforcement agency shall make the final determination of the requirement for the design.

SECTION 3423 **ADDITIONAL REQUIREMENTS FOR PUBLIC** **SCHOOLS AND COMMUNITY COLLEGES**

The requirements of Section 3423 apply only to public schools under the jurisdiction of the Division of the State Architect Structural Safety (DSA-SS, refer to Section 1.9.2.1) and community colleges under the jurisdiction of the Division of the State Architect Structural Safety/Community Colleges (DSA-SS/CC). Refer to Section 1.9.2.2.

3423.1 Evaluation and design criteria report. During the schematic phase of the project, the owner or the registered design professional in charge of the design shall prepare and sign an Evaluation and Design Criteria Report in accordance with Part 1, Title 24, C. C. R., Section 4-306 or 4-307(a). The report shall be submitted to the DSA for review and approval prior to proceeding with design development of the rehabilitation.

The Evaluation and Design Criteria Report shall:

1. Identify the building(s) structural and nonstructural systems, potential deficiencies in the elements or systems and the proposed method for retrofit.
2. Identify geological and site-related hazards.
3. Propose the methodology for evaluation and retrofit design.
4. Propose the complete program for data collection (Section 3419.2).
5. Include existing or "as-built" building plans, reports and associated documents of the existing construction.

3423.2 Rehabilitation involving only portions of structures. Where only a portion(s) of a structure is to be rehabilitated, the public school or community college portion of the structure shall:

1. Be seismically separated from the unrehabilitated portion in accordance with Chapter 16 of Part 2, Title 24, or the entire structure shall be rehabilitated in accordance with this Section. For structures in which the unrehabilitated portion is above or below the school or community college portion, the entire structure shall be rehabilitated in accordance with this division.
2. Be retrofitted as necessary to protect the occupants from falling hazards of the unrehabilitated portion of the building, and;

~~3. Be retrofitted as necessary to protect required exitways being blocked by collapse or falling hazards of the unrehabilitated portion.~~

...

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**CHAPTER 35
REFERENCED STANDARDS**

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA-SS	DSA-SS/CC	Comments
Adopt entire chapter	X	X	
Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below			

~~All existing California amendments that are not revised below shall continue without change.~~

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.4.

[DSA-SS, DSA-SS-CC] Reference to other chapters. In addition to the code sections referenced, the standards listed in this chapter are applicable to the respective code sections in Chapters 16A, 17A, 18A, 19A, 21A, and 22A. ~~, and 34A.~~

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STATE OF CALIFORNIA
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AAMA	American Architectural Manufacturing Association 1827 Waldon Office Square, Suite 550 Schaumburg, IL 60173	
Standard reference number	Title	Referenced in code section number
...		
501.4-09	<i>Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts</i>	2410.1
501.6-09	<i>Recommended Dynamic Test Method For Determining The Seismic Drift Causing Glass Fallout From A Wall</i>	2410.1

ACI	American Concrete Institute 38800 Country Club Drive Farmington Hills, MI 48333-9094	
Standard reference number	Title	Referenced in code section number
...		
318-14	Building Code Requirements for Structural Concrete	Table 1705A.2.1, Table 1705A.3, 4705A.2.2.1.2, 1810A.3.10.4, 1903A, <u>1904A</u> , 1905A, <u>1910A.5.4</u> , <u>1909.2</u> , <u>1909.3</u> 1913A.5 , 1913A.7.2 , 1913.2 , 1913.3
355.2-07	<i>Qualification of Post-Installed Mechanical Anchors in Concrete</i>	1616A.1.19
<u>355.4-11</u>	<u>Qualification of Post-Installed Adhesive</u>	<u>1616A.1.19</u>

	<u><i>Anchors in Concrete</i></u>	
440.2R-08	<i>Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures</i>	<u>1911A.3</u> 1914A.3
...		
503.7-07	<i>Specification for Crack Repair by Epoxy Injection.</i>	<u>1911A.2</u> 1914A.2
506-05	<i>Guide to Shotcrete</i>	1913.4.5, 1908A.1 1910A.1, <u>1908A.3</u> 1910A.3, <u>1908A.12</u> 1910A.12, <u>1911A.2, 1914A.2</u>
530-13	Building Code Requirements for Masonry Structures	2114.10, 2114.7, 2114.11, 2114.8,- <u>2107A.5, 2107A.6</u>
...		

...

AISC	American Institute of Steel Construction Construction One East Wacker Drive, Suite 700 Chicago, IL 60601-2001	
Standard reference number	Title	Referenced in code section number
341-10	Seismic Provisions for Structural Steel Buildings	1705A.2.1, 2212.2, 2205A, 2206A
358- 10	<i>Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications including Supplements No. 1 & 2</i>	2212.3, 2205A, 2206A.2

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360-10	Specifications for Structural Steel Buildings	1705A.2.1, Table 1705A.2.1, 2206A.2, 2212.1.1, <u>2204A.4</u> 2204A.2.2, 2212A.1.2. 2212A.2.1
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AISI	American Iron and Steel Institute 1140 Connecticut Avenue, 705 Suite 705 Washington, DC 20036	
Standard reference number	Title	Referenced in code section number
S214-12	North American Standard for Cold-formed Steel Framing- Truss Design, 2012	2211A.3, 2212.5.1.2

...

ANSI	American National Standards Institute 25 West 43rd Street, Fourth Floor New York, NY 10036	
Standard reference number	Title	Referenced in code section number
A 190.1-12	Structural Glued Laminated Timber	<u>1705A.5.4</u>

...

APA	APA - Engineered Wood Association 7011 South 19th Tacoma, WA 98466	
Standard	Title	Referenced

STATE OF CALIFORNIA
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reference number		in code section number
A 190.1-12	Structural Glued Laminated Timber	<u>1705A.5.4</u>

...

ASCE/SEI	American Society of Civil Engineers Structural Engineering Institute 1801 Alexander Bell Drive Reston, VA 20191-4400	
Standard reference number	Title	Referenced in code section number
5-13	Building Code Requirements for Masonry Structures	2114.10, 2114.7, 2114.11, 2114.8, <u>2107A.5, 2107A.6</u>
...		
7-10	Minimum Design Loads for Buildings and Other Structures including Supplement No. 1	104.11, 202, 1509.7.1, 1510.7.1, 1616.2, 1616.9, 1616.10, 1603A.2 1613A, 1616A, 1803A.6, 1905A.1.21, 1913.3.8, 2114A.1, 2114.13, 2210A.2, 2212A.2.4, 2410.1.1, 2410.1.2,
...		
19- 09 10	Structural Application of Steel Cables for Buildings	2208A.1, 2207.1, 2207.2
...		
24 - 43 <u>14</u>	Flood Resistant Design and Construction	1203.4.2, 1612.4, 1612A.4, 1612.5, 1612A.5, 2702.1.7, 3001.2
...		
41- 06 <u>13</u>	<i>Seismic <u>Evaluation and Retrofit</u> Rehabilitation of Existing Buildings including Supplement No. 1</i>	1603A.2, 1616A.1.30,

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BUILDING STANDARDS COMMISSION

49- <u>12 07</u>	Wind Tunnel Testing for Buildings and Other Structures	1609.1.1

...

ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2959	
Standard reference number	Title	Referenced in code section number
...		
A 153/A 153M-09	Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware	<u>2304.10.1.1</u> 2304.9.1.1
...		
A 722/A722M-12	Specifications for Uncoated High-strength Steel Bar for Prestressing Concrete	<u>1812A.4.2</u> J106.2.4.2 , 1811A.4
...		
<u>A1064-13</u>	<u>Standard Specification for Carbon steel wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete</u>	<u>1903A.8</u>
...		
B 695-04 <u>(2009)</u>	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel Strip for Building Construction	<u>2304.10.1.1</u> 2304.9.1.1
...		

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C90- 1413	Standard Specification for Load Bearing Concrete Masonry Units	<u>2105A.2</u>
...		
C 94/C94M- <u>14a</u> 13	Specifications for Ready Mix Concrete	<u>1705A.3.3.1</u> 1705A.3.3
...		
C 150-12	Specification for Portland Cement	1903A, <u>1910A</u> 1913A, 1916.1.2 1913.2 1909.2.4
...		
C 270- 14a 12a	Specifications for Mortar for Unit Masonry	2114.2 <u>2105A.3</u>
C 289-07	Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates	1903A.3, 1913.2.3
...		
C 595-13	Specification for Blended Hydraulic Cement	1903A.6, <u>1910A.1</u> 1913A.1, 1913.2, 1909.2.4
...		
C 618 – <u>12a</u> 08a	<i>Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete</i>	1903A.3, <u>1910A.1</u> 1913A.1, 1913.2, 1909.2.4
...		
C 635/C 635M- <u>13a</u>	Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel ceilings	1616.10.16, <u>1616A.1.21</u> 1616A.1.20
C 636/C 636M - <u>13</u> 08	Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels	1616.10.16, <u>1616A.1.21</u> 1616A.1.20
...		

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<u>C 780-14</u>	<u>Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry</u>	<u>2105A.3</u>
...		
C 989- <u>13 09</u>	Standard Specification for Slag Cement for Use in Concrete and Mortars	1903A.5, 1903A.6, <u>1910A.1 1913A.1, 1913.2, 1909.2.4</u>
...		
C 1019- <u>13 11</u>	Test Method of Sampling and Testing Grout	<u>2105A.3 2105A.2.2.1.4, 2114.6.1, 2114.9.1</u>
...		
C 1157/C 1157M-11	ASTM Standard Performance Specification for Hydraulic Cement	<u>1910A.1 1913A.1, 1913.2.5, 1909.2.4</u>
...		
C 1240-14 11	Standard Specification for Silica Fume Used in Cementitious Mixtures	1903A.6
C 1249- 06a(2010)	Standard Guide for Secondary Seal for Sealed Insulated Glass Units for Structural Sealant Glazing Applications	1903A.6, 2410.1
...		
C 1260-07	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)	1903A.6, 2410.1.1
...		
C 1293-08b	Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction	1903A.6, 1913.2.3
...		

C 1314-07	Test Method for Compressive Strength of Masonry Prisms	2114.9.2.1
...		
C 1392-00(2014 2009)	Standard Guide for Evaluating Failure of Structural Sealant Glazing	2410.1.3
C 1394-03 (2012 2008)	Standard Guide for In-Situ Structural Silicone Glazing Evaluation	2410.1.3
...		
C 1401-1409a	Standard Guide for Structural Sealant Glazing	2410.1
...		
C1567-08	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of the Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)	1903A.6, 1913.2.3,
C1586-05(2011)	Standard Guide for Quality Assurance of Mortars	2114.9.1, 2105A.3 2105A.2.2.1.4
...		
D 1586-11	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils	J412.2 1813A
...		
D-3441-05	Standard Test Method for Mechanical Cone Penetration Tests of Soil	J412.2
D 5778-12	Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils	1813A
...		

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<i>D 3966-07 (2013)</i>	<i>Standard Test Method for Piles Under Lateral Loads</i>	<i>1810A.3.3.2</i>
...		
<i>E 580- 14 41b</i>	<i>Standard Practice for Installation of Ceiling Suspension Systems of Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions</i>	<i>1616.10.16, <u>1616A.1.21</u> 1616A.1.20</i>
...		
<i>F 606-14</i>	<i><u>Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets</u></i>	<i><u>2213A.1</u></i>
...		

...

AWC	American Wood Council 222 Catoctin SE, Suite 201 Leesburg, VA 20175	
Standard reference number	Title	Referenced in code section number
...		
ANSI/AWC NDS- 2015	National Design Specifications (NDS) for Wood Construction with 2012 Supplement <i>and addendum</i>	<i><u>1905A.1.8</u> 1905A.1.21...</i>

...

AWPA	American Wood Products Association P.O. Box 361784 Birmingham, AL 35236-1784	
...		
U1-14	USE CATEGORY SYSTEM: User Specification for Treated Wood Except Section 6, Commodity Specification H	<u>1812A.2</u> ... <u>1406.2.2</u>

...

AWS	American Welding Society 550 N.W. LeJeune Road Miami, FL 33126	
Standard reference number	Title	Referenced in code section number
D1.1- 10	<i>Structural Welding Code-Steel</i>	Table 1705A.2.1, <u>1705A.2.5</u> 1705A.2.2.5 , 2212.6.2, 2213A.2
D1.3-08	<i>Structural Welding Code-Sheet Steel</i>	Table 1705A.2.1, <u>1705A.2.5</u> 1705A.2.2.1.1
D1.4-11	Structural Welding Code – Reinforcing Steel	Table 1705A.2.1, 1705.2.2.1.2 , 2407A.3, 2407A.4
D1.8-09	<i>Structural Welding Code – Seismic Supplement</i>	<u>1705A.2.5</u> 1705A.2.2.5

QC1-07 06	Standard for AWS Certification of Welding Inspectors	1705A.2.5 1705A.2.2.5
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FM	Factory Mutual Global Research Standards Laboratories Department 1301 Atwood Avenue, P.O. Box 7500 Johnston, RI 02919	
Standard reference number	Title	Referenced in code section number
ANSI/FM 1950- <u>15.10</u>	Approval Standard for Seismic Sway Braces for Automatic Sprinkler Systems Pipe, Tubing and Conduit	1705A.13.2 1705A.12.3
...		

...

ICC	International Code Council, Inc. 500 New Jersey Ave, NW 6 th Floor Washington, DC 20001	
Standard reference number	Title	Referenced in code section number
...		
ICC-ES AC 01-12 <u>15</u> *	Acceptance criteria for expansion anchors in Masonry elements	1616A.1.19
ICC-ES AC 58-12 <u>15</u> *	Acceptance criteria for Adhesive anchors in Masonry elements	1616A.1.19
ICC-ES AC 70-12 <u>15</u> *	Acceptance criteria for fasteners power-driven into Concrete, Steel and Masonry elements	1616A.1.20 1908A.1.1

ICC-ES AC 106- 42 15*	Acceptance criteria for predrilled fasteners (screw anchors) in Masonry	1616A.1.19
ICC-ES AC 125- 42 15*	Acceptance criteria for Concrete, and Reinforced and Unreinforced Masonry strengthening using externally bonded Fiber-Reinforced Polymer (FRP) composite systems.	<u>1911A.3</u> 1914.3
ICC-ES AC 156-42 15*	Acceptance criteria for Seismic Certification by Shake-Table Testing of Nonstructural Components	<u>1705A.13.3</u> 1705A.12.4
ICC-ES AC 178- 42 15*	Acceptance criteria for inspection and verification of Concrete, and Reinforced and Unreinforced Masonry strengthening using Fiber-Reinforced Polymer (FRP) composite systems.	<u>1911A.3</u> 1914A.3
ICC-ES AC 193- 42 15*	Acceptance criteria for mechanical anchors in Concrete elements	1616A.1.19, 1909A.11
ICC-ES AC 232- 15*	Acceptance criteria for anchor channels in Concrete elements	<u>1616A.1.19</u>
ICC-ES AC 308- 42 15*	Acceptance criteria for post-installed adhesive anchors in Concrete elements	1616A.1.19
ICC-ES AC 358- 42 15*	Acceptance criteria for Helical foundation systems and devices	1810A.3.1.5.1
ICC-ES AC 446- 15*	Acceptance criteria for headed cast-in specialty inserts in Concrete	<u>1616A.1.19</u>

* Refers to International Building Code, ~~2012~~ 2015 as a reference standard.

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ISO	International Organization for Standardization ISO Central Secretariat 1 ch, de la Voie-Creuse, Case Postale 56 CH-1211 Geneva 20, Switzerland	
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STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

Standard reference number	Title	Referenced in code section number
...		
ISO 9001-08	Quality management systems - Requirements	<u>1705A.13.3</u> 1705A.12.4
...		

...

NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471	
Standard reference number	Title	Referenced in code section number
...		
13- 1613	Installation of Sprinkler Systems	1616.9.5, 1616.10.17

...

PCI	Precast Prestressed Concrete Institute 200 West Adams Street, Suite 2100 Chicago, IL 60606-5230	
Standard reference number	Title	Referenced in code section number
...		
MLN 128-01	Recommended Practice for Glass Fiber Reinforcement	1913.2.1
...		

PCI 120-10	PCI Design Handbook, 7 th Edition	<u>1905A.1.1,</u> <u>1905A.1.2</u> 1905A.1
------------	--	--

PTI	Post-Tensioning Institute 8601 North Black Canyon Highway, Suite 103 Phoenix, AZ 85021	
Standard reference number	Title	Referenced in code section number
...		
PTI-2004	Recommendations for Prestressed Rock and Soil Anchors (4 th Edition)	<u>1810A.3.10.4, 1811A.2, 1812A.4,</u> <u>1812A.5, 1813A.2</u> J106.2.4, J106.2.5
...		

...

TMS	The Masonry Society 3970 Broadway, Unit 201-D Boulder, CO 80304-1135	
Standard reference number	Title	Referenced in code section number
...		
402— 13	Building Code Requirements for Masonry Structures	1410.2.1, 1411.2.1, <u>2107A.5, 2114.10, 2114.11</u> <u>2114.7, 2114.8</u>
...		

...

WCLIB	West Coast Lumber Inspection Bureau P. O. Box 23145 Portland, OR 97281	
Standard reference number	Title	Referenced in code section number
...		
AITC 111-05	<i>Recommended Practice for Protection of Structural Glued Laminated Timber During Transit, Storage and Erection</i>	2303.1.3.1
...		
AITC 117-10	Standard Specifications for Structural Glued Laminated Timber of Softwood Species	2303.1.3.1
...		
AITC 404-05	<i>Standard for Radially Reinforcing Curved Glued Laminated Timber Members to Resist Radial Tension</i>	2303.1.3.1

...

(All existing amendments that are not revised above shall continue without any change)

APPENDIX J GRADING

This Appendix is not adopted by DSA

Adopt and/or codify chapter as amended below:

PROPOSED ADOPTION	DSA- SS	DSA- SS/CC	Comments

Adopt entire chapter without amendments			
Adopt entire chapter with amendments listed below			
Adopt only those sections listed below	X	X	
J101	X	X	
J102	X	X	
J105	X	X	
J106.2	X	X	
J107	X	X	
J107.5	X	X	
J108	X	X	
J109	X	X	
J110	X	X	
J111	X	X	
J112	X	X	

~~(All existing DSA amendments that are not revised below shall continue without change.)~~

...

SECTION J106 EXCAVATIONS

...

~~Relocated to Chapter 12A~~ J106.2 Earth retaining shoring. [DSA-SS & DSA-SS/CC]

~~**J106.2.1 General.** The requirements of this section shall apply to temporary and permanent earth retaining shoring using soldier piles and lagging with or without tie-back anchors in soil or rock, only when existing or new DSASS, DSA-SS/CC facilities are affected. Shoring used as construction means and methods only, which does not affect existing or new DSASS, DSA-SS/CC facilities, are not regulated by DSA and shall satisfy the requirements of the authorities having jurisdiction.~~

~~Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections J106.2.2 through J106.2.8.~~

~~**J106.2.2 Duration.** Shoring shall be considered temporary when elements of the shoring will be exposed to site conditions for a period of less than one (1) year, and shall be considered permanent otherwise. Permanent shoring shall account for the increase in lateral soil pressure due to~~

~~earthquake. At the end of the construction period, the existing and new structures shall not rely on the temporary shoring for support in anyway. Wood components shall not be used for permanent shoring lasting more than two (2) years. Wood components of the temporary shoring that may affect the performance of permanent structure shall be removed after the shoring is no longer required.~~

~~All components of the shoring shall have corrosion protection or preservative treatment for their expected duration. Wood components of the temporary shoring that will not be removed shall be treated in accordance with AWWA U1 (Commodity Specification A, Use Category 4B and Section 5.2), and shall be identified in accordance with Section 2303.1.8.1.~~

~~**J106.2.3 Surcharge:** Surcharge pressure due to footings, traffic, or other sources shall be considered in design. If the footing surcharge is located within the semi-circular distribution or bulb of earth pressure (when shoring is located close to a footings), lagging shall be designed for lateral earth pressure due to footing surcharge. Soil arching effects may be considered in the design of lagging. Underpinning of the footing may be used in lieu of designing the shoring and lagging for surcharge pressure. Alternatively, continuously contacting drilled pier shafts near the footings shall be permitted. The lateral surcharge design pressure shall be derived using Boussinesq equations modified for the distribution of stresses in an elastic medium due to a uniform, concentrated or line surface load as appropriate and soil arching effects.~~

~~**J106.2.4 Design and testing:** Except for the modifications as set forth in Sections J106.2.4.1 and J106.2.4.2 below, all Prestressed Rock and Soil Tie back Anchors shall be designed and tested in accordance with PTI Recommendations for Prestressed Rock and Soil Anchors (PTI-2004).~~

~~**J106.2.4.1 Geotechnical requirements:** The geotechnical report for the earth retaining shoring shall address the following:~~

- ~~12. Minimum diameter and minimum spacing for the anchors including consideration of group effects.~~
- ~~13. Maximum unbonded length and minimum bonded length of the tie back anchors.~~
- ~~14. Maximum recommended anchor tension capacity based upon the soil or rock strength / grout bond and anchor depth / spacing.~~
- ~~15. Allowable bond stress at the ground / grout interface and applicable factor of safety for ultimate bond stress for the anchor. For permanent anchors, a minimum factor of safety of 2.0 shall be applied to ground soil interface as required by PTI-2004 Section 6.6.~~
- ~~16. Minimum grout pressure for installation and post-grout pressure for the anchor. The presumptive post grout pressure of 300 psi may be used for all soil type.~~
- ~~17. Class I Corrosion Protection is required for all permanent anchors. The geotechnical report shall specify the corrosion protection recommendations for temporary anchors.~~
- ~~18. Performance test for the anchors shall be at a minimum of two (2) times the design loads and shall not exceed 80% of the specified minimum tensile strength of the anchor rod. A creep test is required for all prestressed anchors that are performance tested. All production anchors shall be tested at 150% of design loads and shall not be greater than 70% of the specified minimum tensile strength of the anchor rod.~~

- ~~19. Earth pressure, surcharge pressure, and the seismic increment of earth pressure loading, when applicable.~~
- ~~20. Maximum recommended lateral deformation at the top of the soldier pile, at the tie-back anchor locations, and the drilled pier concrete shafts at the lowest grade level.~~
- ~~21. Allowable vertical soil bearing pressure, friction resistance, and lateral passive soil resistance for the drilled pier concrete shafts and associated factors of safety for these allowable capacities.~~
- ~~22. Soil pier shaft / pile interaction assumptions and lateral soil stiffness to be used in design for drilled pier concrete shaft or pile lateral loads.~~
- ~~23. Acceptable drilling methods.~~
- ~~24. Geotechnical observation and monitoring recommendations.~~

~~J106.2.4.2 Structural requirements:~~

- ~~10. Tendons shall be thread bar anchors conforming to ASTM A 722.~~
- ~~11. Anchor design loads shall be based upon the load combinations in Section 1605A.3.1 and shall not exceed 60 percent of the specified minimum tensile strength of the tendons.~~
- ~~12. The anchor shall be designed to fail in grout bond to the soil or rock before pullout of the soil wedge.~~
- ~~13. Design of shoring system shall account for as-built locations of soil anchors considering all specified construction tolerances in Section J106.2.8.~~
- ~~14. Design of shoring system shall account for both short and long term deformation.~~

~~J106.2.4.3 Testing of tie-back anchors:~~

- ~~5. The geotechnical engineer shall keep a record at job site of all test loads, total anchor movement, and report their accuracy.~~
- ~~6. If a tie-back anchor initially fails the testing requirements, the anchor shall be permitted to be re-grouted and retested. If anchor continues to fail, the followings steps shall be taken:~~
 - ~~a. The contractor shall determine the cause of failure—variations of the soil conditions, installation methods, materials, etc.~~
 - ~~b. Contractor shall propose a solution to remedy the problem. The proposed solution will need to be reviewed and approved by geotechnical engineer, shoring design engineer, and the building official.~~
- ~~7. After a satisfactory test, each anchor shall be locked off in accordance with Section 8.4 of PTI 2004.~~
- ~~8. The shoring design engineer shall specify design loads for each anchor.~~

~~J106.2.5 Construction:~~ ~~The construction procedure shall address the following:~~

- ~~15. Holes drilled for piles / tie-back anchors shall be done without detrimental loss of ground, sloughing or caving of materials and without endangering previously installed shoring members or existing foundations.~~
- ~~16. Drilling of earth anchor shafts for tie-backs shall occur when the drill bench reaches two to three feet below the level of the tie-back pockets.~~
- ~~17. Casing or other methods shall be used where necessary to prevent loss of ground and collapse of the hole.~~
- ~~18. The drill cuttings from earth anchor shaft shall be removed prior to anchor installation.~~
- ~~19. Unless tremie methods are used, all water and loose materials shall be removed from the holes prior to installing piles / tie-backs.~~
- ~~20. Tie-back anchor rods with attached centralizing devices shall be installed into the shaft or through the drill casing. Centralizing device shall not restrict movement of the grout.~~
- ~~21. After lagging installation, voids between lagging and soil shall be backfilled immediately to the full height of lagging.~~
- ~~22. The soldier piles shall be placed within specified tolerances in the drilled hole and braced against displacement during grouting. Fill shafts with concrete up to top of footing elevation, rest of the shaft can generally be filled with lean concrete. Excavation for lagging shall not be started until concrete has achieved sufficient strength for all anticipated loads as determined by the shoring design engineer.~~
- ~~23. Where boulders and / or cobbles have been identified in the geotechnical reports, contractor shall be prepared to address boulders and / or cobbles that may be encountered during the drilling of soldier piles and Tie-back anchors.~~
- ~~24. The grouting equipment shall produce grout free of lumps and indispensed cement. The grouting equipment shall be sized to enable the grout to be pumped in continuous operation. The mixer shall be capable of continuously agitating the grout.~~
- ~~25. The quantity of grout and grout pressure shall be recorded. The grout pressure shall be controlled to prevent excessive heave in soils or fracturing rock formations.~~
- ~~26. If post grouting is required, post grouting operation shall be performed after initial grout has set for 24 hours in the bond length only. Tie-backs shall be grouted over a sufficient length (anchor bond length) to transfer the maximum anchor force to the anchor grout.~~
- ~~27. Testing of anchors may be performed after post-grouting operations provided grout has reached strength of 3,000 psi as required by PTI 2004 Section 6.11.~~
- ~~28. Anchor rods shall be tensioned straight and true. Excavation directly below the anchors shall not continue before those anchors are tested.~~

J106.2.6 Inspection, survey monitoring, and observation

- ~~12. The shoring design engineer or his designee shall make periodic inspections of the job site for the purpose of observing the installation of shoring system, testing of tie-back anchors, and monitoring of survey.~~
- ~~13. Testing, inspection, and observation shall be in accordance with testing, inspection and observation requirements approved by the building official. The following activities and materials shall be tested, inspected, or observed by the special inspector and geotechnical engineer:
 - a. Sampling and testing of concrete in soldier pile and tie-back anchor shafts.
 - b. Fabrication of tie-back anchor pockets on soldier beams
 - c. Installation and testing of tie-back anchors.
 - d. Survey monitoring of soldier pile and tie-back load cells.
 - e. Survey Monitoring of existing buildings.~~

- ~~14. A complete and accurate record of all soldier pile locations, depths, concrete strengths, tie-back locations and lengths, tie-back grout strength, quantity of concrete per pile, quantity of grout per tie-back and applied tie-back loads shall be maintained by the special inspector and geotechnical engineer. The shoring design engineer shall be notified of any unusual conditions encountered during installation.~~
- ~~15. Calibration data for each test jack, pressure gauge, and master pressure gauge shall be verified by the special inspector and geotechnical engineer. The calibration tests shall be performed by an independent testing laboratory and within 120 calendar days of the data submitted.~~
- ~~16. Monitoring points shall be established at the top and at the anchor heads of selected soldier piles and at intermediate intervals as considered appropriate by the geotechnical engineer.~~
- ~~17. Control points shall be established outside the area of influence of the shoring system to ensure the accuracy of the monitoring readings.~~
- ~~18. The periodic basis of shoring monitoring, as a minimum, shall be as follows:
 - ~~a. Initial monitoring shall be performed prior to any excavation.~~
 - ~~b. Once excavation has begun, the periodic readings shall be taken weekly until excavation reaches the estimated subgrade elevation and the permanent foundation is complete.~~
 - ~~c. If performance of the shoring is within established guidelines, shoring design engineer may permit the periodic readings to be bi-weekly. Once initiated, bi-weekly readings shall continue until the building slab at ground floor level is completed and capable of transmitting lateral loads to the permanent structure. Thereafter, readings can be monthly.~~
 - ~~d. Where the building has been designed to resist lateral earth pressures, the periodic monitoring of the soldier piles and adjacent structure can be discontinued once the ground floor diaphragm and subterranean portion of the structure is capable of resisting lateral soil loads and approved by the shoring design engineer, geotechnical engineer, and the building official.~~
 - ~~e. Additional readings shall be taken when requested by special inspector, shoring design engineer, geotechnical engineer, or the building official.~~~~
- ~~19. Monitoring reading shall be submitted to shoring design engineer, engineer in responsible charge, and the building official within 3 working days after they are conducted. Monitoring readings shall be accurate to within 0.01 feet. Results are to be submitted in tabular form showing at least the initial date of monitoring and reading, current monitoring date and reading and difference between the two readings.~~
- ~~20. If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches $\frac{1}{2}$ " or soldier piles reaches 1" all excavation activities shall be suspended. The geotechnical and shoring design engineer shall determine the cause of movement, if any, and recommend corrective measures, if necessary, before excavation continues.~~
- ~~21. If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches $\frac{3}{4}$ " or soldier piles reaches $1\frac{1}{2}$ " all excavation activities shall be suspended until the causes, if any, can be determined. Supplemental shoring shall be devised to eliminate further movement and the building official shall review and approve the supplemental shoring before excavation continues.~~

22. Monitoring of Tie-back Anchor Loads:

- e. ~~Load cells shall be installed at the tie-back heads adjacent to buildings at maximum interval of 50', with a minimum of one load cells per wall.~~
- f. ~~Load cell readings shall be taken once a day during excavation and once a week during the remainder of construction.~~
- g. ~~Load cell readings shall be submitted to the geotechnical engineer, shoring design engineer, engineer in responsible charge, and the building official.~~
- h. ~~Load cell readings can be terminated once the temporary shoring no longer provides support for the buildings.~~

J106.2.7 Monitoring of existing DSASS, DSA-SS/CC structures

- 8. ~~The contractor shall complete a written and photographic log of all existing OSHPD 1 & 4 structures within 100 ft or three times depth of shoring, prior to construction. A licensed surveyor shall document all existing substantial cracks in adjacent existing structures.~~
- 9. ~~Contractor shall document existing condition of wall cracks adjacent to shoring walls prior to start of construction.~~
- 10. ~~Contractor shall monitor existing walls for movement or cracking that may result from adjacent shoring.~~
- 11. ~~If excessive movement or visible cracking occurs, contractor shall stop work and shore / reinforce excavation and contact shoring design engineer and the building official.~~
- 12. ~~Monitoring of the existing structure shall be at reasonable intervals as required by the registered design professional subject to approval of the building official. Monitoring shall be performed by a licensed surveyor and shall consist of vertical and lateral movement of the existing structures. Prior to starting shoring installation a pre-construction meeting shall take place between the contractor, shoring design engineer, surveyor, geotechnical engineer, and the building official to identify monitoring locations on existing buildings.~~
- 13. ~~If in the opinion of the building official or shoring design engineer, monitoring data indicate excessive movement or other distress, all excavation shall cease until the geotechnical engineer and shoring design engineer investigates the situation and makes recommendations for remediation or continuing.~~
- 14. ~~All reading and measurements shall be submitted to the building official and shoring design engineer.~~

J106.2.8 Tolerances. ~~Following tolerances shall be specified on the construction documents.~~

3. Soldier Piles:

- i. ~~Horizontal and vertical construction tolerances for the soldier pile locations.~~
- ii. ~~Soldier pile plumbness requirements (angle with vertical line).~~

4. Tie-back Anchors:

- i. ~~Allowable deviation of anchor projected angle from specified vertical and horizontal design projected angle.~~
- ii. ~~Anchor clearance to the existing/new utilities and structures.~~

**SECTION J107
FILLS**

J107.1 General. Unless otherwise recommended in the soils report, fills shall conform to provisions of this section.

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J107.5 Compaction. All fill material shall be compacted to 90 percent of maximum density as determined by ASTM D 1557, Modified Proctor, in lifts not exceeding 12 inches (305 mm) in depth.

~~[DSA-SS, DSA-SS/CC] This section establishes minimum requirements only.~~

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~~Relocated to Chapter 18A~~ **Section J112**
Vibro Stone Columns for Ground Improvement

J112.1 General. ~~[OSHPD 1, 2, & 4] This section shall apply to Vibro Stone Columns (VSCs) for ground improvement using unbounded aggregate materials. Vibro stone column provisions in this section are intended to increase bearing capacity, reduce settlements, and mitigate liquefaction for shallow foundations. These requirements shall not be used for grouted or bonded stone columns, ground improvement for deep foundation elements, or changing site class. VSCs shall not be considered as a deep foundation element.~~

~~Ground improvement shall be installed under the entire building/structure footprint and not under isolated foundation elements only.~~

~~Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections J112.2 through J112.5.~~

J112.2 Geotechnical Report. ~~Geotechnical report shall specify vibro stone column requirements to ensure uniformity in total and differential immediate settlement, long term settlement, and earthquake induced settlement.~~

- ~~10. Soil compaction shall be sufficient to mitigate potential for liquefaction as described in California Geological Survey (CGS) Special Publication 117A (SP-117A): Guidelines for Evaluating and Mitigating Seismic Hazard in California.~~
- ~~11. Area replacement ratio for the compaction elements and the basis of its determination shall be explained. Minimum factor of safety for soil compaction shall be in accordance with SP-117A.~~
- ~~12. Depth of soil compaction elements and extent beyond the footprint of structures/foundation shall be defined. Extent beyond the foundation shall be half the depth of the VSCs with a minimum of 10' or an approved alternative.~~
- ~~13. Minimum diameter and maximum spacing of soil compaction elements shall be specified. VSC's shall not be less than 2 feet in diameter and center to center spacing shall not exceed 8 feet.~~
- ~~14. The modulus of subgrade reactions for shallow foundations shall account for the presence of compaction elements.~~
- ~~15. The modulus of subgrade reactions, long term settlement, and post earthquake settlement shall be specified along with expected total and differential settlements for design.~~

- ~~16. The acceptance criteria for Cone Penetration Test (CPT) in accordance with ASTM D 3441 complemented by Standard Penetration Test (SPT) in accordance with ASTM D 1586, if necessary, to verify soil improvement shall be specified~~
- ~~17. The requirements for special inspection and observation by the Geotechnical engineer shall be specified.~~
- ~~18. A Final Verified Report (FVR) documenting the installation of the ground improvement system and confirming that the ground improvement acceptance criteria have been met shall be prepared by the Geotechnical Engineer and submitted to the enforcement agency for review and approval.~~

J112.3 Shallow Foundations. ~~VSCs under the shallow foundation shall be located symmetrically around the centroid of the footing or load.~~

- ~~4. There shall be a minimum of four stone columns under each isolated or continuous/combined footing or approved equivalent.~~
- ~~5. The VSCs or deep foundation elements shall not be used to resist tension or overturning uplift from the shallow foundations.~~
- ~~6. The foundation design for the shallow foundation shall consider the increased vertical stiffness of the VSCs as point supports for analysis, unless it is substantiated that the installation of the VSCs result in improvement of the surrounding soils such that the modulus of subgrade reaction, long term settlement, and post earthquake settlement can be considered uniform throughout.~~

J112.4 Installation. ~~VSCs shall be installed with vibratory probes. Vertical columns of compacted unbounded aggregate shall be formed through the soils to be improved by adding gravel near the tip of the vibrator and progressively raising and re-penetrating the vibrator which will results in the gravel being pushed into the surrounding soil.~~

~~Gravel aggregate for VSCs shall be well graded with a maximum size of 6" and not more than 10% smaller than 3/8" after compaction.~~

J112.5 Construction Documents. ~~Construction documents for VSCs, as a minimum, shall include the following:~~

- ~~6. Size, depth, and location of VSCs.~~
- ~~7. Extent of soil improvements along with building/structure foundation outlines.~~
- ~~8. Field verification requirements and acceptance criteria using CPT/SPT.~~
- ~~9. The locations where CPT/SPT shall be performed.~~
- ~~10. The Testing, Inspection and Observation (TIO) program shall indicate the inspection and observation required for the VSCs.~~

~~DSA is not adopting Appendix J since requirements are now covered in Chapter 19A~~

Notation for [DSA-SS]

Authority: Education Code § 17310 and 81142, and H&S Code §16022.

Reference: Education Code §§ 17280 through 17317, and 81130 through 81147, and Health and Safety Code §§16000 through 16023.

Notation for [DSA-SS/CC]

Authority: Education Code § 81053.

Reference: Education Code §§ 81052, 81053, and 81130 through 81147.

**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
REGARDING THE ADOPTION BY REFERENCE OF THE
2015 EDITION OF THE INTERNATIONAL BUILDING CODE
WITH PROPOSED AMENDMENTS INTO THE 2016 CALIFORNIA BUILDING CODE (CBC)
(NON-ACCESS)
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2
(HCD 03/15)**

The Department of Housing and Community Development (HCD) proposes to adopt the 2015 edition of the International Building Code (IBC) for codification and effectiveness into the 2016 edition of the California Building Code (CBC) as presented on the following pages, including any necessary amendments. HCD further proposes to:

- Repeal the 2012 edition of the International Building Code;
 - Repeal the 2013 edition of the California Building Code, which includes amendments to the model code that are no longer necessary;
 - Repeal or amend building standards that are not addressed by a model code;
 - Relocate or codify existing adopted and necessary amendments to the model code into the format of the model code proposed for adoption, the action of which has no regulatory effect; and/or
 - Adopt new building standards that are not addressed by the model code proposed for adoption.
-

LEGEND FOR EXPRESS TERMS:

1. **IBC language with new California amendments:** IBC language shown in normal Arial 9-point; California amendments to IBC text shown underlined and in italics with vertical bar in left margin.
 2. **Existing California amendments being modified:** All such language shown in *italics*, modified language is underlined or shown in ~~strikeout~~ with vertical bar in left margin.
 3. **Existing California amendments with no modifications:** All such existing language shown in *italics*, modified model code language shown in ~~strikeout~~.
 4. **Text not being modified:** All language not displayed in full is shown as "..." (i.e., ellipsis).
 5. **Repealed text:** All language shown in ~~strikeout~~.
 6. **Notation:** Authority and Reference citations are provided at the end of each action.
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SUMMARY OF REGULATORY ACTION

HCD PROPOSES TO:

- Adopt standards from the 2015 International Building Code into the 2016 California Building Code **without amendments**.
- Adopt standards from the 2015 International Building Code into the 2016 California Building Code **with new amendments**.
- Bring forward existing California Amendments from the 2013 California Building Code for adoption into the 2016 California Building Code **with modifications**.
- Repeal 2013 California Amendments, which are **not** brought forward into the 2016 California Building Code.
- Bring forward existing California Amendments from the 2013 California Building Code for adoption into the 2016 California Building Code **without modifications**, except for editorial corrections.

1. HCD proposes to bring forward existing California amendments in Chapter 1, Division I, from the 2013 California Building Code for adoption into the 2016 California Building Code with modifications as follows:

**CHAPTER 1
SCOPE AND ADMINISTRATION**

**DIVISION I
CALIFORNIA ADMINISTRATION**

**SECTION 1.1
GENERAL**

1.1.1 Title. These regulations shall be known as the California Building Code, may be cited as such and will be referred to herein as "this code." The California Building Code is Part 2 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the ~~2012~~ 2015 International Building Code of the International Code Council with necessary California amendments.

1.1.2 Purpose. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.

1.1.3 Scope. The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California.

1.1.3.1 Nonstate-regulated buildings, structures, and applications. Except as modified by local ordinance pursuant to Section 1.1.8, the following standards in the California Code of Regulations, Title 24, Parts 2, 2.5, 3, 4, 5, 6, 9, 10 and 11 shall apply to all occupancies and applications not regulated by a state agency.

1.1.3.2 State-regulated buildings, structures, and applications. The model code, state amendments to the model code, and/or state amendments where there are no relevant model code provisions shall apply to the following buildings, structures, and applications regulated by state agencies as specified in Sections 1.2 through 1.14, except where modified by local ordinance pursuant to Section 1.1.8. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the state legislature.

Note: See Preface to distinguish the model code provisions from the California provisions.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California, and regulated by the Building Standards Commission. See Section 1.2 for additional scope provisions.
2. Local detention facilities regulated by the Corrections Standards Authority. See Section 1.3 for additional scope provisions.
3. Barbering, cosmetology or electrolysis establishments, acupuncture offices, pharmacies, veterinary facilities and structural pest control locations regulated by the Department of Consumer Affairs. See Section 1.4 for additional scope provisions.
4. Energy efficiency standards regulated by the California Energy Commission. See Section 1.5 for additional scope provisions.
5. Dairies and places of meat inspection regulated by the Department of Food and Agriculture. See Section 1.6 for additional scope provisions.

6. Organized camps, laboratory animal quarters, public swimming pools, radiation protection, commissaries serving mobile food preparation vehicles and wild animal quarantine facilities regulated by the Department of Public Health. See Section 1.7 for additional scope provisions.
7. Hotels, motels, lodging houses, ~~apartment houses~~ apartments, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities. See Section 1.8.2.1.1 for additional scope provisions.
8. Accommodations for persons with disabilities in buildings containing newly constructed covered multifamily dwellings, new common use ~~spaces~~ areas serving existing covered multifamily dwellings, additions to existing buildings where the addition alone meets the definition of ~~COVERED MULTIFAMILY DWELLING~~, covered multifamily dwellings, and new common-use ~~spaces~~ areas serving new covered multifamily dwellings, which are regulated by the Department of Housing and Community Development. See Section 1.8.2.1.2 for additional scope provisions.
9. Permanent buildings and permanent accessory buildings or structures constructed within mobilehome parks and special occupancy parks regulated by the Department of Housing and Community Development. See Section 1.8.2.1.3 for additional scope provisions.
10. Accommodations for persons with disabilities regulated by the Division of the State Architect. See Section 1.9.1 for additional scope provisions.
11. Public elementary and secondary schools, community college buildings, and state-owned or state-leased essential service buildings regulated by the Division of the State Architect. See Section 1.9.2 for additional scope provisions.
12. Qualified historical buildings and structures and their associated sites regulated by the State Historical Building Safety Board with the Division of the State Architect. See Section 1.9.3 for additional scope provisions.
13. General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 1.10 for additional scope provisions.
14. Applications regulated by the Office of the State Fire Marshal include, but are not limited to, the following in accordance with Section 1.11:
 - 14.1 Buildings or structures used or intended for use as an:
 1. Asylum, jail, prison.
 2. Mental hospital, hospital, home for the elderly, children's nursery, children's home or institution, school or any similar occupancy of any capacity.
 3. Theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.
 4. Small family day-care homes, large family day-care homes, residential facilities and residential facilities for the elderly, residential care facilities.
 5. State institutions or other state-owned or state-occupied buildings.
 6. High rise structures.
 7. Motion picture production studios.
 8. Organized camps.
 9. Residential structures.
 - 14.2. Tents, awnings or other fabric enclosures used in connection with any occupancy.
 - 14.3. Fire alarm devices, equipment and systems in connection with any occupancy.
 - 14.4. Hazardous materials, flammable and combustible liquids.

- 14.5. Public school automatic fire detection, alarm and sprinkler systems.
- 14.6. Wildland-urban interface fire areas.
- 15. Public libraries constructed and renovated using funds from the California Library Construction and Renovation Bond Act of 1988 and regulated by the State Librarian. See Section 1.12 for additional scope provisions.
- 16. Graywater systems regulated by the Department of Water Resources. See Section 1.13 for additional scope provisions.
- 17. For applications listed in Section 1.9.1 regulated by the Division of State Architect--Access Compliance, outdoor environments and uses shall be classified according to accessibility uses described in Chapters 11A, 11B and 11C.
- 18. Marine Oil Terminals regulated by the California State Lands Commission. See Section 1.14 for additional scope provisions.

1.1.4 Appendices. Provisions contained in the appendices of this code shall not apply unless specifically adopted by a state agency or adopted by a local enforcing agency in compliance with Health and Safety Code Section 18901 et seq. for Building Standards Law, Health and Safety Code Section 17950 for State Housing Law and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 1.1.8 of this code.

1.1.5 Referenced codes. The codes, standards and publications adopted and set forth in this code, including other codes, standards and publications referred to therein are, by title and date of publication, hereby adopted as standard reference documents of this code. When this code does not specifically cover any subject related to building design and construction, recognized architectural or engineering practices shall be employed. The National Fire Codes, standards and the Fire Protection Handbook of the National Fire Protection Association are permitted to be used as authoritative guides in determining recognized fire prevention engineering practices.

1.1.6 Nonbuilding standards, orders and regulations. Requirements contained in the International Building Code, or in any other referenced standard, code or document, which are not building standards as defined in Health and Safety Code Section 18909, shall not be construed as part of the provisions of this code. For nonbuilding standards, orders and regulations, see other titles of the California Code of Regulations.

1.1.7 Order of precedence and use.

1.1.7.1 Differences. In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.

1.1.7.2 Specific provisions. Where a specific provision varies from a general provision, the specific provision shall apply.

1.1.7.3 Conflicts. When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, the most restrictive requirements shall prevail.

1.1.7.3.1 Detached one-and two-family dwellings. Detached one-and two-family dwellings, efficiency dwelling units, lodging houses, live/work units, townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures, may be designed and constructed in accordance with this code or the California Residential Code, but not both, unless the proposed structure(s) or element(s) exceed the design limitations established in the California Residential Code, and the code user is specifically directed by the California Residential Code to use this code.

1.1.8 City, county, or city and county amendments, additions or deletions. The provisions of this code do not limit the authority of city, county, or city and county governments to establish more restrictive and reasonably necessary differences to the provisions contained in this code pursuant to complying with Section 1.1.8.1. The effective date of amendments, additions or deletions to this code by a city, county, or city and county filed pursuant to Section 1.1.8.1 shall be the date filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.

1.1.8.1 Findings and filings.

1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical or geological conditions.

Exception: Hazardous building ordinances and programs mitigating unreinforced masonry buildings.

2. The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.
3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development, Division of Codes and Standards, P.O. Box 1407, Sacramento, CA 95812-1407 or ~~1800 3rd Street, Room 260, Sacramento, CA 95811~~ 2020 W. El Camino Avenue, Suite 250, Sacramento, CA 95833-1829.

1.1.9 Effective date of this code. Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.

1.1.10 Availability of codes. At least one complete copy each of Titles 8, 19, 20, 24 and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county, or city and county shall have an up-to-date copy of the code available for public inspection. See Health and Safety Code Section 18942 (d e) (1) and (2).

1.1.11 Format. This part fundamentally adopts the International Building Code by reference on a chapter-by-chapter basis. When a specific chapter of the International Building Code is not printed in the code and is marked "Reserved" such chapter of the International Building Code is not adopted as a portion of this code. When a specific chapter of the International Building Code is marked "Not adopted by the State of California" but appears in the code, it may be available for adoption by local ordinance.

Note: Matrix Adoption Tables at the front of each chapter may aid the code user in determining which chapter or sections within a chapter are applicable to buildings under the authority of a specific state agency, but they are not to be considered regulatory.

1.1.12 Validity. If any chapter, section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, contrary to statute, exceeding the authority of the state as stipulated by statutes or otherwise inoperative, such decision shall not affect the validity of the remaining portion of this code.

SECTION 1.8 DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

1.8.1 Purpose. The purpose of this code is to establish the minimum requirements necessary to protect the health, safety and general welfare of the occupants and the public by governing accessibility, erection, construction, reconstruction, enlargement, conversion, alteration, repair, moving, removal, demolition, occupancy, use, height, court, area, sanitation, ventilation, maintenance and safety to life and property from fire and other hazards attributed to the built environment.

SECTION 1.8.2 AUTHORITY AND ABBREVIATIONS

1.8.2.1 General. The Department of Housing and Community Development is authorized by law to promulgate and adopt building standards and regulations for several types of building applications. The applications under the authority of the Department of Housing and Community Development are listed in Sections 1.8.2.1.1 through 1.8.2.1.3.

Note: See the California Residential Code for detached one-and two-family dwellings and townhouses.

1.8.2.1.1 Housing construction.

Application - Hotels, motels, lodging houses, ~~apartment houses~~ apartments, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. Sections of this code which pertain to applications listed in this section are identified using the abbreviation "HCD 1."

Enforcing Agency – Local building department or the Department of Housing and Community Development.

Authority cited–Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference–Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and Sections 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

1.8.2.1.2 Housing accessibility.

Application – ~~COVERED MULTIFAMILY DWELLINGS~~ Covered multifamily dwellings as defined in Chapter 2 including, but not limited to, lodging houses, dormitories, timeshares, condominiums, shelters for homeless persons, congregate residences, ~~apartment houses~~ apartments, dwellings, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities.

Sections of this code identified by the abbreviation "HCD 1-AC" require specific accommodations for ~~PERSONS WITH DISABILITIES~~ persons with disabilities as defined in Chapter 2. The application of such provisions shall be in conjunction with other requirements of this code and apply only to newly constructed ~~COVERED MULTIFAMILY DWELLINGS~~ covered multifamily dwellings as defined in Chapter 2 of the California Building Code. "HCD 1-AC" applications include, but are not limited to, the following:

1. All newly constructed ~~"COVERED MULTIFAMILY DWELLINGS"~~ covered multifamily dwellings as defined in Chapter 2.
2. New ~~"COMMON USE AREAS"~~ common use areas as defined in Chapter 2, serving existing covered multifamily dwellings.
3. Additions to existing buildings, where the addition alone meets the definition of ~~"COVERED MULTIFAMILY DWELLINGS"~~ covered multifamily dwellings as defined in Chapter 2.
4. New common use areas serving new covered multifamily dwellings.
5. Where any portion of a building's exterior is preserved, but the interior of the building is removed, including all structural portions of floors and ceilings, the building is considered a new building for determining the application of Chapter 11A.

"HCD 1-AC" building standards generally do not apply to public use areas or public accommodations such as hotels and motels and public housing. Public use areas, public accommodations, and public housing, as defined in Chapter 2 of this code, are subject to the Division of the State Architect (DSA-AC) in Chapter 11B, and are referenced in Section 1.9.1.

Newly constructed covered multifamily dwellings, which can also be defined as public housing, shall be subject to the requirements of Chapter 11A and Chapter 11B.

Enforcing Agency – Local building department or the Department of Housing and Community Development.

Authority cited–Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference – Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

1.8.2.1.3 Permanent buildings in mobilehome parks and special occupancy parks.

Application – Permanent buildings, and permanent accessory buildings or structures, constructed within mobilehome parks and special occupancy parks that are under the control and ownership of the park operator. Sections of this code which pertain to applications listed in this section are identified using the abbreviation “HCD 2.”

Enforcing Agency – The Department of Housing and Community Development, local building department or other local agency that has assumed responsibility for the enforcement of Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 for mobilehome parks and Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 for special occupancy parks.

Authority cited - Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17821.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference - Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

**SECTION 1.8.3
LOCAL ENFORCING AGENCY**

1.8.3.1 Duties and powers. The building department of every city, county, or city and county shall enforce all the provisions of law, this code, and the other rules and regulations promulgated by the Department of Housing and Community Development pertaining to the installation, erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, demolition or arrangement of apartment houses apartments, condominiums, hotels, motels, lodging houses and dwellings, including accessory buildings, facilities and uses thereto.

The provisions regulating the erection and construction of dwellings and appurtenant structures shall not apply to existing structures as to which construction is commenced or approved prior to the effective date of these regulations. Requirements relating to use, maintenance and occupancy shall apply to all dwellings and appurtenant structures approved for construction or constructed before or after the effective date of this code.

For additional information regarding the use and occupancy of existing buildings and appurtenant structures, see California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Article 1, Section 1.

1.8.3.2 Laws, rules and regulations. Other than the building standards contained in this code, and notwithstanding other provisions of law, the statutory authority and location of the laws, rules, and regulations to be enforced by local enforcing agencies are listed by statute in Sections 1.8.3.2.1 through 1.8.3.2.5 below:

1.8.3.2.1 State Housing Law. Refer to the State Housing Law, California Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1, for the erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, demolition or arrangement of apartment houses apartments, condominiums, hotels, motels, lodging houses and dwellings, including accessory buildings, facilities and uses thereto.

1.8.3.2.2 Mobilehome Parks Act. Refer to the Mobilehome Parks Act, California Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000 for mobilehome park administrative and enforcement authority, permits, plans, fees, violations, inspections and penalties both within and outside mobilehome parks.

Exception: Mobilehome parks where the Department of Housing and Community Development is the enforcing agency.

1.8.3.2.3 Special Occupancy Parks Act. Refer to the Special Occupancy Parks Act, California Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000 for special occupancy park administrative and enforcement authority, permits, fees, violations, inspections and penalties both within and outside of special occupancy parks.

Exception: Special occupancy parks where the Department of Housing and Community Development is the enforcing agency.

1.8.3.2.4 Employee Housing Act. Refer to the Employee Housing Act, California Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600 for employee housing administrative and enforcement authority, permits, fees, violations, inspections and penalties.

1.8.3.2.5 Factory-Built Housing Law. Refer to the Factory-Built Housing Law, California Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000 for factory-built housing administrative and enforcement authority, permits, fees, violations, inspections and penalties.

SECTION 1.8.4 PERMITS, FEES, APPLICATIONS AND INSPECTIONS

1.8.4.1 Permits. A written construction permit shall be obtained from the enforcing agency prior to the erection, construction, reconstruction, installation, moving or alteration of any building or structure.

Exceptions:

1. Work exempt from permits as specified in Chapter 1, Division II, Scope and Administration, Section 105.2.
2. Changes, alterations or repairs of a minor nature not affecting structural features, egress, sanitation, safety or accessibility as determined by the enforcing agency.

Exemptions from permit requirements shall not be deemed to grant authorization for any work to be done in any manner in violation of other provisions of law or this code.

1.8.4.2 Fees. Subject to other provisions of law, the governing body of any city, county, or city and county may prescribe fees to defray the cost of enforcement of rules and regulations promulgated by the Department of Housing and Community Development. The amount of the fees shall not exceed the amount reasonably necessary to administer or process permits, certificates, forms or other documents, or to defray the costs of enforcement. For additional information, see the State Housing Law, Health and Safety Code, Division 13, Part 1.5, Section 17951 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, Article 3, commencing with Section 6.

1.8.4.3 Plan review and time limitations. Subject to other provisions of law, provisions related to plan checking, prohibition of excessive delays and contracting with or employment of private parties to perform plan checking are set forth in the State Housing Law, Health and Safety Code Section 17960.1, and for employee housing, in Health and Safety Code Section 17021.

1.8.4.3.1 Retention of plans. The building department of every city, county, or city and county shall maintain an official copy, microfilm, electronic or other type of photographic copy of the plans of every building, during the life of the building, for which the department issued a building permit.

Exceptions:

1. Single or multiple dwellings not more than two stories and basement in height.
2. Garages and other structures appurtenant to buildings listed in Exception 1.
3. Farm or ranch buildings appurtenant to buildings listed in Exception 1.
4. Any one-story building where the span between bearing walls does not exceed 25 feet (7620 mm), except a steel frame or concrete building.

All plans for common interest developments as defined in Section ~~4354~~ 4100 of the California Civil Code shall be retained. For additional information regarding plan retention and reproduction of plans by an enforcing agency, see Health and Safety Code Sections 19850 through 19852.

1.8.4.4 Inspections. Construction or work for which a permit is required shall be subject to inspection by the building official, and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or other regulations of the Department of Housing and Community Development. Required inspections are

listed in Chapter 1, Division II, Scope and Administration, Sections 110.3.1 through 110.3.6, 110.3.8, 110.3.9 and 110.3.10.

SECTION 1.8.5 RIGHT OF ENTRY FOR ENFORCEMENT

1.8.5.1 General. Subject to other provisions of law, officers and agents of the enforcing agency may enter and inspect public and private properties to secure compliance with the rules and regulations promulgated by the Department of Housing and Community Development. For limitations and additional information regarding enforcement, see the following:

1. For applications subject to the State Housing Law as referenced in Section 1.8.3.2.1 of this code, refer to Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.
2. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000.
3. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3 of this Code, refer to Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000.
4. For applications subject to the Employee Housing Act as referenced in Section 1.8.3.2.4 of this code, refer to Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600.
5. For applications subject to the Factory-Built Housing Law as referenced in Section 1.8.3.2.5 of this code, refer to Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000.

SECTION 1.8.6 LOCAL MODIFICATION BY ORDINANCE OR REGULATION

1.8.6.1 General. Subject to other provisions of law, a city, county, or city and county may make changes to the provisions adopted by the Department of Housing and Community Development. If any city, county, or city and county does not amend, add or repeal by local ordinances or regulations the provisions published in this code or other regulations promulgated by the Department of Housing and Community Development, those provisions shall be applicable and shall become effective 180 days after publication by the California Building Standards Commission. Amendments, additions and deletions to this code adopted by a city, county, or city and county pursuant to California Health and Safety Code Sections 17958.5, 17958.7 and 18941.5, together with all applicable portions of this code, shall also become effective 180 days after publication of the California Building Standards Code by the California Building Standards Commission.

1.8.6.2 Findings, filings and rejections of local modifications. Prior to making any modifications or establishing more restrictive building standards, the governing body shall make express findings and filings, as required by California Health and Safety Code Section 17958.7, showing that such modifications are reasonably necessary due to local climatic, geological, or topographical conditions. No modification shall become effective or operative unless the following requirements are met:

1. The express findings shall be made available as a public record.
2. A copy of the modification and express finding, each document marked to cross-reference the other, shall be filed with the California Building Standards Commission for a city, county, or city and county and with the Department of Housing and Community Development for fire protection districts.
3. The California Building Standards Commission has not rejected the modification or change.

Nothing in this section shall limit the authority of fire protection districts pursuant to California Health and Safety Code Section 13869.7(a).

SECTION 1.8.7
ALTERNATE MATERIALS, DESIGNS, TESTS AND METHODS OF CONSTRUCTION

1.8.7.1 General. The provisions of this code, as adopted by the Department of Housing and Community Development, are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, design or method of construction not specifically prescribed by this code. Consideration and approval of alternates shall comply with Section 1.8.7.2 for local building departments and Section 1.8.7.3 for the Department of Housing and Community Development.

1.8.7.2 Local building departments. The building department of any city, county, or city and county may approve alternates for use in the erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, demolition or arrangement of ~~an apartment house~~ apartments, condominiums, hotels, motels, lodging houses, dwellings, or an accessory structures, except for the following:

1. Structures located in mobilehome parks as defined in California Health and Safety Code Section 18214.
2. Structures located in special occupancy parks as defined in California Health and Safety Code Section 18862.43.
3. Factory-built housing as defined in California Health and Safety Code Section 19971.

1.8.7.2.1 Approval of alternates. The consideration and approval of alternates by a local building department shall comply with the following procedures and limitations:

1. The approval shall be granted on a case-by-case basis.
2. Evidence shall be submitted to substantiate claims that the proposed alternate, in performance, safety and protection of life and health, conforms to, or is at least equivalent to, the standards contained in this code and other rules and regulations promulgated by the Department of Housing and Community Development.
3. The local building department may require tests performed by an approved testing agency at the expense of the owner or owner's agent as proof of compliance.
4. If the proposed alternate is related to accessibility in covered multifamily dwellings or in facilities serving ~~"COVERED MULTIFAMILY DWELLINGS"~~ covered multifamily dwellings as defined in Chapter 44A 2, the proposed alternate must also meet the threshold set for ~~"EQUIVALENT FACILITATION"~~ equivalent facilitation as defined in Chapter 44A 2.

For additional information regarding approval of alternates by a building department pursuant to the State Housing Law, see California Health and Safety Code Section 17951(e) and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1.

1.8.7.3 Department of Housing and Community Development. The Department of Housing and Community Development may approve alternates for use in the erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal or demolition of ~~an apartment house~~ apartments, condominiums, hotels, motels, lodging houses, dwellings or an accessory thereto and permanent buildings in mobilehome parks and special occupancy parks. The consideration and approval of alternates shall comply with the following:

1. The department may require tests at the expense of the owner or owner's agent to substantiate compliance with the California Building Standards Code.
2. The approved alternate shall, for its intended purpose, be at least equivalent in performance and safety to the materials, designs, tests or methods of construction prescribed by this code.

SECTION 1.8.8
APPEALS BOARD

1.8.8.1 General. Every city, county, or city and county shall establish a process to hear and decide appeals of orders, decisions, and determinations made by the enforcing agency relative to the application and interpretation of this code and other regulations governing construction, use, maintenance and change of occupancy. The governing body of any city, county, or city and county may establish a local appeals board and a housing appeals board to serve this purpose. Members of the appeals board(s) shall not be employees of the enforcing agency and shall be knowledgeable in the applicable building codes, regulations and ordinances as determined by the governing body of the city, county, or city and county.

Where no such appeals boards or agencies have been established, the governing body of the city, county, or city and county shall serve as the local appeals board or housing appeals board as specified in California Health and Safety Code Sections 17920.5 and 17920.6.

1.8.8.2 Definitions. The following terms shall for the purposes of this section have the meaning shown.

HOUSING APPEALS BOARD. The board or agency of a city, county, or city and county which is authorized by the governing body of the city, county, or city and county to hear appeals regarding the requirements of the city, county, or city and county relating to the use, maintenance and change of occupancy of buildings and structures, including requirements governing alteration, additions, repair, demolition and moving. In any area in which there is no such board or agency, "Housing Appeals Board" means the local appeals board having jurisdiction over the area.

LOCAL APPEALS BOARD. The board or agency of a city, county, or city and county which is authorized by the governing body of the city, county, or city and county to hear appeals regarding the building requirements of the city, county, or city and county. In any area in which there is no such board or agency, "Local Appeals Board" means the governing body of the city, county, or city and county having jurisdiction over the area.

1.8.8.3 Appeals. Except as otherwise provided in law, any person, firm or corporation adversely affected by a decision, order or determination by a city, county, or city and county relating to the application of building standards published in the California Building Standards Code, or any other applicable rule or regulation adopted by the Department of Housing and Community Development, or any lawfully enacted ordinance by a city, county, or city and county, may appeal the issue for resolution to the local appeals board or housing appeals board as appropriate.

The local appeals board shall hear appeals relating to new building construction and the housing appeals board shall hear appeals relating to existing buildings.

SECTION 1.8.9 UNSAFE BUILDINGS OR STRUCTURES

1.8.9.1 Authority to enforce. Subject to other provisions of law, the administration, enforcement, actions, proceedings, abatement, violations and penalties for unsafe buildings and structures are contained in the following statutes and regulations:

1. For applications subject to the State Housing Law as referenced in Section 1.8.3.2.1 of this code, refer to Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.
2. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000.
3. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3 of this code, refer to Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000.
4. For applications subject to the Employee Housing Act as referenced in Section 1.8.3.2.4 of this code, refer to Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600.
5. For applications subject to the Factory-Built Housing Law as referenced in Section 1.8.3.2.5 of this code, refer to Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000.

1.8.9.2 Actions and proceedings. Subject to other provisions of law, punishments, penalties and fines for violations of building standards are contained in the following statutes and regulations:

1. For applications subject to the State Housing Law as referenced in Section 1.8.3.2.1 of this code, refer to Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.
2. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000.

3. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3 of this code, refer to Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000.
4. For applications subject to the Employee Housing Act as referenced in Section 1.8.3.2.4 of this code, refer to Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600.
5. For applications subject to the Factory-Built Housing Law as referenced in Section 1.8.3.2.5 of this code, refer to Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000.

SECTION 1.8.10 OTHER BUILDING REGULATIONS

1.8.10.1 Existing structures. ~~Subject to the requirements of California Health and Safety Code Sections 17912, 17920.3, 17922, 17922.3, 17958.8 and 17958.9, the provisions contained in Chapter 34 relating to existing structures shall only apply as identified in the Matrix Adoption Table under the authority of the Department of Housing and Community Development as listed in Sections 1.8.2.1.1 through 1.8.2.1.3 of this code.~~

1.8.10.1 Existing structures. Notwithstanding other provisions of law, the replacement, retention, and extension of original materials and the use of original methods of construction for any existing building or accessory structure, or portions thereof, shall be permitted in accordance with the provisions of this code and the California Existing Building Code, as adopted by the Department of Housing and Community Development. For additional information, see California Health and Safety Code, Sections 17912, 17920.3, 17922 and 17958.8.

1.8.10.2 Moved structures. ~~Subject to the requirements of California Health and Safety Code Sections 17922.3 and 17958.9, the provisions contained in Chapter 34 relating to a moved residential structure shall only apply as identified in the Matrix Adoption Table under the authority of the Department of Housing and Community Development as listed in Sections 1.8.2.1.1 through 1.8.2.1.3 of this code.~~

1.8.10.2 Moved structures. Subject to the requirements of California Health and Safety Code Sections 17922, 17922.3 and 17958.9, local ordinances or regulations relating to a moved residential building or accessory structure thereto, shall permit the replacement, retention, and extension of original materials and the use of original methods of construction so long as the structure does not become or continue to be a substandard building.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

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2. **HCD proposes to adopt Chapter 1, Division II, Sections 105.2 (Building: 1 – 13 only), 107.1, 107.2.1, 107.2.3, 107.2.4, 107.2.5, 107.2.5.1, 107.2.6, 110.3.1, 110.3.2, 110.3.3, 110.3.4, 110.3.5, 110.3.6, 110.3.8, 110.3.9, 110.3.10, and 110.3.10.1 from the 2015 International Building Code into the 2016 California Building Code, and to bring forward existing California amendments as follows:**

DIVISION II SCOPE AND ADMINISTRATION

110.3.4 Frame inspection. ... (No change to text)

110.3.4.1 (HCD 1) Moisture content verification. Moisture content of framing members shall be verified in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5.

110.3.10 Final inspection. ... (No change to text)

110.3.10.1 Flood hazard documentation. ... (No change to text)

110.3.10.2 (HCD 1) Operation and maintenance manual. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency shall be placed in the building in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.4.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

3. HCD proposes to adopt Chapter 2 from the 2015 International Building Code into the 2016 California Building Code with new, existing, and modified existing amendments as follows:

CHAPTER 2 DEFINITIONS

SECTION 201 GENERAL

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the ~~International Energy Conservation Code, International Fuel Gas Code, International~~ *California Residential Code, California Electrical Code, California Existing Building Code, California Green Building Standards Code, California Fire Code, International California Mechanical Code or International California Plumbing Code*, such terms shall have the meanings ascribed to them as in those codes.

SECTION 202 DEFINITIONS

ACCESSIBILITY. The combination of various elements in a building, facility, site, or area, or portion thereof, which allows access, circulation and the full use of the building and facilities by persons with disabilities in compliance with this code.

ACCESSIBLE. A site, building, facility, or portion thereof that is approachable and usable by persons with disabilities in compliance with this code.

ACCESSIBLE ROUTE. A continuous unobstructed path connecting accessible elements and spaces of an accessible site, building or facility that can be negotiated by a person with a disability using a wheelchair, and that is also safe for and usable by persons with other disabilities. Interior accessible routes may include corridors, hallways, floors, ramps, elevators and lifts. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts.

ACCESSIBLE SPACE. A space that complies with the accessibility provisions of this code.

ADAPTABLE DWELLING UNIT. (HCD 1-AC) An accessible dwelling unit within a covered multifamily building as designed with elements and spaces allowing the dwelling unit to be adapted or adjusted to accommodate the user. See Chapter 11A, Division IV.

APPROVED. Acceptable to the building official.

(HCD 1 & HCD 2) "Approved" means meeting the approval of the enforcing agency, except as otherwise provided by law, when used in connection with any system, material, type of construction, fixture or appliance as the result of investigations and tests conducted by the agency, or by reason of accepted principles or tests by national authorities or technical, health or scientific organizations or agencies.

Notes: (HCD 1 & HCD 2)

1. See Health and Safety Code Section 17920 for "Approved" as applied to residential construction and buildings or structures accessory thereto, as referenced in Section 1.8.2.1.1.
2. See Health and Safety Code Section 17921.1 for "Approved" as applied to the use of hotplates in residential construction referenced in Section 1.8.2.1.1.
3. See Health and Safety Code Section 19966 for "Approved" as applied to factory-built housing as referenced in Section 1.8.3.2.5.
4. See Health and Safety Code Section 18201 for "Approved" as applied to mobilehome parks as referenced in Section 1.8.2.1.3.
5. See Health and Safety Code Section 18862.1 for "Approved" as applied to special occupancy parks as referenced in Section 1.8.2.1.3.

APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the building official.

(HCD 1 & HCD 2) "Approved agency" shall mean "Listing agency" and "Testing agency."

APPROVED LISTING AGENCY. (HCD 1 & HCD 2) Any agency approved by the enforcing agency, unless otherwise provided by law, which is in the business of listing and labeling and which makes available at least an annual published report of such listings in which specific information is included that the product has been tested to recognized standards and found to comply.

APPROVED TESTING AGENCY. (HCD 1 & HCD 2) Any agency, which is determined by the enforcing agency, except as otherwise provided by law, to have adequate personnel and expertise to carry out the testing of systems, materials, types of construction, fixtures or appliances.

ASSISTIVE DEVICE. (HCD 1-AC) An aid, tool or instrument used by persons with disabilities to assist in activities of daily living.

AUTOMATIC DOOR. A door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of a momentary actuating signal. The switch that begins the automatic cycle may be a photoelectric device, floor mat or manual switch.

BATHROOM. For the purposes of Chapter 11A, a room which includes a water closet (toilet), a lavatory, and a bathtub and/or a shower. It does not include single-fixture facilities or those with only a water closet and lavatory. It does include a compartmented bathroom. A compartmented bathroom is one in which the fixtures are distributed among interconnected rooms. A compartmented bathroom is considered a single unit and is subject to the requirements of Chapter 11A.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

Exception: (HCD 1, HCD 2 & HCD 1-AC) For applications listed in Section 1.8.2 regulated by the Department of Housing and Community Development, "Building" shall not include the following:

1. Any mobilehome as defined in Health and Safety Code Section 18008.
2. Any manufactured home as defined in Health and Safety Code Section 18007.
3. Any commercial modular as defined in Health and Safety Code Section 18001.8 or any special purpose commercial modular as defined in Section 18012.5.
4. Any recreational vehicle as defined in Section Health and Safety Code 18010.

5. Any multifamily manufactured home as defined in Health and Safety Code Section 18008.7.

For additional information, see Health and Safety Code Section 18908.

Note: Building shall have the same meaning as defined in Health and Safety Code section 17920 and 18908 for the applications specified in Section 1.11.

BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE. (HCD 1-AC) An accessible entrance to a building that is connected by an accessible route to public transportation stops, to parking or passenger loading zones, or to public streets or sidewalks, if available.

BUILDING, EXISTING. (HCD 1 & HCD 2) A building erected prior to the adoption of this code, or one for which a legal building permit has been issued.

CELLULAR CONCRETE. (HCD 1 & HCD 2) A lightweight product consisting of portland cement and selected gas-forming chemicals or foaming agents which create homogeneous voids in the hardened concrete.

CHARACTERS. Letters, numbers, punctuation marks and typographic symbols.

CLEAR FLOOR SPACE. (HCD 1-AC) The minimum unobstructed floor or ground space required to accommodate a single, stationary wheelchair and occupant.

COMMON USE AREAS. (HCD 1-AC) Private use areas within multifamily residential facilities where the use of these areas is limited exclusively to owners, residents and their guests. The areas may be defined as rooms or spaces or elements inside or outside of a building.

COVERED MULTIFAMILY DWELLINGS. (HCD 1-AC) ~~Dwelling units in buildings consisting of 3 or more dwelling units or 4 or more condominium units. Covered multifamily dwellings include dwelling units listed in Section 1102A.1. Dwelling units within a single structure separated by firewalls do not constitute separate buildings.~~

~~**Note:** For buildings or complexes containing public housing, see Chapter 11B for provisions of the Division of the State Architect Access Compliance (DSA-AC).~~

~~"Covered multifamily dwellings" means either of the following:~~

~~1. Buildings that consist of at least four condominium dwelling units or at least three apartment dwelling units if the buildings have at least one elevator.~~

~~2. The ground floor dwelling units in buildings that consist of at least four condominium dwelling units or at least three apartment dwelling units if the building does not have an elevator.~~

~~Covered multifamily dwellings include dwellings listed in Section 1102A.1. For purposes of this definition, dwelling units within a single structure separated by firewalls do not constitute separate buildings.~~

CROSS SLOPE. (HCD 1-AC) The slope that is perpendicular to the direction of travel. (As differentiated from the definition of "Running Slope".)

CURB CUT. An interruption of a curb at a pedestrian way, which separates surfaces that are substantially at the same elevation.

CURB RAMP. A sloping pedestrian way, intended for pedestrian traffic, which provides access between a walk or sidewalk and a surface located above or below an adjacent curb face.

DEPARTMENT. (HCD 1 & HCD 2) The Department of Housing and Community Development.

DETACHED SINGLE-FAMILY DWELLING. (HCD 1 & HCD 2) Any single-family dwelling which is separated (detached) from adjacent buildings.

DETECTABLE WARNING. A standardized surface feature built in or applied to walking surfaces or other elements to warn of hazards on a circulation path.

DIRECTIONAL SIGN. (HCD 1 & HCD 2) A publicly displayed notice which indicates by use of words or symbols a

recommended direction or route of travel.

DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

(HCD 1-AC) For the purposes of Chapter 11A, a single unit of residence for a family of one or more persons. Examples of dwelling units covered by Chapter 11A include condominiums, an apartment unit within an apartment building, and other types of dwellings in which sleeping accommodations are provided but toileting or cooking facilities are shared by occupants of more than one room or portion of the dwelling. Examples of the latter include dormitory rooms and sleeping accommodations in shelters intended for occupancy as residences for homeless persons.

EFFICIENCY DWELLING UNIT. (HCD 1) A dwelling unit containing only one habitable room and includes an efficiency unit as defined by Health and Safety Code Section 17958.1. See Section 1208.4.

ELEVATOR, PASSENGER. (HCD 1 & HCD 2) See "PASSENGER ELEVATOR."

ENFORCEMENT. (HCD 1 & HCD 2) The applicable section of the Health and Safety Code is repeated here for clarity and reads as follows:

Section 17920. "Enforcement" means diligent effort to secure compliance, including review of plans and permit applications, response to complaints, citation of violations, and other legal process. Except as otherwise provided in this part, "Enforcement" may, but need not, include inspections of existing buildings on which no complaint or permit application has been filed, and effort to secure compliance as to these existing buildings.

ENFORCING AGENCY. (HCD 1 & HCD 2) The designated department or agency as specified by statute or regulation.

ENTRANCE. Any access point to a building or portion of a building or facility used for the purpose of entering. An entrance includes the approach walk, the vertical access leading to the entrance platform, the entrance platform itself, vestibule if provided, the entry door or gate, and the hardware of the entry door or gate.

EQUIVALENT FACILITATION. The use of designs, products or technologies as alternatives to those prescribed, resulting in substantially equivalent or greater accessibility and usability.

Note: In determining equivalent facilitation, consideration shall be given to means that provide for the maximum independence of persons with disabilities while presenting the least risk of harm, injury or other hazard to such persons or others.

FAMILY (HCD 1). An individual or two or more persons who are related by blood or marriage; or otherwise live together in a dwelling unit.

GRAB BAR. A bar for the purpose of being grasped by the hand for support.

GRADE. (Adjacent Ground Elevation) (HCD 1-AC) The lowest point of elevation of the finished surface of the ground, paving or sidewalk within the area between the building and the property line or, when the property line is more than 5 feet (1524 mm) from the building, between the building and a line 5 feet (1524 mm) from the building. See Health and Safety Code Section 19955.3(d).

GROUND FLOOR. The floor of a building with a building entrance on an accessible route. A building may have one or more ground floors.

GUARD (HCD 1, & HCD 2 & HCD 1-AC) OR GUARDRAIL. A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

HOUSING AT A PLACE OF EDUCATION. Housing operated by or on behalf of an elementary, secondary, undergraduate, or postgraduate school, or other place of education, including dormitories, suites, apartments, or other places of residence.

HOTEL OR MOTEL. (HCD 1 & HCD 2) Any building containing six or more guest rooms intended or designed to be used, or which are used, rented or hired out to be occupied, or which are occupied for sleeping purposes by guests.

INTERNATIONAL SYMBOL OF ACCESSIBILITY. The symbol adopted by Rehabilitation International's 11th World Congress for the purpose of indicating that buildings and facilities are accessible to persons with disabilities.

KICK PLATE. An abrasion-resistant plate affixed to the bottom portion of a door to prevent a trap condition and protect its surface.

LABELED. Equipment, materials or products to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

(HCD 1 & HCD 2) "Labeled" means equipment or materials to which has been attached a label, symbol or other identifying mark of an organization, approved by the Department, that maintains a periodic inspection program of production of labeled products, installations, equipment, or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

LAVATORY. A fixed bowl or basin with running water and drainpipe, as in a toilet or bathing facility, for washing or bathing purposes. (As differentiated from the definition of "Sink".)

LEVEL AREA. (HCD 1-AC) A specified surface that does not have a slope in any direction exceeding 1/4 inch (6.4 mm) in 1 foot (305 mm) from the horizontal (2.083-percent gradient).

LIFT, PLATFORM (WHEELCHAIR). (HCD 1-AC) See "Platform (Wheelchair) Lift".

LISTED. Equipment, materials, products or services included in a list published by an organization acceptable to the code official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

(HCD 1 & HCD 2) "Listed" means all products that appear in a list published by an approved testing or listing agency. For additional information, see Health and Safety Code Section 17920(h).

LISTING AGENCY. (HCD 1 & HCD 2) An agency approved by the department that is in the business of listing and labeling products, materials, equipment and installations tested by an approved testing agency, and that maintains a periodic inspection program on current production of listed products, equipment and installations, and that, at least annually, makes available a published report of these listings. For additional information, see Health and Safety Code Section 17920(i).

LOBBY. (HCD 1 & HCD 2) An area not defined as a waiting room at the entrance of a building through which persons must pass.

LODGING HOUSE. (HCD 1 & HCD 1-AC) Any building or portion thereof containing not more than five guest rooms where rent is paid in money, goods, labor or otherwise, and that is occupied by the proprietor as the residence of such proprietor.

MARKED CROSSING. A crosswalk or other identified marked path intended for pedestrian use in crossing a vehicular way.

MOTEL. (HCD 1 & HCD 2) See Hotel or Motel.

MULTISTORY DWELLING UNIT. (HCD 1-AC) A dwelling unit with finished living space located on one floor and the floor or floors immediately above or below it.

NEWLY CONSTRUCTED. (HCD 1-AC) A building that has never before been used or occupied for any purpose.

NORMAL. (HCD 1 & HCD 2) Conforming to a pattern or standard regarded as usual or typical.

OPEN RISER. The space between two adjacent stair treads not closed by a riser.

OPERABLE PART. A component of an element used to insert or withdraw objects, or to activate, deactivate, or adjust the element.

PASSAGE DOOR. (HCD 1-AC) A door other than an exit door through which persons may traverse.

PASSENGER ELEVATOR. (HCD 1 & HCD 2) "Passenger Elevator" is an An elevator used primarily to carry persons passengers. For additional information, see California Code of Regulations, Title 8, Division 1, Chapter 4.

PASSIVE SOLAR ENERGY COLLECTOR. (HCD 1 & HCD 2) Uses architectural components, rather than mechanical components, to provide heating or cooling for a building interior.

PEDESTRIAN. (HCD 1-AC) An individual who moves within walking areas with or without the use of walking-assistive devices such as crutches, leg braces, wheelchairs, white cane, service animal, etc.

PEDESTRIAN WAY. A route by which a pedestrian may pass.

PERSONS WITH DISABILITIES. (HCD 1-AC) For purposes of Chapter 11A, "Persons with Disabilities" includes, but is not limited to, any physical or mental disability as defined in Government Code Section 12926.

PICTOGRAM. A pictorial symbol that represents activities, facilities, or concepts.

PLACE OF PUBLIC ACCOMMODATION. A facility operated by a private entity whose operations affect commerce and fall within at least one of the following categories:

- (1) Place of lodging, except for an establishment located within a facility that contains not more than five rooms for rent or hire and that actually is occupied by the proprietor of the establishment as the residence of the proprietor. For purposes of this code, a facility is a "place of lodging" if it is:
 - (i) An inn, hotel, or motel; or
 - (ii) A facility that:
 - (A) Provides guest rooms for sleeping for stays that primarily are short-term in nature (generally 30 days or less) where the occupant does not have the right to return to a specific room or unit after the conclusion of his or her stay; and
 - (B) Provides guest rooms under conditions and with amenities similar to a hotel, motel, or inn, including the following:
 - (1) On- or off-site management and reservations service;
 - (2) Rooms available on a walk-up or call-in basis;
 - (3) Availability of housekeeping or linen service; and
 - (4) Acceptance of reservations for a guest room type without guaranteeing a particular unit or room until check-in, and without a prior lease or security deposit.
- (2) A restaurant, bar, or other establishment serving food or drink;
- (3) A motion picture house, theater, concert hall, stadium, or other place of exhibition or entertainment;
- (4) An auditorium, convention center, lecture hall, or other place of public gathering;
- (5) A bakery, grocery store, clothing store, hardware store, shopping center, or other sales or rental establishment;
- (6) A laundromat, dry-cleaner, bank, barber shop, beauty shop, travel service, shoe repair service, funeral parlor, gas station, office of an accountant or lawyer, pharmacy, insurance office, professional office of a health care provider, hospital, or other service establishment;
- (7) A terminal, depot, or other station used for specified public transportation;
- (8) A museum, library, gallery, or other place of public display or collection;
- (9) A park, zoo, amusement park, or other place of recreation;

- (10) A nursery, elementary, secondary, undergraduate, or postgraduate private school, or other place of education;
- (11) A day care center, senior citizen center, homeless shelter, food bank, adoption agency, or other social service center establishment; and
- (12) A gymnasium, health spa, bowling alley, golf course, or other place of exercise or recreation;
- (13) A religious facility;
- (14) An office building;
- (15) A public curb or sidewalk.

PLATFORM (WHEELCHAIR) LIFT. A hoisting and lowering mechanism equipped with a car or platform, or support, which serves two landings of a building or structure and is designed to carry a passenger or passengers and/or luggage or other material a vertical distance as may be allowed.

POWDER ROOM. A room containing a water closet (toilet) and a lavatory, and which is not defined as a bathroom.

PRIMARY ENTRY. (HCD 1-AC) The principal entrance through which most people enter the building, as designated by the building official.

PRIMARY ENTRY LEVEL. (HCD 1-AC) The floor or level of the building on which the primary entry is located.

PUBLIC ENTITY. Any State or local government; any department, agency, special-purpose district, or other instrumentality of a State or local government.

PUBLIC HOUSING. Housing facilities owned and/or operated by, for or on behalf of a public entity including but not limited to the following:

1. Publicly owned and/or operated one- or two- family dwelling units or congregate residences;
2. Publicly owned and/or operated buildings or complexes with three or more residential dwellings units;
3. Reserved
4. Publicly owned and/or operated homeless shelters, group homes and similar social service establishments;
5. Publicly owned and/or operated transient lodging, such as hotels, motels, hostels and other facilities providing accommodations of a short term nature of not more than 30 days duration;
6. Housing at a place of education owned or operated by a public entity, such as housing on or serving a public school, public college or public university campus;
7. Privately owned housing made available for public use as housing.

PUBLIC USE AREAS. (HCD 1-AC) Interior or exterior rooms or spaces of a building or facility that are made available to the general public and do not include common use areas. Public use areas may be provided at a building or facility that is privately or publicly owned.

RECOMMEND. (HCD 1 & HCD 2) Does not require mandatory acceptance, but identifies a suggested action that shall be considered for the purpose of providing a greater degree of accessibility to persons with disabilities.

RISER. The upright part between two adjacent stair treads.

RUNNING SLOPE. The slope that is parallel to the direction of travel. (As differentiated from the definition of "Cross Slope".)

SANITARY FACILITY. (HCD 1 & HCD 1-AC) Any single water closet, urinal, lavatory, bathtub or shower, or a combination thereof, together with the room or space in which they are housed.

SHOULD. (HCD 1 & HCD 2) See "Recommend."

SIDEWALK. A surfaced pedestrian way contiguous to a street used by the public. (As differentiated from the definition of "Walk.")

SINGLE-ACCOMMODATION SANITARY FACILITY. (HCD 1-AC) A room that has not more than one of each type of sanitary fixture, is intended for use by only one person at a time, has no partition around the toilet, and has a door that can be locked on the inside by the room occupant.

SITE DEVELOPMENT. (HCD 1-AC) "On-site" and "Off-site" work, including, but not limited to, walks, sidewalks, ramps, curbs, curb ramps, parking facilities, stairs, planting areas, pools, promenades, exterior gathering or assembly areas and raised or depressed paved areas.

SINK. A fixed bowl or basin with running water and drainpipe, as in a kitchen or laundry, for washing dishes, clothing, etc. (As differentiated from the definition of "Lavatory".)

SLEEPING ACCOMMODATIONS. Rooms intended and designed for sleeping.

SLOPE. (HCD 1-AC) The relative steepness of the land between two points and is calculated as follows:

The horizontal distance and elevation change between the two points (e.g., an entrance and a passenger loading zone). The difference in elevation is divided by the distance and the resulting fraction is multiplied by 100 to obtain the percentage of slope.

For example: if a principal entrance is 10 feet (3048 mm) from a passenger loading zone, and the principal entrance is raised 1 foot (305 mm) higher than the passenger loading zone, then the slope is $1/10 \times 100 = 10$ percent.

SPACE. A definable area, e.g., a room, toilet room, hall, assembly area, entrance, storage room, alcove, courtyard, or lobby.

TACTILE. An object that can be perceived using the sense of touch.

TACTILE SIGN. A sign containing raised characters and/or symbols and accompanying Braille.

TEXT TELEPHONE. Machinery or equipment that employs interactive text-based communications through the transmission of coded signals across the standard telephone network. Text telephones can include, for example, devices known as TTYs (teletypewriters) or computers.

TESTING AGENCY. (HCD 1 & HCD 2) An agency approved by the department as qualified and equipped for testing of products, materials, equipment and installations in accordance with nationally recognized standards. For additional information, see Health and Safety Code Section 17920(m).

TRANSIENT LODGING. A building or facility containing one or more guest room(s) for sleeping that provides accommodations that are primarily short-term in nature. Transient lodging does not include residential dwelling units intended to be used as a residence, inpatient medical care facilities, licensed long-term care facilities, detention or correctional facilities, or private buildings or facilities that contain no more than five rooms for rent or hire and that are actually occupied by the proprietor as the residence of such proprietor.

TREAD. The horizontal part of a step.

TTY. An abbreviation for teletypewriter. Machinery that employs interactive text-based communication through the transmission of coded signals across the telephone network. TTYs may include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. TTYs are also called text telephones.

UNREASONABLE HARDSHIP. When the enforcing agency finds that compliance with the building standard would make the specific work of the project affected by the building standard infeasible, based on an overall evaluation of the following factors:

1. The cost of providing access.
2. The cost of all construction contemplated.
3. The impact of proposed improvements on financial feasibility of the project.

4. *The nature of the accessibility, which would be gained or lost.*
5. *The nature of the use of the facility under construction and its availability to persons with disabilities.*

The details of any finding of unreasonable hardship shall be recorded and entered in the files of the enforcing agency.

VEHICULAR OR PEDESTRIAN ARRIVAL POINTS. (HCD 1-AC) *Public or resident parking areas, public transportation stops, passenger loading zones, and public streets or sidewalks.*

VEHICULAR WAY. *A route provided for vehicular traffic, such as in a street, driveway, or parking facility.*

WALK. (HCD 1-AC) *A surfaced pedestrian way not located contiguous to a street used by the public. (See definition for "Sidewalk.")*

WHEELCHAIR. (HCD 1-AC) *A chair mounted on wheels to be propelled by its occupant manually or with the aid of electric power, of a size and configuration conforming to the recognized standard models of the trade.*

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

4. HCD proposes to not adopt the following Chapter 2 definitions from the 2015 International Building Code:

ACCESSIBLE. ~~A site, building, facility or portion thereof that complies with Chapter 11.~~

ACCESSIBLE ROUTE. ~~A continuous, unobstructed path that complies with Chapter 11.~~

ACCESSIBLE UNIT. ~~A dwelling unit or sleeping unit that complies with this code and the provisions for Accessible units in ICC A117.1.~~

COMMON USE. ~~Interior or exterior circulation paths, rooms, spaces or elements that are not for public use and are made available for the shared use of two or more people.~~

CONCRETE.

~~.... (No change to text)~~

Cellular. ~~A lightweight insulating concrete made by mixing a preformed foam with Portland cement slurry and having a dry unit weight of approximately 30 pcf (480 kg/m³). See **CELLULAR CONCRETE**.~~

DETECTABLE WARNING. ~~A standardized surface feature built in or applied to walking surfaces or other elements to warn visually impaired persons of hazards on a circulation path.~~

INTENDED TO BE OCCUPIED AS A RESIDENCE. ~~This refers to a dwelling unit or sleeping unit that can or will be used all or part of the time as the occupant's place of abode.~~

LODGING HOUSE. ~~A one family dwelling where one or more occupants are primarily permanent in nature and rent is paid for guest rooms.~~

MULTILEVEL ASSEMBLY SEATING. ~~Seating that is arranged in distinct levels where each level is comprised of either multiple rows, or a single row of box seats accessed from a separate level.~~

MULTISTORY UNITS. ~~A dwelling unit or sleeping unit with habitable space located on more than one story.~~

PUBLIC USE AREAS. Interior or exterior rooms or spaces that are made available to the general public.

SELF-SERVICE STORAGE FACILITY. Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.

TYPE A UNIT. A dwelling unit or sleeping unit designed and constructed for accessibility in accordance with this code and the provisions for Type A units in ICC A117.1.

TYPE B UNIT. A dwelling unit or sleeping unit designed and constructed for accessibility in accordance with this code and the provisions for Type B units in ICC A117.1, consistent with the design and construction requirements of the federal Fair Housing Act.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

5. HCD proposes to adopt Chapter 3, except Section 308.3, from the 2015 International Building Code into the 2016 California Building Code, with new and existing amendments as follows:

**CHAPTER 3
USE AND OCCUPANCY CLASSIFICATION**

**SECTION 302
CLASSIFICATION**

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5
2. Business (see Section 304): Group B
3. Educational (see Section 305): Group E
4. Factory and Industrial (see Section 306): Groups F-1 and F-2
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. *(SFM) Laboratory (see Section 202): Group B, unless classified as Group L (see Section 443) or Group H (see Section 307).*
8. Mercantile (see Section 309): Group M
9. *(SFM) Organized Camps (see Section 440): Group C10.*
10. *(SFM) Research Laboratories (see Section 443): Group L*
11. Residential (see Section 310): Groups R-1, R-2, R-2.1, R-3, R-3.1 and R-4
12. Storage (see Section 311): Groups S-1 and S-2
13. Utility and Miscellaneous (see Section 312): Group U

**SECTION 305
EDUCATIONAL GROUP E**

305.2.3 Five or fewer children in a dwelling unit. A facility such as the above within a dwelling unit and having five or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the International California Residential Code.

SECTION 310 RESIDENTIAL GROUP R

310.1 Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the International California Residential Code.

310.3 Residential Group R-1. Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

- Boarding houses (transient) with more than 10 occupants
- Congregate living facilities (transient) with more than 10 occupants
- Hotels (transient)
- Motels (transient)
- (HCD 1) Efficiency dwelling units (transient)*

310.4 Residential Group R-2. Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

- Apartment houses
- Boarding houses (nontransient) with more than 16 occupants
- Congregate living facilities (nontransient) with more than 16 occupants
- Convents
- Dormitories
- Fraternities and sororities
- Hotels (nontransient)
- Live/work units
- Monasteries
- Motels (nontransient)
- Vacation timeshare properties
- (HCD 1) Efficiency dwelling units (nontransient)*

310.5 Residential Group R-3. Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-2.1, R-3.1, R-4 or I, including:

- Buildings that do not contain more than two dwelling units
- Boarding houses (nontransient) with 16 or fewer occupants
- Boarding houses (transient) with 10 or fewer occupants
- Care facilities that provide accommodations for ~~five-six~~ or fewer ~~persons~~ *clients* receiving care
- Congregate living facilities (nontransient) with 16 or fewer occupants
- Congregate living facilities (transient) with 10 or fewer occupants
- (HCD 1) Efficiency dwelling units.*

310.5.2 Lodging houses. Owner-occupied lodging houses with five or fewer guest rooms shall be permitted to be constructed in accordance with the International California Residential Code.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

6. HCD proposes to adopt Chapter 4 from the 2015 International Building Code into the 2016 California Building Code with new and existing amendments as follows:

**CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY**

**SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES**

406.3.2 Clear height. In private garages and carports, the clear height in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). ~~Vehicle and pedestrian areas accommodating van accessible parking shall comply with Section 1106.5.~~ **(HCD 1-AC)** The clear height of vehicle and pedestrian areas required to be accessible shall comply with Chapter 11A.

406.3.6 (Formerly 406.3.5) Automatic garage door openers. Automatic garage door openers, where provided, shall be listed in accordance with UL 325. *See Health and Safety Code Sections 19890 and 19891 for additional provisions for residential garage door openers.*

406.4.1 Clear height. The clear height of each floor level in vehicle and pedestrian traffic areas shall not be less than 7 feet (2134 mm). ~~Vehicle and pedestrian areas accommodating van accessible parking shall comply with Section 1106.5.~~ **(HCD 1-AC)** The clear height of vehicle and pedestrian areas required to be accessible shall comply with Chapter 11A.

406.6.2 Ventilation. A mechanical ventilation system shall be provided in accordance with the ~~International California~~ Mechanical Code.

406.8.2 Ventilation. Repair garages shall be mechanically ventilated in accordance with the ~~International California~~ Mechanical Code. The ventilation system shall be controlled at the entrance to the garage.

406.8.4 Heating equipment. Heating equipment shall be installed in accordance with the ~~International California~~ Mechanical Code.

**SECTION 409
MOTION PICTURE PROJECTION ROOMS**

409.3 Projection room and equipment ventilation. Ventilation shall be provided in accordance with the ~~International California~~ Mechanical Code.

**SECTION 414
HAZARDOUS MATERIALS**

414.1.2 Materials. The safe design of hazardous material occupancies is material dependent. Individual material requirements are also found in Sections 307 and 415, and in the ~~International California~~ Mechanical Code and the ~~International California~~ Fire Code.

414.3 Ventilation. Rooms, areas or spaces in which explosive, corrosive, combustible, flammable or highly toxic dusts, mists, fumes, vapors or gases are or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated where required by this code, the ~~International California~~ Fire Code or the ~~International California~~ Mechanical Code.

Emissions generated at workstations shall be confined to the area in which they are generated as specified in the ~~International California~~ Fire Code and the ~~International California~~ Mechanical Code.

**SECTION 415
GROUPS H-1, H-2, H-3, H-4 AND H-5**

415.9.1 (Formerly 415.8.2) Flammable and combustible liquids. The storage, handling, processing and transporting of flammable and combustible liquids in Group H-2 and H-3 occupancies shall be in accordance with

Sections 415.9.1.1 through 415.9.1.9, the ~~International~~ *California* Mechanical Code and the ~~International-California~~ Fire Code.

415.9.1.7 (Formerly 415.8.2.7) Room ventilation. Storage tank areas storing Class I, II or IIIA liquids shall be provided with mechanical ventilation. The mechanical ventilation system shall be in accordance with the ~~International~~ *California* Mechanical Code and the ~~International-California~~ Fire Code.

415.9.2 (Formerly 415.8.3) Liquefied petroleum gas facilities. The construction and installation of liquefied petroleum gas facilities shall be in accordance with the requirements of this code, the ~~International-California~~ Fire Code, the ~~International~~ *California* Mechanical Code, the ~~International-Fuel-Gas-California~~ Plumbing Code and NFPA 58.

415.9.3 (Formerly 415.8.4) Dry cleaning plants. The construction and installation of dry cleaning plants shall be in accordance with the requirements of this code, the ~~International~~ *California* Mechanical Code, the ~~International~~ *California* Plumbing Code and NFPA 32. Dry cleaning solvents and systems shall be classified in accordance with the ~~International~~ *California* Fire Code.

415.11.11 (Formerly 415.10.11) Automatic sprinkler system protection in exhaust ducts for HPM. An approved automatic sprinkler system shall be provided in exhaust ducts conveying gases, vapors, fumes, mists or dusts generated from HPM in accordance with Sections 415.11.11.1 through 415.11.11.3 and the ~~International~~ *California* Mechanical Code.

SECTION 416 APPLICATION OF FLAMMABLE FINISHES

416.2.2 Ventilation. Mechanical ventilation and interlocks with the spraying operation shall be in accordance with the ~~International~~ *California* Mechanical Code.

416.3 Spraying spaces. Spraying spaces shall be ventilated with an exhaust system to prevent the accumulation of flammable mist or vapors in accordance with the ~~International~~ *California* Mechanical Code. Where such spaces are not separately enclosed, noncombustible spray curtains shall be provided to restrict the spread of flammable vapors.

SECTION 417 DRYING ROOMS

417.1 General. A drying room or dry kiln installed within a building shall be constructed entirely of approved noncombustible materials or assemblies of such materials regulated by the approved rules or as required in the general and specific sections of this chapter for special occupancies and where applicable to the general requirements of the ~~International~~ *California* Mechanical Code.

SECTION 419 LIVE/WORK UNITS

419.7 Accessibility. Accessibility shall be designed in accordance with ~~Chapter 11~~ *Chapter 11A* for the function served.

419.8 Ventilation. The applicable ventilation requirements of the ~~International~~ *California* Mechanical Code shall apply to each area within the live/work unit for the function within that space.

419.9 Plumbing facilities. The nonresidential area of the live/work unit shall be provided with minimum plumbing facilities as specified by ~~Chapter 29~~ *the California Plumbing Code*, based on the function of the nonresidential area. Where the nonresidential area of the live/work unit is required to be accessible by ~~Section 4103.2.43~~, the plumbing fixtures specified by ~~Chapter 29~~ *the California Plumbing Code* shall be accessible.

SECTION 420 GROUPS I-1, R-1, R-2, R-3

420.7 (HCD 1) Construction waste management. *Recycle and/or salvage for reuse a minimum of ~~50~~ 65 percent of the nonhazardous construction and demolition waste in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.4.*

420.8 Special provisions for residential hotels. (HCD1 & HCD 1-AC)

420.8.1 Locking mail receptacles. A locking mail receptacle for each residential unit shall be provided in all residential hotels pursuant to the requirements specified in Health and Safety Code Section 17958.3.

420.9 (HCD 1) Electric vehicle (EV) charging for new construction. Newly constructed Group R-2 and R-3 buildings shall be provided with an infrastructure to facilitate future installation and use of electric vehicle (EV) chargers in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.1.

SECTION 421 HYDROGEN FUEL GAS ROOMS

421.5 Exhaust ventilation. Hydrogen fuel gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the International California Mechanical Code.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

7. HCD proposes to repeal and not bring forward Section 420.6 from the 2013 California Building Code.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 420 GROUPS I-1, R-1, R-2, R-3

~~420.6 Carbon monoxide alarms. (HCD1, HCD2 & HCD1-AC)~~

~~**420.6.1 Carbon monoxide alarms in new construction.** Newly constructed Group R occupancies located in a building containing a fuel-burning appliance or a building that has an attached garage shall be equipped with single station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in the California Building Code, or an enclosed parking garage ventilated in accordance with the California Mechanical Code shall not be deemed to be an attached garage.~~

~~**Exception:** Sleeping units or dwelling units that do not themselves contain a fuel-burning appliance or have an attached garage, but that are located in a building with a fuel-burning appliance or an attached garage, need not be provided with single station carbon monoxide alarms provided that:~~

- ~~1. The sleeping unit or dwelling unit is located more than one story above or below any story that contains a fuel-burning appliance or an attached garage; and~~
- ~~2. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and~~
- ~~3. The building is equipped with a common area carbon monoxide detection system that includes all enclosed common area spaces.~~

~~**420.6.1.1 Carbon monoxide detection systems.** Carbon monoxide detection systems that include carbon monoxide detectors and audible notification appliances installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.~~

420.6.1.2 Power supply. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery back-up. Alarm wiring shall be directly connected to the permanent building wiring without a disconnecting switch other than as required for overcurrent protection.

Exceptions:

1. Where there is no commercial power supply, the carbon monoxide alarm may be solely battery operated.
2. Other power sources recognized for use by NFPA 720.

420.6.1.3 Interconnection. Where more than one carbon monoxide alarm is required to be installed within the dwelling unit or within a sleeping unit, the alarm shall be interconnected in a manner that activation of one alarm shall activate all of the alarms in the individual unit.

420.6.1.4 Alarm requirements. No person shall install, market, distribute, offer for sale, or sell any carbon monoxide device in the State of California unless the device and instructions have been approved and listed by the State Fire Marshal.

Carbon monoxide alarms required by Section 420.6.1 shall be installed and maintained in the following locations:

1. Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s).
2. On every level of a dwelling unit including basements.
3. Group R-1 Occupancies only.
 - a. On the ceiling of every sleeping unit or other locations within the sleeping unit in compliance with the manufacturer's installation instructions.

420.6.1.5 Multiple-purpose alarms. Carbon monoxide alarms combined with smoke alarms shall comply with Section 420.6, all applicable standards, and requirements for listing and approval by the Office of the State Fire Marshal, for smoke alarms.

420.6.1.6 Visible alarms. In buildings containing covered multifamily dwellings as defined in Chapter 2, with fuel-burning appliances and/or attached garages as described in Section 420.6.1, all required carbon monoxide alarms shall be equipped with the capability to support visible alarm notification in accordance with NFPA 720.

420.6.2 Carbon monoxide alarms in existing dwellings or sleeping units. Existing Group R occupancies located in a building with a fossil fuel-burning heater or appliance, fireplace or an attached garage shall have single station carbon monoxide alarms installed in accordance with this section. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions.

An open parking garage, as defined in the California Building Code, or an enclosed parking garage ventilated in accordance with the California Mechanical Code shall not be deemed to be an attached garage.

Exception: Sleeping units or dwelling units that do not themselves contain a fossil fuel-burning heater or appliance, fireplace or an attached garage, but that are located in a building with a fossil fuel-burning appliance or an attached garage, need not be provided with single station carbon monoxide alarms provided that:

1. The sleeping unit or dwelling unit is located more than one story above or below any story that contains a fuel-burning appliance or an attached garage; and
2. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide detection system, carbon monoxide detector or combination detector in the same space as permanently installed fuel-burning appliance(s).

420.6.2.1 Carbon monoxide detection systems. Carbon monoxide detection systems that include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

420.6.2.2 Existing dwellings or sleeping units requiring a permit. When a permit is required for alterations, repairs or additions with a total cost or calculated valuation exceeding one thousand dollars (\$1,000), existing dwellings or sleeping units with a fossil fuel-burning heater or appliance, fireplace or an attached garage shall have a carbon monoxide alarm installed in accordance with Section 420.4.2 420.6.2. Carbon monoxide alarms shall only be required in the specific dwelling unit or sleeping unit for which the permit was obtained.

420.6.2.3 Existing dwellings or sleeping units not requiring a permit (no construction taking place). Pursuant to Health and Safety Code Section 17926, a carbon monoxide alarm(s) shall be installed in every existing dwelling unit or sleeping unit with a fossil fuel-burning heater or appliance, fireplace or an attached garage as follows:

420.6.2.3.1 Carbon monoxide alarms on or after July 1, 2011. Carbon monoxide alarms shall be installed in accordance with Section 420.6.2 in existing detached single-family dwellings or sleeping units intended for human occupancy that have a fossil fuel-burning heater or appliance, fireplace or an attached garage. Carbon monoxide alarms in existing buildings are permitted to be solely battery operated or plug-in type with battery back-up in areas where no construction is taking place.

420.6.2.3.2 Carbon monoxide alarms on or after January 1, 2013. Carbon monoxide alarms shall be installed in accordance with Section 420.4.2 420.6.2 in all other existing dwelling units intended for human occupancy as defined in Health and Safety Code Section 13262(b) that have a fossil fuel-burning heater or appliance, fireplace or an attached garage. Carbon monoxide alarms in existing buildings are permitted to be solely battery operated or plug-in type with battery back-up in areas where no construction is taking place.

Note: See Section 420.6.2.3.3, which extends the required carbon monoxide alarms installation date for existing hotel and motel dwelling units intended for human occupancy.

420.6.2.3.3 Carbon monoxide alarms on or after January 1, 2016. Carbon monoxide alarms shall be installed in accordance with Section 420.6.2 in existing hotel and motel dwelling units intended for human occupancy as defined in Health and Safety Code Section 13262(b) that have a fossil fuel-burning heater or appliance, fireplace or an attached garage. Carbon monoxide alarms in existing buildings are permitted to be solely battery operated or plug-in type with battery back-up in areas where no construction is taking place.

420.6.2.4 Power supply. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with battery back-up. Alarm wiring shall be directly connected to the permanent building wiring without a disconnecting switch other than as required for overcurrent protection.

Exceptions:

1. In existing dwelling units where there is no commercial power supply, the carbon monoxide alarm may be solely battery operated.
2. In existing dwelling units, a carbon monoxide alarm is permitted to be solely battery operated or plug-in with a battery backup where repairs or alterations do not result in the removal of wall and ceiling finishes.
3. In existing dwelling units, a carbon monoxide alarm is permitted to be solely battery operated or plug-in with battery backup where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.
4. In existing dwelling units, a carbon monoxide alarm is permitted to be solely battery operated or plug-in with battery backup when work is limited to the installation, alteration or repair of plumbing or mechanical systems or the installation, alteration or repair of electrical systems, which do not result in the removal of interior wall or ceiling finishes exposing the structure.
5. Other power sources recognized for use by NFPA 720.

420.6.2.5 Interconnection. ~~Where more than one carbon monoxide alarm is required to be installed within the dwelling unit or within a sleeping unit, the alarm shall be interconnected in a manner that activation of one alarm shall activate all of the alarms in the individual unit.~~

Exceptions:

- ~~1. In existing dwelling units or within sleeping units, interconnection is not required where repairs do not result in the removal of wall and ceiling finishes and no previous method for interconnection existed.~~
- ~~2. In existing dwelling units, carbon monoxide alarms are not required to be interconnected where no construction is taking place.~~
- ~~3. In existing dwelling units, carbon monoxide alarms are not required to be interconnected where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.~~
- ~~4. In existing dwelling units, carbon monoxide alarms are not required to be interconnected when work is limited to the installation, alteration or repair of plumbing or mechanical systems or the installation, alteration or repair of electrical systems, which do not result in the removal of interior wall or ceiling finishes exposing the structure.~~

420.6.2.6 Alarm requirements. ~~No person shall install, market, distribute, offer for sale, or sell any carbon monoxide device in the State of California unless the device and instructions have been approved and listed by the State Fire Marshal.~~

~~Carbon monoxide alarms required by Section 420.4.2 420.6.2 shall be installed and maintained in the following locations:~~

- ~~1. Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s).~~
- ~~2. On every level of a dwelling unit including basements.~~
- ~~3. Group R-1 Occupancies only.~~
 - ~~a. On the ceiling of every sleeping unit or other locations within the sleeping unit in compliance with the manufacturer's installation instructions.~~

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

8. HCD proposes to adopt Chapter 5 from the 2015 International Building Code into the 2016 California Building Code with existing amendment as follows:

**CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS**

**SECTION 503
GENERAL BUILDING HEIGHT AND AREA LIMITATIONS**

503.1 General. Unless otherwise specifically modified in Chapter 4 and this chapter, building height, number of stories and building area shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified

hereafter. Building height, number of stories and building area provisions shall be applied independently. Each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

Exception: (HCD 1) *Limited-density owner-built rural dwellings may be of any type of construction which will provide for a sound structural condition. Structural hazards which result in an unsound condition and which may constitute a substandard building are delineated by Section 17920.3 of the Health and Safety Code.*

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

9. HCD proposes to adopt Chapter 6 from the 2015 International Building Code into the 2016 California Building Code with existing and modified existing amendments as follows:

**CHAPTER 6
TYPES OF CONSTRUCTION**

**SECTION 603
COMBUSTIBLE MATERIAL IN TYPE I AND II CONSTRUCTION**

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or Type II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. Fire-retardant-treated wood shall be permitted in:

.... (No change to text)

25. Materials exposed within plenums complying with Section 602 of the *International California Mechanical Code*.

.... (No change to text)

603.1.1 Ducts. The use of nonmetallic ducts shall be permitted where installed in accordance with the limitations of the *International California Mechanical Code*.

603.1.2 Piping. The use of combustible piping materials shall be permitted where installed in accordance with the limitations of the *International California Mechanical Code* and the *International California Plumbing Code*.

603.1.3 Electrical. The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted when installed in accordance with the limitations of this code and the California Electrical Code.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

10. HCD proposes to adopt Chapter 7 from the 2015 International Building Code into the 2016 California Building Code with new and existing amendments as follows:

**CHAPTER 7
FIRE AND SMOKE PROTECTION FEATURES**

**SECTION 703
FIRE RESISTANCE RATINGS AND FIRE TESTS**

703.4 Automatic sprinklers. Under the prescriptive fire resistance requirements of this code, the fire-resistance rating of a building element, component or assembly shall be established without the use of automatic sprinklers or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E 119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the building official allowed by Sections 104.10, and 104.11 and 1.8.7, as applicable.

**SECTION 712
VERTICAL OPENINGS**

712.1.6 (Formerly 712.1.5) Ducts and air transfer openings. Penetrations by ducts and air transfer openings shall be protected in accordance with Section 717. Grease ducts shall be protected in accordance with the ~~International~~ California Mechanical Code.

**SECTION 717
DUCTS AND AIR TRANSFER OPENINGS**

717.2.2 Hazardous exhaust ducts. Fire dampers for hazardous exhaust duct systems shall comply with the ~~International~~ California Mechanical Code.

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

1. Fire dampers are not required at penetrations of shafts where:
.... (No change to text)
5. Fire dampers and combination fire/smoke dampers are not required in kitchen and clothes dryer exhaust systems when installed in accordance with the ~~International~~ California Mechanical Code.

717.5.4 Fire partitions. Ducts and air transfer openings that penetrate fire partitions shall be protected with listed fire dampers installed in accordance with their listing.

Exceptions: In occupancies other than Group H, fire dampers are not required where any of the following apply:

1. Corridor walls in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the duct is protected as a through penetration in accordance with Section 714.
.... (No change to text)
3. The duct system is constructed of approved materials in accordance with the ~~International~~ California Mechanical Code and the duct penetrating the wall complies with all of the following requirements:
.... (No change to text)

717.6.1 Through penetrations. In occupancies other than Groups I-2 and I-3, a duct constructed of approved materials in accordance with the ~~International~~ California Mechanical Code that penetrates a fire-resistance-rated floor/ceiling assembly that connects not more than two stories is permitted without shaft enclosure protection, provided a listed fire damper is installed at the floor line or the duct is protected in accordance with Section 714.4. For air transfer openings, see Exception 7 to Section 712.1.9.

717.6.2 Membrane penetrations. Ducts and air transfer openings constructed of approved materials in accordance with the ~~International California~~ Mechanical Code that penetrate the ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with one of the following:

... (No change to text)

717.6.3 Nonfire-resistance-rated floor assemblies. Duct systems constructed of approved materials in accordance with the ~~International California~~ Mechanical Code that penetrate nonfire-resistance-rated floor assemblies shall be protected by any of the following methods:

... (No change to text)

SECTION 718 CONCEALED SPACES

718.5 Combustible materials in concealed spaces in Type I or II construction. Combustible materials shall not be permitted in concealed spaces of buildings of Type I or II construction.

Exceptions:

1. Combustible materials in accordance with Section 603.
2. Combustible materials exposed within plenums complying with Section 602 of the ~~International California~~ Mechanical Code.

.... (No change to text)

5. Combustible piping within concealed ceiling spaces installed in accordance with the ~~International California~~ Mechanical Code and the ~~International California~~ Plumbing Code.

SECTION 720 THERMAL-AND SOUND-INSULATING MATERIALS

720.1 General. Insulating materials, including facings such as vapor retarders and vapor-permeable membranes, similar coverings and all layers of single and multilayer reflective foil insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.

.... (No change to text)

3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the ~~International California~~ Mechanical Code.

.... (No change to text)

720.7 Insulation and covering on pipe and tubing. Insulation and covering on pipe and tubing shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: Insulation and covering on pipe and tubing installed in plenums shall comply with the ~~International California~~ Mechanical Code.

SECTION 721 PRESCRIPTIVE FIRE RESISTANCE

721.2 Cellular concrete. (HCD 1 & HCD 2)

721.2.1 Use and application. (HCD 1 & HCD 2) Controlled-density cellular concrete, when used or applied, shall be in accordance with the use of materials in Bulletin No. 65 of the Federal Housing Administration, United States Department of Housing and Urban Development.

Exceptions:

1. Regardless of the provisions of Subsections 3.2, 3.3, 3.4 and 3.6 in Section 3, Bulletin No. 65 provisions relating to proportioning, mixing and testing, in the following shall apply to this chapter.

- 1.1. Field-control weighings for control of the wet-unit weight shall be made. The design wet-unit weight for field control of the concrete shall be based on previously established data for the relation between the wet-unit weight and the air-dry-unit weight at 28 days for the mix being placed. Field-control weighings for determining the wet-unit weight shall be made at the mixer discharge and at the point of deposit. There should be one pair of weighings per batch for batch-type mixers unless equipment is provided with scales allowing the operator to adequately weigh materials.

For continuous weight-instrumented batch mixers, there should be one pair of weighings per 10 cubic yards (7.65 m³). The gain in unit weight between the mixer discharge and point of deposit shall not exceed 5 percent. The wet-unit weight at the point of deposit of the concrete shall not exceed plus 5 percent of the design wet-unit weight. A variation exceeding plus 5 percent of the design wet-unit weight shall require a modification of the mix proportions, a change of materials or a change in the mixing procedure.

- 1.2. When tests are required by the enforcing agency, they shall be performed in the following manner:

Two test cylinders, for compressive strength tests, shall be made for each 8,000 square feet (743 m²) of surface area placed. A minimum of two test cylinders shall be made each day. Each strength test result shall be the average of two cylinders from the same sample tested at 28 days or at a specified earlier date.

- 1.3. The minimum air-dry density shall be 90 pounds per cubic foot (1,440 kg/m³). The minimum design compressive strength shall be 1,000 psi (6,890 kPa) when the curing procedure specified herein is applied. The minimum design compressive strength shall be 1,250 psi (8,619 kPa) if the slab is placed in a covered area of a building and a specified curing medium is not applied. The specified design compressive strength shall be increased 20 percent when the specified strength is greater than 1,000 psi (6,890 kPa) and the slab is placed in a covered area of a building and a specified curing medium is not applied.

- 1.4. The cellular concrete shall be sampled at the point of deposit in accordance with the applicable procedures of ASTM C 172, Sampling Fresh Concrete. Cylinder molds shall be either 3 inches by 6 inches (76 mm by 152 mm) or 6 inches by 12 inches (152 mm by 305 mm). Lightly tap the sides of the mold with a rubber hammer while filling the mold instead of rodding the mix. Moist cure the specimens for seven days at 73.4°F (40.8°C) plus or minus 3°F (1.7°C). At the age of seven days, remove the specimens from the moist condition and store in a temperature of 73.4°F (40.8°C) plus or minus 3°F (1.7°C) and a relative humidity of 50 plus or minus 10 percent for 21 days; remove and air dry until the time of test at 28 days. The compressive strength test shall be in accordance with ASTM C 39, Compressive Strength of Cylindrical Concrete Specimens. Determine the air-dry-unit weight at 28 days.

2. Regardless of the provisions of Subsections 4.1 and 4.2 in Section 4 of Bulletin No. 65, relating to placing, finishing and curing, the following shall apply to these regulations.

- 2.1. The concrete shall be placed, finished and cured to produce a level, smooth surface. The concrete shall be placed in a single layer to a minimum thickness of 1 1/2 inches (38 mm). The deviation from a plan shall not exceed 1/4 inch (6 mm) in any 10 feet (3048 mm). The final finish of the concrete shall be suitable for the application of the specified wear-resistant covering. Cracks wider than 1/8 inch (3 mm) shall be repaired.

- 2.2. Install a water-resistant membrane between wood or plywood subfloors and the cellular concrete to prevent leakage of the concrete and wetting of the subfloor. The membrane shall consist of waterproof paper or plastic sheets conforming to ASTM C 171, Sheet Materials for Curing Concrete, or Type 15 roofing felt conforming to ASTM D 226, D 250 or D 227, or Federal Specification UUB790, Building Paper Vegetable Fiber: (Kraft, Waterproofed, Water Repellent and Fire-resistant) Type 1, Grade B. The sheets shall be securely fastened to the subfloor.

3. *Regardless of the provisions of Subsections 6.1 and 6.2 in Section 6, of Bulletin No. 65, relating to applicator qualifications and warranty, these subsections are omitted from this chapter.*

NOTE

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

11. HCD proposes to adopt Chapter 8 from the 2015 International Building Code into the 2016 California Building Code without amendments:

**CHAPTER 8
INTERIOR FINISHES**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

12. HCD proposes to adopt Chapter 9, except Section 908.7, from the 2015 International Building Code into the 2016 California Building Code with new and existing amendments as follows:

**CHAPTER 9
FIRE PROTECTION SYSTEMS**

**SECTION 903
AUTOMATIC SPRINKLER SYSTEMS**

903.2.11.4 Ducts conveying hazardous exhausts. Where required by the ~~International~~ *California* Mechanical Code, automatic sprinklers shall be provided in ducts conveying hazardous exhaust, or flammable or combustible materials.

Exception: Ducts in which the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).

903.3.5 Water supplies. Water supplies for automatic sprinkler systems shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the ~~International~~ *California* Plumbing Code. For connections to public waterworks systems, the water supply test used for design of fire protection systems shall be adjusted to account for seasonal and daily pressure fluctuations based on information from the water supply authority and as approved by the fire code official.

**SECTION 904
ALTERNATIVE AUTOMATIC FIRE-EXTINGUISHING SYSTEMS**

904.2.2 (Formerly 904.2.1) Commercial hood and duct systems. Each required commercial kitchen exhaust hood and duct system required by Section 609 of the ~~International~~ *California* Fire Code or ~~Chapter 5~~ of the

~~International~~ California Mechanical Code to have a Type I hood shall be protected with an approved automatic fire-extinguishing system installed in accordance with this code.

904.3 Installation. Automatic fire-extinguishing systems shall be installed in accordance with this section.

904.3.1 Electrical wiring. Electrical wiring shall be in accordance with ~~NFPA 70~~ the California Electrical Code.

904.11.1.3 Water supply protection. Connections to a potable water supply shall be protected against backflow in accordance with the ~~International~~ California Plumbing Code.

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

907.3.1 Duct smoke detectors. Smoke detectors installed in ducts shall be listed for the air velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit when a fire alarm system is required by Section 907.2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the ~~International~~ California Mechanical Code. In facilities that are required to be monitored by a supervising station, duct smoke detectors shall report only as a supervisory signal and not as a fire alarm. They shall not be used as a substitute for required open area detection.

907.5.2.3.3 (Formerly 907.5.2.3.4) Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with ~~Chapter 10 of IGC A-117.4~~ NFPA 72. Such capability shall be permitted to include the potential for future interconnection of the building fire alarm system with the unit smoke alarms, replacement of audible appliances with combination audible/visible appliances, or future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.

907.6.1 Wiring. Wiring shall comply with the requirements of ~~NFPA 70~~ California Electrical Code and NFPA 72. Wireless protection systems utilizing radio-frequency transmitting devices shall comply with the special requirements for supervision of low-power wireless systems in NFPA 72.

SECTION 908 EMERGENCY ALARM SYSTEMS

908.6 Refrigerant detector. Machinery rooms shall contain a refrigerant detector with an audible and visual alarm. The detector, or a sampling tube that draws air to the detector, shall be located in an area where refrigerant from a leak will concentrate. The alarm shall be actuated at a value not greater than the corresponding TLV-TWA values for the refrigerant classification indicated in the ~~International~~ California Mechanical Code. Detectors and alarms shall be placed in approved locations.

SECTION 909 SMOKE CONTROL SYSTEMS

909.1 Scope and purpose. This section applies to mechanical or passive smoke control systems when they are required by other provisions of this code. The purpose of this section is to establish minimum requirements for the design, installation and acceptance testing of smoke control systems that are intended to provide a tenable environment for the evacuation or relocation of occupants. These provisions are not intended for the preservation of contents, the timely restoration of operations or for assistance in fire suppression or overhaul activities. Smoke control systems regulated by this section serve a different purpose than the smoke- and heat-venting provisions found in Section 910. Mechanical smoke control systems shall not be considered exhaust systems under Chapter 5 of the ~~International~~ California Mechanical Code.

909.10.2 Ducts. Duct materials and joints shall be capable of withstanding the probable temperatures and pressures to which they are exposed as determined in accordance with Section 909.10.1. Ducts shall be constructed and supported in accordance with the ~~International~~ California Mechanical Code. Ducts shall be leak tested to 1.5 times the maximum design pressure in accordance with nationally accepted practices. Measured leakage shall not exceed 5 percent of design flow. Results of such testing shall be a part of the documentation

procedure. Ducts shall be supported directly from fire-resistance-rated structural elements of the building by substantial, noncombustible supports.

Exception: Flexible connections, for the purpose of vibration isolation, complying with the ~~International~~ *California Mechanical Code*, that are constructed of approved fire-resistance-rated materials.

909.12.2 (Formerly 909.12.1) Wiring. In addition to meeting requirements of ~~NEPA-70~~ *California Electrical Code*, all wiring, regardless of voltage, shall be fully enclosed within continuous raceways.

909.13.1 Materials. Control-air tubing shall be hard drawn copper, Type L, ACR in accordance with ASTM B 42, ASTM B 43, ASTM B 68, ASTM B 88, ASTM B 251 and ASTM B 280. Fittings shall be wrought copper or brass, solder type in accordance with ASME B 16.18 or ASME B16.22. Changes in direction shall be made with appropriate tool bends. Brass compression-type fittings shall be used at final connection to devices; other joints shall be brazed using a BCuP-5 brazing alloy with solidus above 1,100°F (593°C) and liquids below 1,500°F (816°C). Brazing flux shall be used on copper-to-brass joints only.

Exception: Nonmetallic tubing used within control panels and at the final connection to devices provided all of the following conditions are met:

1. Tubing shall comply with the requirements of ~~Section 602.2.1.3 Chapter 6~~ of the ~~International~~ *California Mechanical Code*.

909.16.3 Control action and priorities. The firefighter's control panel actions shall be as follows:

1. ON-OFF and OPEN-CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire-fighter's control panel, no automatic or manual control from any other control point within the building shall contradict the control action. Where automatic means are provided to interrupt normal, nonemergency equipment operation or produce a specific result to safeguard the building or equipment (i.e., duct freezestats, duct smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices), such means shall be capable of being overridden by the fire-fighter's control panel. The last control panel switch position shall prevail. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

Exception: Power disconnects required by ~~NEPA-70~~ *California Electrical Code*.

SECTION 910 SMOKE AND HEAT REMOVAL

910.4.6 Control wiring. Wiring for operation and control of mechanical smoke removal systems shall be connected ahead of the main disconnect in accordance with Section 701.12E of ~~NEPA-70~~ *the California Electrical Code* and be protected against interior fire exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than 15 minutes.

910.4.7 Controls. Where building air-handling and mechanical smoke removal systems are combined or where independent building air-handling systems are provided, fans shall automatically shut down in accordance with the ~~International~~ *California Mechanical Code*. The manual controls provided for the smoke removal system shall have the capability to override the automatic shutdown of fans that are part of the smoke removal system.

SECTION 912 FIRE DEPARTMENT CONNECTIONS

912.6 (Formerly 912.5) Backflow protection. The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by the ~~International~~ *California Plumbing Code*.

SECTION 915 CARBON MONOXIDE DETECTION

915.1 General. Carbon monoxide detection shall be installed in new and existing buildings in accordance with Sections 915.1.1 through 915.6 ~~915.7~~. ~~Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the International Fire Code.~~

Pursuant to Health and Safety Code Section 17926, carbon monoxide detection shall be installed in all existing Group R buildings as required in Section 915.

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I-1, I-2, I-4 and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

915.1.2 Fuel-burning appliances and fuel-burning fireplaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms that contain a fuel-burning appliance or a fuel-burning fireplace.

915.1.3 Forced-air furnaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms served by a fuel-burning, forced-air furnace.

Exception: Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms if carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.

915.1.4 Fuel-burning appliances outside of dwelling units, sleeping units and classrooms. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms located in buildings that contain fuel burning appliances or fuel-burning fireplaces.

Exceptions:

1. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where there are no communicating openings between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in one of the following locations:
 - 2.1. In an approved location between the fuel burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
 - 2.2. On the ceiling of the room containing the fuel-burning appliance or fuel-burning fireplace.

915.1.5 Private garages. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms in buildings with attached private garages.

Exceptions:

1. Carbon monoxide detection shall not be required where there are no communicating openings between the private garage and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms located more than one story above or below a private garage.
3. Carbon monoxide detection shall not be required where the private garage connects to the building through an open-ended corridor.
4. Where carbon monoxide detection is provided in an approved location between openings to a private garage and dwelling units, sleeping units or classrooms, carbon monoxide detection shall not be required in the dwelling units, sleeping units or classrooms.

915.1.6 Exempt garages. For determining compliance with Section 915.1.5, an open parking garage complying with Section 406.5 or an enclosed parking garage complying with Section 406.6 shall not be considered a private garage.

915.2 Locations. Where required by Section 915.1.1, carbon monoxide detection shall be installed in accordance with the manufacturer's published instructions in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units in the following locations:

1. outside Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
2. On every occupiable level of a dwelling unit, including basements.

3. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.2 Sleeping units. Carbon monoxide detection shall be installed in sleeping units.

Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance and is not served by a forced air furnace.

915.2.3 Group E occupancies. Carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.

Exception: Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 30 or less.

915.3 Detection equipment. Carbon monoxide detection required by Sections 915.1 through 915.2.3 shall be provided by carbon monoxide alarms complying with Section 915.4 or carbon monoxide detection systems complying with Section 915.5.

915.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.3 4.

915.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exceptions:

1. Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.
2. Carbon monoxide alarms in Group R occupancies shall be permitted to receive their primary power from other power sources recognized for use by NFPA 720.
3. Carbon monoxide alarms in Group R occupancies shall be permitted to be battery-powered or plug-in with a battery backup in existing buildings built prior to January 1, 2011, under any of the following conditions:
 - 3.1. No construction is taking place.
 - 3.2. Repairs or alterations do not result in the removal of interior wall and ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.
 - 3.3. Repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.
 - 3.4. Work is limited to the installation, alteration or repair of plumbing, mechanical or electrical systems, which do not result in the removal of interior wall or ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.

915.4.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034.

No person shall install, market, distribute, offer for sale, or sell any carbon monoxide device in the State of California unless the device and instructions have been approved and listed by the Office of the State Fire Marshal.

915.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 2034 and UL 217.

Combination carbon monoxide/smoke alarms shall comply with Section 915, and all requirements for listing and approval by the Office of the State Fire Marshal for smoke alarms.

915.4.4 Interconnection. *Where more than one carbon monoxide alarm is required to be installed within a dwelling unit or within a sleeping unit in Group R occupancies, the alarms shall be interconnected in a manner that activation of one alarm shall activate all of the alarms in the individual unit.*

Exception: *Interconnection is not required in existing buildings, built prior to January 1, 2011, under any of the following conditions:*

- 1. Physical interconnection is not required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.*
- 2. No construction is taking place.*
- 3. Repairs or alterations do not result in the removal of interior wall and ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.*
- 4. Repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.*
- 5. Work is limited to the installation, alteration or repair of plumbing, mechanical, or electrical systems, which do not result in the removal of interior wall or ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.*

915.5 Carbon monoxide detection systems. Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.

915.5.1 General. Carbon monoxide detection systems shall comply with NFPA 720. Carbon monoxide detectors shall be listed in accordance with UL 2075.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2 or NFPA 720. ~~These locations supersede the locations specified in NFPA 720.~~

915.5.3 Combination detectors. Combination carbon monoxide/smoke detectors installed in carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide detectors, provided they are listed in accordance with UL 2075 and UL 268.

Combination carbon monoxide/smoke detectors shall comply with all requirements for listing and approval by the Office of the State Fire Marshal for smoke alarms.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with ~~the International Fire Code NFPA 720~~. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

915.7 Visible alarms. In buildings containing covered multifamily dwellings as defined in Chapter 2, all required carbon monoxide alarms shall be equipped with the capability to support visible alarm notification in accordance with NFPA 720.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

13.HCD proposes to adopt Chapter 10 from the 2015 International Building Code into the 2016 California Building Code with new, existing, and modified existing amendments as follows:

CHAPTER 10 MEANS OF EGRESS

SECTION 1002 DEFINITIONS

| GUARD ((HCD 1, & HCD 2 & HCD 1-AC) or GUARDRAIL).

SECTION 1003 GENERAL MEANS OF EGRESS

1003.1 Applicability. The general requirements specified in Sections 1003 through 1015 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

(HCD 1-AC) In addition to the requirement of this chapter, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.8.2.1.2 regulated by the Department of Housing and Community Development, shall also comply with Chapter 11A.

1003.2 Ceiling height. The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

Exceptions:

1. Sloped ceilings in accordance with Section 1208.2.
- ... (No change to text)
7. The clear height of floor levels in vehicular and pedestrian traffic areas of public and private parking garages in accordance with Section 406.4.1.
(HCD 1-AC) The clear height of vehicle and pedestrian areas required to be accessible, or identified as accessible, shall comply with Chapter 11A.
8. Areas above and below mezzanine floors in accordance with Section 505.2.

1003.3 Protruding objects. ... (No change to text)

1003.3.4 Clear width. Protruding objects shall not reduce the minimum clear width of accessible routes as required in Chapter 11A.

1003.5 Elevation change. Where changes in elevation of less than 12 inches (305 mm) exist in the means of egress, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal (5 percent slope), ramps complying with Section 1012 shall be used. Where the difference in elevation is 6 inches (152 mm) or less, the ramp shall be equipped with either handrails or floor finish materials that contrast with adjacent floor finish materials.

Exceptions:

1. A single step with a maximum riser height of 7 inches (178 mm) is permitted for buildings with occupancies in Groups F, H, R-2, R-3, S and U at exterior doors not required to be accessible by Chapter 11A.
2. A stair with a single riser or with two risers and a tread is permitted at locations not required to be accessible by Chapter 11A where the risers and treads comply with Section 1011.5, the minimum depth of the tread is 13 inches (330 mm) and at least one handrail complying with Section 1014 is provided within 30 inches (762 mm) of the centerline of the normal path of egress travel on the stair.
3. A step is permitted in aisles serving seating that has a difference in elevation less than 12 inches (305 mm) at locations not required to be accessible by Chapter 11A, provided that the risers and treads comply with Section 1029.13 and the aisle is provided with a handrail complying with Section 1029.15.

Throughout a story in a Group I-2 occupancy, any change in elevation in portions of the means of egress that serve nonambulatory persons shall be by means of a ramp or sloped walkway.

**SECTION 1006
NUMBER OF EXITS AND EXIT ACCESS DOORWAYS
(Formerly Section 1015
EXIT AND EXIT ACCESS DOORWAYS)**

1006.2.2.3 (Formerly 1015.5) Refrigerated rooms or spaces. Rooms or spaces having a floor area larger than 1,000 square feet (93 m²), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two exits or exit access doors.

Exit access travel distance shall be determined as specified in Section 1017.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an exit or exit access doorway where such rooms are not protected by an approved automatic sprinkler system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the ~~International~~ California Mechanical Code.

**SECTION 1009 (Formerly 1007)
ACCESSIBLE MEANS OF EGRESS**

1009.1 (Formerly 1007.1) Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1006.2 or 1006.3 from any accessible space, each accessible portion of the space shall be served by ~~not less than two~~ accessible means of egress *in at least the same number as required by Sections ~~1015.4 or 1021.4~~ 1006.2 or 1006.3. In addition to the requirements of this chapter, means of egress, which provide access to, or egress from, buildings for persons with disabilities, shall also comply with the requirements of Chapter 11A.*

Exceptions:

1. Accessible means of egress are not required to be provided in existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1009.3, 1009.4 or 1009.5, *and Chapter 11A.*
3. In assembly areas with ramped aisles or stepped aisles, one accessible means of egress is permitted where the common path of egress travel is accessible and meets the requirements in Section 1029.8, *and Chapter 11A.*

1009.2 (Formerly 1007.2) Continuity and components. Each required accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components:

1. Accessible routes complying with ~~Section 1104~~ Chapter 11A, Sections 1110A.1 and 1120A.
2. Interior exit stairways complying with Sections 1009.3 and 1023, *and Chapter 11A, Section 1123A.*
3. Exit access stairways complying with Sections 1009.3 and 1019.3 or 1019.4, *and Chapter 11A, Section 1123A.*
4. Exterior exit stairways complying with Sections 1009.3 and 1027, *and Chapter 11A, Section 1115A;* and serving levels other than the level of exit discharge.
5. Elevators complying with Section 1009.4 *and Chapter 11A, Section 1124A.*
6. Platform lifts complying with Section 1009.5 *and Chapter 11A, Section 1124A.*
7. Horizontal exits complying with Section 1026.
8. Ramps complying with Section 1012 *and Chapter 11A, Sections 1114A and 1122A.*
9. Areas of refuge complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving exits at the level of exit discharge.

1009.3 (Formerly 1007.3) Stairways. In order to be considered part of an accessible means of egress, a stairway between stories shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from an area of refuge complying with Section 1009.6. Exit access stairways that connect levels in the same story are not permitted as part of an accessible means of egress.

(HCD 1-AC) In addition, exit stairways shall comply with Chapter 11A, Sections 1115A and 1123A.

1009.5 (Formerly 1007.5) Platform lifts. Platform lifts shall be permitted to serve as part of an accessible means of egress where allowed as part of a required accessible route in Section 1109.8 except for Item 10. Chapter 11A, Sections 1121A and 1124A.1. Standby power for the platform lift shall be provided in accordance with Chapter 27.

1009.6 (Formerly 1007.6) Area of refuge....(No change to text)

1009.6.3 (Formerly 1007.6.1) Size. Each area of refuge shall be sized to accommodate one wheelchair space that is not less than 30 inches by 48 inches (762 mm by 1219 mm). The total number of such 30-inch by 48-inch (762 mm by 1219 mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of refuge. ~~for each 200 occupants or portion thereof, based on occupant load of the area of refuge and areas served by the area of refuge.~~ Such wheelchair spaces shall not reduce the required means egress width. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space.

Exception: The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48 inches (762 mm by 1219 mm) on floors where the occupant load is less than 200.

1009.8 (Formerly 1007.8) Two way communication. ... (No change to text)

1009.8.1 (Formerly 1007.8.1) System requirements. ... (No change to text)

1009.8.1.1 (Formerly 1007.8.1.1) Visible communication method. (HCD 1-AC) A button complying with Section 1138A.4 in the area of refuge shall activate both a light in the area of refuge indicating that rescue has been requested and a light at the central control point indicating that rescue is being requested. A button at the central control point shall activate both a light at the central control point and a light in the area of refuge indicating that the request has been received.

1009.8.2 Directions. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system. Signage shall comply with ~~the ICC A117.1~~ Chapter 11A, Section 1143A requirements for visual characters.

1009.9 (Formerly 1007.9) Signage. Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an area of refuge from an adjacent floor area shall be identified by a sign stating: AREA OF REFUGE.

2. Each door providing access to an exterior area for assisted rescue shall be identified by a sign stating:

| EXTERIOR AREA FOR ASSISTED RESCUE.

Signage shall comply with ~~the ICC A117.1~~ Chapter 11A, Section 1143A requirements for visual characters and include the International Symbol of Accessibility. Where exit sign illumination is required by Section 1013.3, the signs shall be illuminated. Additionally, visual characters, raised character and braille signage complying with ~~ICC A117.4~~ Chapter 11A, Section 1143A, and the International Symbol of Accessibility, shall be located at each door to an area of refuge and exterior area for assisted rescue in accordance with Section 1013.4. The International Symbol of Accessibility shall comply with Chapter 11A, Section 1143A.

1009.11 Instructions. In areas of refuge and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. Signage shall comply with ~~the ICC A117.1~~ Chapter 11A, Section 1143A requirements for visual characters. The instructions shall include all of the following:

1. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.

2. Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance.
3. Directions for use of the two-way communication system where provided.

~~1007.12 1009.12~~ Alarms/emergency warning systems/accessibility. *If emergency warning systems are required, they shall activate a means of warning the hearing impaired. Emergency warning systems as part of the fire-alarm system shall be designed and installed in accordance with NFPA 72 as amended in Chapter 35.*

SECTION 1010 (Formerly 1008) DOORS, GATES AND TURNSTILES

1010.1.1 (Formerly 1008.1.1) Size of doors. The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41 ½ inches (1054 mm). The height of door openings shall not be less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. ... (No change to text)
3. ... (No change to text)
4. ... (No change to text)
5. ... (No change to text)
6. ... (No change to text)
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit *adaptable or accessible as specified in Chapter 11A.*
- ~~8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).~~
- ~~9~~ 8. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m²) in area shall have a maximum width of 60 inches (1524 mm).
- ~~10~~ 9. In Group R-1 dwelling units or sleeping units not required to be Accessible units *adaptable or accessible as specified in Chapter 11A*, the minimum width shall not apply to doors for showers or saunas.

1010.1.4.1 (Formerly 1008.1.4.1) Revolving doors. Revolving doors shall comply with the following:

1. Revolving doors shall comply with BHMA A156.27 and shall be installed in accordance with the manufacturer's instructions.
- ... (No change to text)
7. (Formerly Item 5) Revolving doors shall not be part of an accessible route required by Section 1009 and ~~Chapter 11~~ Chapter 11A.

1010.1.5 (Formerly 1008.1.5) Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

Exceptions:

1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
2. ... (No change to text)
3. In Group R-3 occupancies not required to be Accessible units, ~~Type A units or Type B units adaptable or accessible~~, the landing at an exterior doorway shall not be more than 7 3/4 inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.
4. ... (No change to text)
5. Exterior decks, patios or balconies that are part of ~~Type B adaptable or accessible~~ dwelling units, have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit. See also Chapter 11A, Section 1132A.4.
6. Doors serving equipment spaces not required to be accessible in accordance with Section 1103.2.9 and serving an occupant load of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

1010.1.7 (Formerly 1008.1.7) Thresholds. Thresholds at doorways shall not exceed 3/4 inch (19.1 mm) in height above the finished floor or landing for sliding doors serving dwelling units or 1/2 inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes greater than 1/4 inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

Exceptions:

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to 7 3/4 inches (197 mm) in height if all of the following apply:
 - 1.1 The door is not part of the required means of egress.
 - 1.2 The door is not part of an accessible route as required by Chapter 11A.
 - 1.3 The door is not part of an Accessible unit, ~~Type A unit or Type B unit adaptable or accessible dwelling unit.~~
2. In ~~Type B adaptable or accessible dwelling~~ units, where Exception 5 to Section 1010.1.5 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed 4 3/4 inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or 4 1/2 inches (114 mm) above the exterior deck, patio or balcony for other doors.

1010.1.8 (Formerly 1008.1.8) Door arrangement. Space between two doors in a series shall be 48 inches (1219 mm) minimum plus the width of a door swinging into the space. Doors in a series shall swing either in the same direction or away from the space between the doors.

Exceptions:

1. The minimum distance between horizontal sliding power-operated doors in a series shall be 48 inches (1219 mm).
2. ... (No change to text)
3. Doors within individual dwelling units in Groups R-2 and R-3 occupancies other than ~~within Type A adaptable or accessible dwelling units.~~

1010.1.9.1 (Formerly 1008.1.9.1) Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11A shall not require tight grasping, tight pinching or twisting of the wrist to operate.

SECTION 1012 (Formerly 1010) RAMPS

1012.1 (Formerly 1010.1) Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

Exceptions:

1. Ramped aisles within assembly rooms or spaces shall comply with the provisions in Section 1029.

2. Curb ramps shall comply with ~~ICC-A117.1 Chapter 11A~~.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 1012.3 through 1012.10 where they are not an accessible route serving accessible parking spaces, other required accessible elements or part of an accessible means of egress.

1012.6.3 (Formerly 1010.7.3) Length. The landing length shall be 60 inches (1525 mm) minimum.

Exceptions:

1. In Group R-2 and R-3 individual dwelling and sleeping units that are not required to be ~~Accessible units, Type A units or Type B units accessible~~ in accordance with ~~Section 1107 Chapter 11A~~, landings are permitted to be 36 inches (914 mm) minimum.
2. Where the ramp is not a part of an accessible route, the length of the landing shall not be required to be more than 48 inches (1220 mm) in the direction of travel.

1012.6.4 (Formerly 1010.7.4) Change in direction. Where changes in direction of travel occur at landings provided between ramp runs, the landing shall be 60 inches by 60 inches (1524 mm by 1524 mm) minimum.

Exception: In Group R-2 and R-3 individual dwelling or sleeping units that are not required to be ~~Accessible units, Type A units or Type B units accessible~~ in accordance with ~~Section 1107 Chapter 11A~~, landings are permitted to be 36 inches by 36 inches (914 mm by 914 mm) minimum.

1012.6.5 (Formerly 1010.7.5) Doorways. Where doorways are located adjacent to a ramp landing, maneuvering clearances required by ~~ICC-A117.1 for accessibility~~ are permitted to overlap the required landing area as *specified in Chapter 11A*.

1012.10 (Formerly 1010.10) Edge protection. Edge protection complying with Section 1012.10.1 or 1012.10.2 shall be provided on each side of ramp runs and at each side of ramp landings.

Exceptions:

1. Edge protection is not required on ramps that are not required to have handrails, provided they have flared sides that comply with ~~the ICC-A117.1 curb ramp provisions Chapter 11A~~.
2. Edge protection is not required on the sides of ramp landings serving an adjoining ramp run or stairway.
3. Edge protection is not required on the sides of ramp landings having a vertical drop off of not more than 1/2 inch (12.7 mm) within 10 inches (254 mm) horizontally of the required landing area.
4. In assembly spaces with fixed seating, edge protection is not required on the sides of ramps where the ramps provide access to the adjacent seating and aisle access ways.

SECTION 1013 (Formerly 1011) EXIT SIGNS

1013.4 (Formerly 1011.4) Raised character and braille exit signs. A sign stating EXIT in visual characters, raised characters and braille and complying with ~~ICC-A117.1 Chapter 11A, Section 1143A~~ shall be provided adjacent to each door to an area of refuge, an exterior area for assisted rescue, an exit stairway, an exit stairway or ramp, an exit passageway and the exit discharge.

SECTION 1014 HANDRAILS

1014.8 Projections. On ramps and on ramped aisles that are part of an accessible route, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of aisles, stairways and ramps at each side shall not exceed 4 1/2 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1011.3. Projections due to intermediate handrails shall not constitute a reduction in the egress width. Where a pair of intermediate handrails are provided within the stairway width without a walking surface between the pair of intermediate handrails and the distance between the pair of intermediate handrails is greater than 6 inches (152 mm), the available egress width shall be reduced by the distance between the closest edges of each such intermediate pair of handrails that is greater than 6 inches (152 mm).

(HCD 1-AC) In addition, projections shall comply with Chapter 11A, when applicable.

SECTION 1015 (Formerly 1013) GUARDS

1015.3 (Formerly 1013.3) Height. Required guards shall not be less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On stairways and stepped aisles, from the line connecting the leading edges of the tread nosings.
3. On ramps and ramped aisles, from the ramp surface at the guard.

Exceptions:

- ~~1. For occupancies in Group R-3 not more than three stories above grade in height and within individual dwelling units in occupancies in Group R-2 not more than three stories above grade in height with separate means of egress, required guards shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or adjacent fixed seating.~~
- ~~2. 1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.~~
- ~~3. 2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.~~
- ~~4. 3. The guard height in assembly seating areas shall comply with Section 1029.16 as applicable.~~
- ~~5. 4. Along alternating tread devices and ship ladders, guards whose top rail also serves as a handrail shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edges of the device tread nosing.~~

1015.8 Window openings. Windows in Group R-1, R-2 and R-3 buildings including dwelling units, where the top of the sill of an operable window opening is located less than 36 inches above the finished floor and more than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, shall comply with one of the following:

1. Operable windows where the top of the sill of the opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows where the openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.
3. Operable windows where the openings are provided with window fall prevention devices that comply with ASTM F 2090.
4. Operable windows that are provided with window opening control devices that comply with Section 1015.8.1.

SECTION 1020 (Formerly 1018) CORRIDORS

1020.5.1 (Formerly 1018.5.1) Corridor ceiling. Use of the space between the corridor ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:

1. The corridor is not required to be of fire-resistance-rated construction;
2. (No change to text)...
3. The air-handling system serving the corridor is shut down upon activation of the air-handling unit smoke detectors required by the International California Mechanical Code.

SECTION 1023 (Formerly 1022)
INTERIOR EXIT STAIRWAYS AND RAMPS

1023.9 (Formerly 1022.9) Stairway identification signs. A sign shall be provided at each floor landing in an interior exit stairway and ramp connecting more than three stories designating the floor level, the terminus of the top and bottom of the interior exit stairway and ramp and the identification of the stair or ramp. The signage shall also state the story of, and the direction to, the exit discharge and the availability of roof access from the interior exit stairway and ramp for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. In addition to the stairway identification sign, a floor-level sign in visual characters, raised characters and braille complying with ~~ICC A117.4~~ *Chapter 11A, Section 1143A* shall be located at each floor-level landing adjacent to the door leading from the interior exit stairway and ramp into the corridor to identify the floor level.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

14. HCD proposes NOT to adopt Chapter 11 from the 2015 International Building Code.

CHAPTER 11
ACCESSIBILITY

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

15. HCD proposes to continue to adopt Chapter 11A from the 2013 California Building Code into the 2016 California Building Code with no modifications.

CHAPTER 11A
HOUSING ACCESSIBILITY

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

16. HCD proposes to adopt Chapter 12 from the 2015 International Building Code into the 2016 California Building Code with new and existing amendments as follows:

**CHAPTER 12
INTERIOR ENVIRONMENT**

**SECTION 1203
VENTILATION**

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the ~~International~~ California Mechanical Code.

~~Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure 0.2 inch w.e. (50 Pa) in accordance with Section R402.4.1.2 of the International Energy Conservation Code — Residential Provisions, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403 of the International Mechanical Code. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the International Mechanical Code.~~

1203.2 Ventilation required. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall be not less than 1/150 of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer's installation instructions.

Exception: The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:

1. In Climate Zones ~~6, 7 and 8~~ 14 and 16, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

1203.2.1 Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum shall be permitted. Openings for ventilation having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the ~~International~~ California Mechanical Code.

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented attics and unvented enclosed roof framing assemblies created by ceilings that are applied directly to the underside of the roof framing members and structural roof sheathing applied directly to the top of the roof framing members/rafters, shall be permitted where all the following conditions are met:

1. The unvented attic space is completely within the building thermal envelope.
2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum 1/4-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.

4. In Climate Zones ~~5, 6, 7 and 8~~, 14 and 16, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

See the California Energy Code, FIGURE 100.1-A —California Climate Zones.

4.1 (HCD 1 & HCD 2) In Climate Zones 14 and 16, a Class I or Class II vapor retarder shall be installed on the indirectly conditioned space side of all insulation in an unvented attic with air-permeable insulation, for condensation control.

5. Insulation shall be located in accordance with the following:

- 5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing. No insulation shall be required when roof tiles, wood shingles or wood shakes, or any other roofing system using battens and no continuous underlayment is installed. A continuous underlayment shall be considered to exist if sheathing, roofing paper or any continuous layer having a perm rate of no more than one perm under the dry cup method is present.

5.1.1. Where only air-impermeable insulation is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2. Where air-permeable insulation is provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R-values in Table 1203.3 for condensation control.

5.1.3. Where both air-impermeable and air-permeable insulation are provided, the air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing ~~in accordance with Item 5.1.1~~ and shall be in accordance with the R-values in Table 1203.3 for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

- 5.2. Where preformed insulation board is used as the ~~air-permeable~~ air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

Exceptions:

- Section 1203.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.
- Section 1203.3 does not apply to enclosures in Climate Zones ~~5 through 8~~ 14 and 16 that are humidified beyond 35 percent during the three coldest months.

**TABLE 1203.3
INSULATION FOR CONDENSATION CONTROL**

CLIMATE ZONE	MINIMUM R-VALUE OF AIR-IMPERMEABLE INSULATION ^a
2B and 3B <u>6-15</u> tile roof only	0 (none required)
1, 2A, 2B, 3A, 3B, 3C <u>3-15</u>	R-5
4C <u>1&2</u>	R-10
4A, 4B <u>16</u>	R-15
5	R-20

6	R-25
7	R-30
8	R-35

- a. Contributes to, but does not supersede, thermal resistance requirements for attic and roof assemblies in Section C402.2.1 of the International California Energy Conservation Code

1203.4.2 (Formerly 1203.3.2) Exceptions. The following are exceptions to Sections 1203.4 and 1203.4.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. ... (No change to text)
3. ... (No change to text)
4. Ventilation openings are not required when the ground surface is covered with a Class I vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the International California Energy Conservation Code.
5. ... (No change to text)

1203.5 (Formerly 1203.4) Natural ventilation. Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

(HCD 1) In employee housing, all operable windows in rooms used for living, dining, cooking or sleeping purposes, and toilet and bath buildings, shall be provided and maintained with insect screening.

(HCD 1) Door openings of rooms used for dining, cooking, toilet and bathing facilities in employee housing shall be provided and maintained with insect screening or with solid doors equipped with self-closing devices in lieu thereof, when approved by the enforcement agency.

(HCD 1) The windows, doors, louvers or other approved closeable openings not required by Section 1029 may open into a passive solar energy collector for ventilation required by this section. The area of ventilation openings to the outside of the passive solar energy collector shall be increased to compensate for the openings required by the interior space.

1203.5.2 (Formerly 1203.4.2) Contaminants exhausted. Contaminant sources in naturally ventilated spaces shall be removed in accordance with the International California Mechanical Code and the International California Fire Code.

1203.5.2.1 (Formerly 1203.4.2.1) Bathrooms. Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the International California Mechanical Code.

The minimum exhaust rate shall not be less than that established by Table 403.7 "Minimum Exhaust Rates." See California Mechanical Code, Chapter 5, for additional provisions related to environmental air ducts.

(HCD 1) In addition to the requirements in this section and in the California Mechanical Code, bathrooms in Group R occupancies shall be mechanically ventilated in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5.

1203.6 (Formerly 1203.5) Other ventilation and exhaust systems. Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the International California Mechanical Code or the International California Fire Code shall be provided as required by both codes.

SECTION 1204 TEMPERATURE CONTROL

1204.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

Exceptions:

1. Space heating systems are not required for:
 - 4 1.1. Interior spaces where the primary purpose of the space is not associated with human comfort.
 - 2 1.2 Group F, H, S or U occupancies.
2. **(HCD 1)** *For limited-density owner-built rural dwellings, a heating facility or appliance shall be installed in each dwelling subject to the provisions of Subchapter 1, Chapter 1, Title 25, California Code of Regulations, commencing with Section 74; however, there shall be no specified requirement for heating capacity or temperature maintenance. The use of solid-fuel or solar-heating devices shall be deemed as complying with the requirements of this section. If nonrenewable fuel is used in these dwellings, rooms so heated shall meet current installation standards.*
3. ... (No change to text)
4. **(HCD 1)** *When a passive solar energy collector is designed as a conditioned area it shall comply with the California Energy Code, Title 24, Part 6. Nonconditioned passive solar energy collectors are exempt from Title 24, Part 6 compliance with the California Energy Code.*

**SECTION 1205
LIGHTING**

1205.1 General. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1205.2 or shall be provided with artificial light in accordance with Section 1205.3. Exterior glazed openings shall open directly onto a public way or onto a yard or court in accordance with Section 1206.

(HCD 1) *Glazed openings may open into a passive solar energy collector provided the area of exterior glazed openings in the passive solar energy collector is increased to compensate for the area required by the interior space.*

1205.4 Stairway illumination. Stairways within dwelling units and exterior stairways serving a dwelling unit shall have an illumination level on tread runs of not less than 1 footcandle (11 lux). Stairways in other occupancies shall be governed by Chapter 10.

1205.4.1 Controls. The control for activation of the required stairway lighting shall be in accordance with NFPA 70 the California Electrical Code.

**SECTION 1206
YARDS OR COURTS**

1206.3.3 Court drainage. The bottom of every court shall be properly graded and drained to a public sewer or other approved disposal system complying with the International California Plumbing Code.

**SECTION 1207
SOUND TRANSMISSION**

1207.3 Structure-borne sound. Floor/ceiling assemblies between dwelling units and sleeping units or between a dwelling unit or sleeping unit and a public or service area within the structure shall have an impact insulation class (IIC) rating of not less than 50, or not less than 45 if field tested, when tested in accordance with ASTM E 492.

Exception: *Impact sound insulation is not required for floor-ceiling assemblies over nonhabitable rooms or spaces not designed to be occupied, such as garages, mechanical rooms or storage areas.*

1207.4 Allowable interior noise levels. Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

SECTION 1208 INTERIOR SPACE DIMENSIONS

1208.1 Minimum room widths. Habitable spaces, other than a kitchen, shall not be less than 7 feet (2134 mm) in any plan dimension. Kitchens shall have a clear passageway of not less than 3 feet (914 mm) between counter fronts and appliances or counter fronts and walls.

(HCD 1) For limited-density owner-built rural dwellings, there shall be no requirements for room dimensions, provided there is adequate light and ventilation and adequate means of egress.

1208.4 Efficiency dwelling units. ~~An efficiency living unit shall conform to the requirements of the code except as modified herein:~~ *(HCD 1) Unless modified by local ordinance pursuant to Health and Safety Code Section 17958.1, efficiency dwelling units shall comply with the following:*

1. The unit shall have a living room of not less than 220 square feet (20.4 m²) of floor area. An additional 100 square feet (9.3 m²) of floor area shall be provided for each occupant of such unit in excess of two.

.... (No change to text)

4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

SECTION 1209 ACCESS TO UNOCCUPIED SPACES

1209.3 Mechanical appliances. Access to mechanical appliances installed in under-floor areas, in attic spaces and on roofs or elevated structures shall be in accordance with the ~~International~~ California Mechanical Code.

SECTION 1210 TOILET AND BATHROOM REQUIREMENTS

1210.1 Required fixtures. The number and type of plumbing fixtures provided in any occupancy shall comply with ~~Chapter 29 the~~ California Plumbing Code.

SECTION 1211 (HCD 1 & HCD 2) GARAGE DOOR SPRINGS

1211.1 General. This section shall apply to applications listed in Sections 1.8.2.1.1 and 1.8.2.1.3 regulated by the Department of Housing and Community Development.

1211.1.1 Extension garage door springs. Every extension garage door spring sold or offered for sale, whether new or as a replacement, or installed in any garage or carport which is accessory to an apartment house, hotel, motel or dwelling shall conform to the following requirements:

Hard-drawn spring wire shall conform to ASTM A 227- 06 (2011) or a more current version, and shall be made by the steel processes described therein, conforming to the chemical composition requirements listed and meeting the standards of steel heat as set forth by the ladle analysis. Wire tensile strength and dimension variations shall meet the prescribed properties of established standards.

Oil-tempered wire shall conform to ASTM A 229 - 12 or a more current version, and shall be made by the steel processes described therein, conforming to the chemical composition requirements listed and meeting the standards of steel heat as set forth by the ladle analysis. Wire tensile strength and dimension variations shall meet the prescribed properties of established standards.

Extension springs shall be fabricated from either hard-drawn spring wire or oil-tempered wire as specified above.

1211.2 Design standards. Minimum design standard shall be 9,000 cycles. (One cycle is equal to door opening plus door closing at maximum working load.)

1211.3 Certification. Mill certification of wire physical tests and chemical properties shall be kept on file by the spring manufacturer.

Physical cycling tests shall be performed for each extension spring design and shall be certified by an approved testing agency acceptable to the department and reports kept on file by the manufacturer.

Containment devices shall be physically tested for each extension spring design by installing the device on the spring and by destroying the spring at maximum recommended stretch. Containment tests shall be certified by an approved testing agency acceptable to the department and reports kept on file by the manufacturer.

1211.4 Containment devices. Each extension spring shall be equipped with an approved device capable of restraining the spring or any part thereof in the event it breaks.

1211.5 Identification. Extension springs shall be permanently identified as to manufacturer and also to indicate maximum recommended stretch. Both extension springs and containment devices shall bear information stating that they have been manufactured in accordance with requirements of the California Department of Housing and Community Development.

1211.6 Installation. Installation of extension springs, containment devices and hardware shall be in accordance with the manufacturer's installation instructions. Instructions shall be provided by the manufacturer and shall specify the approved method of restraint and maximum recommended stretch. Unless otherwise permitted by the manufacturer's installation instructions, the hardware and extension springs shall be mounted to nominal 12 by 6 framing members, conforming to the applicable provisions of Section 2303.

SECTION 1212 (HCD 1) POLLUTANT CONTROL

1212.1 Finish material pollutant control. Finish materials, including adhesives, sealants, caulks, paints and coatings, aerosol paints and coatings, carpet systems, carpet cushion, carpet adhesive, resilient flooring systems, and composite wood products shall meet the volatile organic compound (VOC) emission limits in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

17. HCD proposes to repeal and not bring forward the existing California amendments from the 2013 California Building Code, Section 1203.2, Exceptions.

CHAPTER 12 INTERIOR ENVIRONMENT

SECTION 1203 VENTILATION

1203.2 Attic spaces. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated.

Exceptions:

1. ~~(Not adopted by HCD)~~ The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided that not less than 50 percent and not more than 80 percent of the required ventilating area

provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

2. ~~(Not adopted by HCD)~~ The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided where a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling.
3. Attic ventilation shall not be required when determined not necessary by the building official due to atmospheric or climatic conditions.
4. ~~(HCD 1 & HCD 2)~~ *The net cross-ventilation area shall be permitted to be reduced to 1/300 provided that at least 40 percent and not more than 50 percent of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located no more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the required ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.*
5. ~~(HCD 1 & HCD 2)~~ The net cross-ventilation area shall be permitted to be reduced to 1/300 in Climate Zones 14 and 16, where a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.

18. HCD proposes NOT to adopt Chapter 13 from the 2015 International Building Code.

CHAPTER 13 ENERGY EFFICIENCY

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

19. HCD proposes to adopt Chapter 14, except Table 1405.3.2, from the 2015 International Building Code into the 2016 California Building Code with modified existing amendments as follows:

CHAPTER 14 EXTERIOR WALLS

SECTION 1405 INSTALLATION OF WALL COVERINGS

1405.3 Vapor retarders. Vapor retarders as described in Section 1405.3.3 shall be provided in accordance with Sections 1405.3.1 and 1405.3.2, or an approved design using accepted engineering practice for hydrothermal analysis.

1405.3.1 Class I and II vapor retarders. Class I and II vapor retarders shall not be provided on the interior side of frame walls in Zones 1 and 2. Class I vapor retarders shall not be provided on the interior side of frame walls in Zones 3 and 4. Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4. The appropriate zone shall be selected in accordance with Chapter 3 of the International Energy Conservation Code.

(Formerly in Section 1405.3) (HCD 1 & HCD 2) Class I or II vapor retarders shall be provided on the interior side of frame walls of low-rise residential buildings in Climate Zones 14 and 16, as required in Title 24, Part 6, the California Energy Code (see definition of "Low-rise residential building").

Exceptions:

1. Basement walls.
2. Below-grade portion of any wall.
3. Construction where moisture or its freezing will not damage the materials.
4. Conditions where Class III vapor retarders are required in Section 1405.3.2.

1405.3.2 (Formerly 1405.3.1) Class III vapor retarders. Class III vapor retarders shall be permitted where any one of the conditions in Table 1405.3.2 is met. Only Class III vapor retarders shall be used on the interior side of frame walls where foam plastic insulating sheathing with a perm rating of less than 1 is applied in accordance with Table 1405.3.2 on the exterior side of the frame wall.

(HCD 1 & HCD 2) Class III vapor retarders shall be permitted where any one of the conditions in Items 1, 2 or 3 below are met. This section shall apply to "Low-rise residential buildings" as defined in Title 24, Part 6, the California Energy Code.

1. Vented cladding over fiberboard.
2. Vented cladding over gypsum.
3. Insulated sheathing with R-value $\geq R4$.

Spray foam with a minimum density of 2 lbs/ft³ applied to the interior cavity side of OSB, plywood, fiberboard, insulating sheathing or gypsum is deemed to meet the insulating sheathing requirement where the spray foam R-value meets or exceeds the specified insulating sheathing R-value.

**TABLE 1405.3.2 (Formerly TABLE 1405.3.1)
CLASS III VAPOR RETARDERS
(Not adopted by HCD 1 & HCD 2)**

ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR: ^a
Marine 4	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Insulated sheathing with R-value $\geq R2.5$ over 2×4 wall Insulated sheathing with R-value $\geq R3.75$ over 2×6 wall
5	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Insulated sheathing with R-value $\geq R5$ over 2×4 wall Insulated sheathing with R-value $\geq R7.5$ over 2×6 wall
6	Vented cladding over fiberboard Vented cladding over gypsum Insulated sheathing with R-value $\geq R7.5$ over 2×4 wall Insulated sheathing with R-value $\geq R11.25$ over 2×6 wall
7 and 8	Insulated sheathing with R value $\geq R10$ over 2×4 wall Insulated sheathing with R value $\geq R15$ over 2×6 wall

For SI: 1 pound per cubic foot = 16 kg/m³.

- a. Spray foam with a minimum density of 2 lbs/ft³ applied to the interior cavity side of OSB, plywood, fiberboard, insulating sheathing or gypsum is deemed to meet the insulating sheathing requirement where the spray foam R-value meets or exceeds the specified insulating sheathing R-value.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

20. HCD proposes to adopt Chapter 15 from the 2015 International Building Code into the 2016 California Building Code with existing amendments as follows:

**CHAPTER 15
ROOF ASSEMBLIES AND ROOFTOP STRUCTURES**

**SECTION 1503
WEATHER PROTECTION**

1503.4 Roof drainage. Design and installation of roof drainage systems shall comply with Section 1503 of this code and Sections 1106 and 1108, as applicable, Chapter 11 of the International California Plumbing Code.

1503.4.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary (emergency overflow) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. The installation and sizing of secondary emergency overflow drains, leaders and conductors shall comply with Sections 1106 and 1108, as applicable, Chapter 11 of the International California Plumbing Code.

**SECTION 1510 (Formerly 1509)
ROOFTOP STRUCTURES**

1510.7 (Formerly 1509.7) Photovoltaic systems. Rooftop mounted photovoltaic panels and modules shall be designed in accordance with this section.

1510.7.1 (Formerly 1509.7.1) Wind resistance. Rooftop-mounted photovoltaic panels and modules shall be designed for component and cladding wind loads in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.

Exception: (HCD-1, HCD-2) The effective wind area shall be in accordance with Chapter 16 and ASCE 7 Section. 26.2.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

21. HCD proposes to adopt Chapter 16 from the 2015 International Building Code into the 2016 California Building Code with existing amendments as follows:

CHAPTER 16
STRUCTURAL DESIGN

SECTION 1607
LIVE LOADS

1607.8 Loads on handrails, guards, grab bars, shower seats, dressing room bench seats and vehicle barriers. Handrails, guards, grab bars, accessible seats, accessible benches and vehicle barriers shall be designed and constructed to the structural loading conditions set forth in this section.

1607.8.1 Handrails and guards. (No change to text)

1607.8.2 Grab bars, shower seats and dressing room bench seats. Grab bars, shower seats and dressing room bench seats shall be designed to resist a single concentrated load of 250 pounds (1.11 kN) applied at any direction on the grab bar or seat so as to produce the maximum load effects.

(HCD 1-AC) See Chapter 11A, Section 1127A.4 for grab bars, shower seats and dressing room bench seats, as applicable.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 8871.3, 8871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

22. HCD proposes to repeal and not bring forward the existing California amendments from the 2013 California Building Code, Section 1613.5.

CHAPTER 16
STRUCTURAL DESIGN

SECTION 1613
EARTHQUAKE LOADS

~~**1613.5 [HCD 1 & HCD 2] Modifications to ASCE 7.** The text of ASCE 7 shall be modified as indicated in Sections 1613.5.1 through 1613.5.2.~~

~~**1613.5.1 [HCD 1 & HCD 2] Modify ASCE 7 DEFINITIONS** as follows:~~

~~**1.2 DEFINITIONS.**~~

~~**BALLASTED PHOTOVOLTAIC SYSTEM:** A roof mounted system composed of solar photovoltaic panels and supporting members that are unattached or partially attached to the roof and must rely on its weight, aerodynamics and friction to counter the effect of wind and seismic forces.~~

~~**1613.5.2 [HCD 1 & HCD 2] Modify ASCE 7 Section 13.4** as follows:~~

~~**Section 13.4 NONSTRUCTURAL COMPONENT ANCHORAGE.**~~

~~Components and their supports shall be attached (or anchored) to the structure in accordance with the requirements of this section and the attachment shall satisfy the requirements for the parent material as set forth elsewhere in this standard. Component attachments shall be bolted, welded, or otherwise positively fastened without consideration of frictional resistance produced by the effects of gravity. A continuous load path of sufficient strength and stiffness between the component and the supporting structure shall be~~

provided. Local elements of the structure including connections shall be designed and constructed for the component forces where they control the design of the elements or their connections. The component forces shall be those determined in Section 13.3.1, except that modifications to F_p and R , due to anchorage conditions need not be considered. The design documents shall include sufficient information relating to the attachments to verify compliance with the requirements of this section

Exception: Ballasted photovoltaic systems when design is based on Section 13.4.7 and approved by the enforcing agency.

13.4.7. Solar PV panels or modules installed on a roof as a ballasted system need not be rigidly attached to the roof or supporting structure. Ballasted systems shall be designed and installed only on roofs with slopes 1 inch per foot or less. The ballasted system shall be designed to resist sliding and uplift resulting from lateral and vertical forces, using a coefficient of friction determined by acceptable engineering practices. In sites where the Seismic Design category is C or above, the system shall be designed to accommodate seismic displacement determined by approved analysis or shake table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for non-structural components on roofs.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

23. HCD proposes to adopt Chapter 17 from the 2015 International Building Code into the 2016 California Building Code with new and modified existing amendments as follows:

CHAPTER 17 SPECIAL INSPECTIONS AND TESTS

SECTION 1704 SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

1704.2 Special inspections and tests. Where application is made to the building official for construction as specified in Sections 105 or 1.8.4, *as applicable*, the owner or the owner's authorized agent, other than the contractor, shall employ one or more approved agencies to provide special inspections and tests during construction on the types of work specified in Section 1705 and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

Exceptions:

1. Special inspections and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.
 2. Unless otherwise required by the building official, special inspections and tests are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
 3. Special inspections and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308.
 4. The contractor is permitted to employ the approved agencies where the contractor is also the owner.
- 4.5. (HCD 1)** *The provisions of Health and Safety Code Division 13, Part 6 and the California Code of Regulations, Title 25, Division 1, Chapter 3, commencing with Section 3000, shall apply to the construction and inspection of factory-built housing as defined in Health and Safety Code Section 19971.*

**SECTION 1707
ALTERNATIVE TEST PROCEDURE**

1707.1 General. In the absence of approved rules or other approved standards, the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Sections 104.11 or 1.8.7, as applicable. The cost of all tests and other investigations required under the provisions of this code shall be borne by the applicant.

~~(HCD 1 & HCD 2) In the absence of approved rules or other approved standards, the building official shall make or cause to be made the necessary tests and investigations, or the building official shall accept duly authenticated reports from approved agencies with respect to the quality and manner of use of new materials or assemblies as provided for in Section 1.8.7, Chapter 1, Division 1. The cost of all tests and other investigations required under the provisions of this code shall be borne by the applicant.~~

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

24. HCD proposes to adopt Chapter 18 from the 2015 International Building Code into the 2016 California Building Code with existing and modified existing amendments as follows:

**CHAPTER 18
SOILS AND FOUNDATIONS**

**SECTION 1801
GENERAL**

1801.2 Design basis. Allowable bearing pressures, allowable stresses and design formulas provided in this chapter shall be used with the allowable stress design load combinations specified in Section 1605.3. The quality and design of materials used structurally in excavations and foundations shall comply with the requirements specified in Chapters 16, 19, 21, 22 and 23 of this code. Excavations and fills shall also comply with Chapter 33.

(HCD 1) For limited-density owner-built rural dwellings, pier foundations, stone masonry footings and foundations, pressure-treated lumber, poles or equivalent foundation materials or designs may be used, provided that the bearing is sufficient for the purpose intended.

**SECTION 1803
GEOTECHNICAL INVESTIGATIONS**

1803.1 General. Geotechnical investigations shall be conducted in accordance with Section 1803.2 and reported in accordance with Section 1803.6. Where required by the building official, or where geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a registered design professional.

1803.1.1 General and where required for applications listed in Section 1.8.2.1.1 regulated by the Department of Housing and Community Development. *(HCD 1) Foundation and soils investigations shall be conducted in conformance with Health and Safety Code Sections 17953 through 17957 as summarized below.*

1803.1.1.1 Preliminary soil report. *Each city, county, or city and county shall enact an ordinance which requires a preliminary soil report, prepared by a civil engineer who is registered by the state. The report*

shall be based upon adequate test borings or excavations, of every subdivision, where a tentative and final map is required pursuant to Section 66426 of the Government Code.

The preliminary soil report may be waived if the building department of the city, county, or city and county, or other enforcement agency charged with the administration and enforcement of the provisions of Section 1803.1.1, shall determine that, due to the knowledge such department has as to the soil qualities of the soil of the subdivision or lot, no preliminary analysis is necessary.

1803.1.1.2 Soil investigation by lot, necessity, preparation, and recommendations. If the preliminary soil report indicates the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects, such ordinance shall require a soil investigation of each lot in the subdivision.

The soil investigation shall be prepared by a civil engineer who is registered in this state. It shall recommend corrective action which is likely to prevent structural damage to each dwelling proposed to be constructed on the expansive soil.

1803.1.1.3 Approval, building permit conditions, appeal. The building department of each city, county, or city and county, or other enforcement agency charged with the administration and enforcement of the provisions of Section 1803.1.1, shall approve the soil investigation if it determines that the recommended action is likely to prevent structural damage to each dwelling to be constructed. As a condition to the building permit, the ordinance shall require that the approved recommended action be incorporated in the construction of each dwelling. Appeal from such determination shall be to the local appeals board.

1803.1.1.4 Liability. A city, county, city and county, or other enforcement agency charged with the administration and enforcement of the provisions of Section 1803.1.1, is not liable for any injury which arises out of any act or omission of the city, county, city and county, other enforcement agency, or a public employee or any other person under Section 1803.1.1.

1803.1.1.5. Alternate procedures. The governing body of any city, county, or city and county may enact an ordinance prescribing an alternate procedure which is equal to or more restrictive than the procedure specified in Section 1803.1.1.

SECTION 1804 EXCAVATION, GRADING AND FILL

1804.4 (Formerly 1804.3) Site grading. The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall. If physical obstructions or lot lines prohibit 10 feet (3048 mm) of horizontal distance, a 5-percent slope shall be provided to an approved alternative method of diverting water away from the foundation. Swales used for this purpose shall be sloped a minimum of 2 percent where located within 10 feet (3048 mm) of the building foundation. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the building.

Exception: Where climatic or soil conditions warrant, the slope of the ground away from the building foundation shall be permitted to be reduced to not less than one unit vertical in 48 units horizontal (2-percent slope).

The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the backfill.

~~1804.3.1~~ 1804.4.1 (HCD 1) Construction plans. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.1.

SECTION 1805 DAMP-PROOFING AND WATER-PROOFING

1805.4 Subsoil drainage system. Where a hydrostatic pressure condition does not exist, damp-proofing shall be provided and a base shall be installed under the floor and a drain installed around the foundation perimeter. A subsoil drainage system designed and constructed in accordance with Section 1805.1.3 shall be deemed adequate for lowering the groundwater table.

1805.4.1 Floor base course. Floors of basements, except as provided for in Section 1805.1.1, shall be placed over a floor base course not less than 4 inches (102 mm) in thickness that consists of gravel or crushed stone containing not more than 10 percent of material that passes through a No. 4 (4.75 mm) sieve.

Exceptions:

1. Where a site is located in well-drained gravel or sand/gravel mixture soils, a floor base course is not required.
2. **(HCD1)** When a capillary break is installed in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5

1805.4.3 Drainage discharge. The floor base and foundation perimeter drain shall discharge by gravity or mechanical means into an approved drainage system that complies with the International California Plumbing Code.

Exception: Where a site is located in well-drained gravel or sand/gravel mixture soils, a dedicated drainage system is not required.

**SECTION 1810
DEEP FOUNDATIONS**

1810.3.10.4 Seismic reinforcement. For structures assigned to Seismic Design Category C, a permanent steel casing shall be provided from the top of the micropile down to the point of zero curvature. For structures assigned to Seismic Design Category D, E or F, the micropile shall be considered as an alternative system in accordance with Sections 104.11 or 1.8.7, as applicable. The alternative system design, supporting documentation and test data shall be submitted to the building official for review and approval.

~~*(HCD 1 & HCD 2) For structures assigned to Seismic Design Category D, E or F, the micropile shall be considered as an alternative system in accordance with Section 1.8.7, Chapter 1, Division 1. The alternative system design, supporting documentation and test data shall be submitted to the building official for review and approval.*~~

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

25. HCD proposes to adopt Chapter 19 from the 2015 International Building Code into the 2016 California Building Code with existing amendments as follows:

**CHAPTER 19
CONCRETE**

**SECTION 1905
MODIFICATIONS TO ACI 318**

1905.1.2 ACI 318, Section 18.2.1.2 (Formerly 21.1.1). Modify ACI 318 Sections 18.2.1.2 and 18.2.1.6 to read as follows:

18.2.1.2 – Structures assigned to Seismic Design Category A shall satisfy requirements of Chapters 1 through 17 and 19 through 26. Chapter 18 does not apply. Structures assigned to Seismic Design Category B, C, D, E or F also shall satisfy 18.2.1.3 through 18.2.1.7, as applicable. Except for structural elements of plain concrete complying with Section 1905.1.7 of the International California Building Code, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F.

18.2.1.6.... (No change to text)

1905.1.5 (Formerly 1905.1.6) ACI 318, Section 18.13.1.1 (Formerly 21.12.1.1). Modify ACI 318, Section 18.13.1.1 to read as follows:

18.13.1.1 – Foundations resisting earthquake-induced forces or transferring earthquake-induced forces between a structure and ground shall comply with the requirements of 18.13 and other applicable provisions of ACI 318 unless modified by Chapter 18 of the *International California Building Code*.

SECTION 1907 MINIMUM SLAB PROVISIONS

1907.1 General. The thickness of concrete floor slabs supported directly on the ground shall not be less than 3 1/2 inches (89 mm). A 6-mil (0.006 inch; 0.15 mm) polyethylene vapor retarder with joints lapped not less than 6 inches (152 mm) shall be placed between the base course or subgrade and the concrete floor slab, or other approved equivalent methods or materials shall be used to retard vapor transmission through the floor slab.

Exceptions: A vapor retarder is not required:

1. For detached structures accessory to occupancies in Group R-3, such as garages, utility buildings or other unheated facilities.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m²) and carports attached to occupancies in Group R-3.
3. For buildings of other occupancies where migration of moisture through the slab from below will not be detrimental to the intended occupancy of the building.
4. For driveways, walks, patios and other flatwork which will not be enclosed at a later date.
5. Where *approved* based on local site conditions.

1907.1.1 (HCD 1) Capillary break. *When a vapor retarder is required, a capillary break shall be installed in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5.*

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

26. HCD proposes to repeal and not bring forward the existing California amendments from the 2013 California Building Code, Section 1905.1.9.

CHAPTER 19 CONCRETE

SECTION 1905 MODIFICATIONS TO ACI 318

~~**1905.1.9 ACI 318, Section D.3.3.** Modify ACI 318, Sections D.3.3.4.2, D.3.3.4.3(d) and D.3.3.5.2 to read as follows:~~

~~D.3.3.4.2 Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with Section D.3.3.4.4.~~

Exception: Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 and Section 1604A.8.2 of this code shall be deemed to satisfy Section D.3.3.4.3(d).

~~D.3.3.4.3(d) The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include E , with E increased by Ω_c . The anchor design tensile strength shall be calculated from Section D.3.3.4.4~~

~~D.3.3.5.2 Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with Section D.6.~~

Exceptions:

~~1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~

~~1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PA NDS Table 11E for lateral design values parallel to grain.~~

~~1.2. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).~~

~~1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).~~

~~1.4. Anchor bolts are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.~~

~~1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.~~

~~1.6. The sill plate is 2-inch or 3-inch nominal thickness.~~

~~2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~

~~2.1. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).~~

~~2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).~~

~~2.3. Anchors are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the track.~~

~~2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.~~

~~2.5. The track is 33 to 68 mil designation thickness.~~

~~Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.~~

~~3. In light frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 5/8 inch [16mm] in diameter of sill plate or track to foundation or foundation stem wall need not satisfy Section D.3.3.5.3 (a) through (c) when the design strength of the anchors is determined in accordance with Section D.6.2.1(e).~~

27. HCD proposes to adopt Chapter 20 from the 2015 International Building Code into the 2016 California Building Code without amendments:

**CHAPTER 20
ALUMINUM**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

28. HCD proposes to adopt Chapter 21 from the 2015 International Building Code into the 2016 California Building Code with existing amendments as follows:

**CHAPTER 21
MASONRY**

**SECTION 2109
EMPIRICAL DESIGN OF MASONRY**

2109.1.1 Limitations. The use of empirical design of masonry shall be limited as noted in Section 5.1.2 of TMS 402/ACI 530/ASCE 5. The use of dry-stacked, surface bonded masonry shall be prohibited in Risk Category IV structures. In buildings that exceed one or more of the limitations of Section 5.1.2 of TMS 402/ACI 530/ASCE 5, masonry shall be designed in accordance with the engineered design provisions of Section 2101.2.1, 2101.2.2 or 2101.2.3 or the foundation wall provisions of Section 1807.1.5.

Section A.1.2.2 of TMS 402/ACI 530/ASCE 5 shall be modified as follows:

A.1.2.2 (Formerly 5.1.2.2) Wind – Empirical requirements shall not apply to the design or construction of masonry for buildings, parts of buildings, or other structures to be located in areas where V_{asd} as determined in accordance with Section 1609.3.1 of the ~~International~~ *California Building Code* exceeds 110 mph.

**SECTION 2113
MASONRY CHIMNEYS**

2113.11.1.2 Gas appliances. Flue lining systems for gas appliances shall be in accordance with the ~~International Fuel Gas~~ *California Mechanical Code*.

2113.15 Flue area (appliance). Chimney flues shall not be smaller in area than the area of the connector from the appliance. Chimney flues connected to more than one appliance shall not be less than the area of the largest connector plus 50 percent of the areas of additional chimney connectors.

Exceptions:

1. Chimney flues serving oil-fired appliances sized in accordance with NFPA 31.
2. Chimney flues serving gas-fired appliances sized in accordance with the ~~International Fuel Gas~~ *California Mechanical Code*.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10,

17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, Sections 17910 through 17995.5, Sections 18200 through 18700, Sections 18860 through 18874, and Sections 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

29. HCD proposes to adopt Chapter 22 from the 2015 International Building Code into the 2016 California Building Code without amendments:

CHAPTER 22 STEEL

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

30. HCD proposes to adopt Chapter 23 from the 2015 International Building Code into the 2016 California Building Code with existing amendments as follows:

CHAPTER 23 WOOD

SECTION 2301 GENERAL

2301.1 Scope. The provisions of this chapter shall govern the materials, design, construction and quality of wood members and their fasteners.

(HCD 1) For limited-density owner-built rural dwellings, owner-produced or used materials and appliances may be utilized unless found not to be of sufficient strength or durability to perform the intended function; owner-produced or used lumber, or shakes and shingles may be utilized unless found to contain dry rot, excessive splitting or other defects obviously rendering the material unfit in strength or durability for the intended purpose.

SECTION 2304 GENERAL CONSTRUCTION REQUIREMENTS

2304.3.1 Bottom plates. Studs shall have full bearing on a 2-inch-thick (actual 1 1/2-inch, 38 mm) or larger plate or sill having a width at least equal to the width of the studs.

2304.3.1.1 (HCD 1) Rodent proofing. Annular spaces around pipes, electric cables, conduits or other openings in bottom/sole plates at exterior walls shall be protected against the passage of rodents by closing such openings in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.4.

2304.5 Framing around flues and chimneys. Combustible framing shall be a minimum of 2 inches (51 mm), but shall not be less than the distance specified in Sections 2111 and 2113 and the International California Mechanical Code, from flues, chimneys and fireplaces, and 6 inches (152 mm) away from flue openings.

SECTION 2308
CONVENTIONAL LIGHT-FRAME CONSTRUCTION

2308.1 General. The requirements of this section are intended for conventional light-frame construction. Other construction methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior nonload-bearing partitions, ceilings and curtain walls of conventional light-frame construction are not subject to the limitations of Section 2308.3. ~~Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the International Residential Code.~~

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

31. HCD proposes to adopt Chapter 24 from the 2015 International Building Code into the 2016 California Building Code without amendments:

CHAPTER 24
GLASS AND GLAZING

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

32. HCD proposes to adopt Chapter 25 from the 2015 International Building Code into the 2016 California Building Code without amendments:

CHAPTER 25
GYPSUM BOARD AND PLASTER

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

33. HCD proposes to adopt Chapter 26 from the 2015 International Building Code into the 2016 California Building Code without amendments:

**CHAPTER 26
PLASTIC**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

34. HCD proposes NOT to adopt Chapter 27 from the 2015 International Building Code.

**CHAPTER 27
ELECTRICAL**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

35. HCD proposes NOT to adopt Chapter 28 from the 2015 International Building Code.

**CHAPTER 28
MECHANICAL SYSTEMS**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

36. HCD proposes NOT to adopt Chapter 29 from the 2015 International Building Code.

**CHAPTER 29
PLUMBING SYSTEMS**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

37. HCD proposes to adopt Chapter 30, Sections 3001.1 and 3001.3 only, from the 2015 International Building Code into the 2016 California Building Code with existing amendment as follows:

**CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS**

**SECTION 3001
GENERAL**

3001.3 Accessibility. Passenger elevators and platform (wheelchair) lifts required to be accessible or to serve as part of an accessible means of egress shall comply with Sections 1009 and 4409.7 Chapter 11A for applications listed in Section 1.8.2.1.2 regulated by the Department of Housing and Community Development.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

38. HCD proposes to adopt Chapter 31, except Section 3109, from the 2015 International Building Code into the 2016 California Building Code with existing amendment as follows:

**CHAPTER 31
SPECIAL CONSTRUCTION
SECTION 3104
PEDESTRIAN WALKWAYS AND TUNNELS**

3104.2 Separate structures. Buildings connected by pedestrian walkways or tunnels shall be considered to be separate structures.

Exceptions:

1. Buildings that are on the same lot and considered as portions of a single building in accordance with Section 503.1.2.

2. **(HCD 1-AC)** For purposes of accessibility calculating the number of Type B units required by Chapter 11 as required by Chapter 11A, structurally connected buildings, buildings connected by stairs, walkways, or roofs, and buildings with multiple wings shall be considered one structure.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

39. HCD proposes to adopt Chapter 32 from the 2015 International Building Code into the 2016 California Building Code without amendments:

**CHAPTER 32
ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

40. HCD proposes to adopt Chapter 33, Sections 3301, 3302, 3303, 3304, 3305, 3306, 3307, and 3308, from the 2015 International Building Code into the 2016 California Building Code with existing amendments as follows. HCD proposes to not adopt Sections 3309, 3310, 3311, 3312 and 3313.

**CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION**

**SECTION 3304
SITE WORK**

3304.1.5 (HCD 1) Storm water drainage and retention during construction. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.1.

**SECTION 3305
SANITARY**

3305.1 Facilities required. Sanitary facilities shall be provided during construction, remodeling or demolition activities in accordance with the *International California* Plumbing Code.

**SECTION 3306
PROTECTION OF PEDESTRIANS**

3306.2 Walkways. A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be accessible in accordance with ~~Chapter 11~~ **Chapter 11A** and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m²).

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

41. HCD proposes NOT to adopt Chapter 34 from the 2015 International Building Code.

**CHAPTER 34
RESERVED**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

42. HCD proposes to repeal and not bring forward the existing California amendments from the 2013 California Building Code, Chapter 34 into the 2016 California Building Code.

**CHAPTER 34
EXISTING STRUCTURES**

**SECTION 3401
GENERAL**

3401.1 Scope. The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing buildings and structures.

~~*[HCD 1] In addition to the requirements in this chapter, maintenance, alteration, repair, addition, or change of occupancy to existing buildings and accessory structures under the authority of the Department of Housing and Community Development, as provided in Section 1.8.2.1.1, shall comply with California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1.*~~

Exceptions:

1. Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300-02.
2. ~~*[HCD 2] For moved buildings and maintenance, alteration, repair, addition, or change of occupancy to existing*~~

~~buildings and accessory structures in mobilehome parks or special occupancy parks as provided in Section 1.8.2.1.3. See California Code of Regulations, Title 25, Division 1, Chapters 2 and 2.2.~~
~~3. [HCD 1] Limited-density owner-built rural dwellings.~~

3401.4.1 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building code official to be unsafe per Section 116.

~~[HCD 1] Local ordinances or regulations shall permit the replacement, retention and extension of original materials, and the use of original methods of construction, for any building or accessory structure, provided such building or structure complied with the building code provisions in effect at the time of original construction and the building or accessory structure does not become or continue to be a substandard building. For additional information, see Health and Safety Code Sections 17912, 17920.3, 17922(d), 17922.3, 17958.8 and 17958.9.~~

SECTION 3404 ALTERATIONS

3404.1 General. Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building or structure was prior to the alteration.

Exceptions: (No change to text)

~~**3404.1.1 Replacement, retention and extension of original materials.** [HCD 1] Local ordinances or regulations shall permit the replacement, retention and extension of original materials, and the use of original methods of construction, for any building or accessory structure, provided such building or structure complied with the building code provisions in effect at the time of original construction and the building or accessory structure does not become or continue to be a substandard building. For additional information, see Health and Safety Code Sections 17912, 17920.3, 17922(d), 17922.3, 17958.8 and 17958.9.~~

SECTION 3405 REPAIRS

3405.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3405 and 3401.2. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

~~**3405.1.2 Replacement, retention and extension of original materials.** [HCD 1] Local ordinances or regulations shall permit the replacement, retention and extension of original materials, and the use of original methods of construction, for any building or accessory structure, provided such building or structure complied with the building code provisions in effect at the time of original construction and the building or accessory structure does not become or continue to be a substandard building. For additional information, see Health and Safety Code Sections 17912, 17920.3, 17922(d), 17922.3, 17958.8 and 17958.9.~~

SECTION 3410 MOVED STRUCTURES

3410.1 Conformance. Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.

~~**Exception:** [HCD 1 & HCD 2] After July 1, 1978, local ordinances or regulations for moved apartment houses and dwellings shall permit the retention of existing materials and methods of construction, provided the apartment house or dwelling complies with the building standards for foundations applicable to new construction and does not become or continue to be a substandard building. For additional information, see Health and Safety Code Section 17958.9.~~

43. HCD proposes to adopt Chapter 35 from the 2015 International Building Code into the 2016 California Building Code with new and existing amendments as follows:

**CHAPTER 35
REFERENCED STANDARDS**

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in *Chapter 1, Scope and Administration, Division I, Sections 1.1.5 and 1.1.7, and in Chapter 1, Scope and Administration, Division II, Section 102.4, as applicable.*

ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959	
Standard Reference number	Title	Referenced in code section number
A227 – 06 (2011)	Standard Specification for Steel Wire, Cold-Drawn for Mechanical Springs	1211.1.1
A229 - 12	Standard Specification for Steel Wire, Quenched and Tempered for Mechanical Springs	1211.1.1
ICC	International Code Council 500 New Jersey Avenue, NW 6th Floor Washington, DC 20001	
Standard Reference Number	Title	Referenced in code section number
ICC/ANSI A117.1—09	Accessible and Usable Buildings and Facilities	202, 907.5.2.3.3, 1009.8.2, 1009.9, 1009.11, 1010.1.9.7, 1012.1, 1012.6.5, 1012.10, 1013.4, 1023.9, 1101.2, 1111.2, 1111.3, 1111.4, 1111.4.2
ICC 300-12	ICC Standard on Bleachers, Folding and Telescopic Seating and Grandstands	1029.1.1, Table 1607.1
ICC 400-12	Standard on Design and Construction of Log Structures	2301.2
ICC 500—14	ICC/NSSA Standard on the Design and Construction of Storm Shelters	202, 423.1, 423.3, 423.4
ICC 600-14	Standard for Residential Construction in High Wind Regions	1609.1.1, 1609.1.1.1, 2308.2.1
IEBC – 15	International Existing Building Code	101.4.7, 116.5, 201.3
IECC-15	International Energy Conservation Code®	101.4.6, 201.3, 202, 1203.1, 1301.1.1, 1405.3
IFC-15	International Fire Code®	101.4.5, 102.6, 201.3, 202, 307.1, Table 307.1(1), Table 307.1(2), 307.1.1, 307.1.2, 403.4.5, 404.2, 406.7, 406.8, 407.2.6, 407.4, 410.3.6, 411.1, 412.1, 412.6.1, 413.1, 414.1.1, 414.1.2, 414.1.2.1, 414.2, 414.2.5, Table 414.2.5(1), Table 414.2.5(2), 414.3, 414.5, 414.5.1, Table 414.5.1, 414.5.2, 414.5.3, 414.5.4, 414.6, 415.1,

		415.6, 415.6.1, 415.6.1.1, 415.6.1.4, Table 415.6.2, 415.7.3, 415.8.2, 415.9, 415.9.1, 415.9.1.3, 415.9.1.4, 415.9.1.6, 415.9.1.7, 415.9.1.8, 415.9.2, 415.9.3, 415.10, 415.11, 415.11.1.7, 415.11.4, 415.11.7.2, 415.11.9.3, 415.11.10.1, 416.1, 416.4, 421.1, 422.3.1, 426.1.4, Table 504.3, Table 504.4, Table 506.2, 507.4, 507.8.1.1.1, 507.8.1.1.2, 507.8.1.1.3, 705.8.1, 707.1, 901.2, 901.3, 901.5, 901.6.2, 901.6.3, 903.1.1, 903.2.7.1, 903.2.11.6, 903.2.12, 903.5, 904.2.1, 904.12.3, 905.1, 905.3.6, 906.1, 907.1.8, 907.2.5, 907.2.13.2, 907.2.15, 907.2.16, 907.6.5, 907.8, 909.20, 910.2.2, 1001.3, 1001.4, 1010.1.9.6, 1203.5.2, 1203.6, 1507.16, 1512.1, Table 1604.5, 2603.4.1.12, 2702.1, 2702.1.2, 2702.2.3, 2702.2.8, 2702.2.9, 2702.2.11, 2702.2.12, 2702.2.13, 2702.4, 3003.3, 3008.1.2, 3102.1, 3103.1, 3111.1, 3111.1.1, 3302.3, 3303.7, 3309.2
IFGC 15	International Fuel Gas Code®	101.4.1, 201.3, Table 307.1(1), 415.9.2, 2113.11.1.2, 2113.15, 2801.1
IMC 15	International Mechanical Code®	401.4.2, 201.3, 307.1.1, Table 307.1(1), 406.6.2, 406.8.2, 406.8.4, 409.3, 412.6.6, 414.1.2, 414.3, 415.8.1.4, 415.8.2, 415.8.2.7, 415.8.3, 415.8.4, 415.10.11, 415.10.11.1, 416.2.2, 413.3, 416.3, 417.1, 419.8, 421.5, 603.1, 603.1.1, 603.1.2, 712.1.6, 717.2.2, 717.5.3, 717.5.4, 717.6.1, 717.6.2, 717.6.3, 718.5, 720.1, 720.7, 903.2.11.4, 904.2.1, 904.11, 907.3.1, 908.6, 909.1, 909.10.2, 909.13.1, 1006.2.2.3, 1011.6, 1020.5.1, 1203.1, 1203.2.1, 1203.5.2, 1203.5.2.1, 1203.6, 1209.3, 2801.1
IPC 15	International Plumbing Code®	101.4.3, 201.3, 415.9.3, 603.1.2, 718.5, 903.3.5, 904.12.1.3, 912.6, 1206.3.3, 1503.4, 1503.4.1, 1805.4.3, 2901.1, Table 2902.1, 3305.1, A101.2
IPMC 15	International Property Maintenance Code®	401.4.4, 102.6, 103.3
IPSDC 15	International Private Sewage Disposal Code®	101.4.3, 2901.1
IRC 15	International Residential Code®	101.2, 305.2.3, 308.3.4, 308.4.2, 308.6.4, 310.1, 310.5.1, 310.5.2, 2308.1, 3401.3

IWUIC 15	International Wildland Urban Interface Code™	Table 1505.4
SBCCI SSTD 11-97	Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles	1504.2.1.1, 1504.2.1.2
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471	
Standard Reference Number	Title	Referenced in code section number
720 – 15	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment	<u>915.4.1, 915.5.1, 915.5.2,</u> <u>915.5.6, 915.5.7</u> 420.6, 915.1.6.1, 915.1.6.2
UL	Underwriters Laboratories, Inc. 333 Pfingsten Road Northbrook, IL 60062-2096	
Standard Reference Number	Title	Referenced in code section number
2034	Single and Multiple Station Carbon Monoxide Alarms effective August 1, 2009	420.4
2034 - 2008	Standard for Single- and Multiple Station Carbon Monoxide Alarms with revision through February 2009	420.6, 915.4.2, 915.4.3
2075 - 2013	Standard for Gas and Vapor Detectors and Sensors	420.6 421.6.2, 406.8.5.1.1, 915.5.1, 915.5.3

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

44. HCD proposes NOT to adopt Appendix A from the 2015 International Building Code.

APPENDIX A EMPLOYEE QUALIFICATIONS

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690,

18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

45. HCD proposes NOT to adopt Appendix B from the 2015 International Building Code.

APPENDIX B BOARD OF APPEALS

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

46. HCD proposes NOT to adopt Appendix C from the 2015 International Building Code.

APPENDIX C GROUP U – AGRICULTURAL BUILDINGS

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

47. HCD proposes NOT to adopt Appendix D from the 2015 International Building Code.

APPENDIX D FIRE DISTRICTS

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

48. HCD proposes NOT to adopt Appendix E from the 2015 International Building Code.

**APPENDIX E
SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

49. HCD proposes NOT to adopt Appendix F from the 2015 International Building Code.

**APPENDIX F
RODENTPROOFING**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

50. HCD proposes NOT to adopt Appendix G from the 2015 International Building Code.

**APPENDIX G
FLOOD-RESISTANT CONSTRUCTION**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

51. HCD proposes NOT to adopt Appendix H from the 2015 International Building Code.

**APPENDIX H
SIGNS**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

52. HCD proposes to adopt Appendix I from the 2015 International Building Code into the 2016 California Building Code without amendments.

**APPENDIX I
PATIO COVERS**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

53. HCD proposes to adopt Appendix J from the 2015 International Building Code into the 2016 California Building Code with new amendment as follows:

**APPENDIX J
GRADING**

**SECTION J104
PERMIT APPLICATION AND SUBMITTALS**

J104.1 Submittal requirements. In addition to the provisions of Sections 105.3 *or* 1.8.4, *as applicable*, the applicant shall state the estimated quantities of excavation and fill.

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

54. HCD proposes NOT to adopt Appendix K from the 2015 International Building Code.

**APPENDIX K
ADMINISTRATIVE PROVISIONS**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

55. HCD proposes NOT to adopt Appendix L from the 2015 International Building Code.

**APPENDIX L
EARTHQUAKE RECORDING INSTRUMENTATION**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

56. HCD proposes NOT to adopt Appendix M from the 2015 International Building Code.

**APPENDIX M
TSUNAMI-GENERATED FLOOD HAZARD**

NOTE:

Authority Cited: Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11 and 19990; and Government Code Section 12955.1.

Reference: Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT

REGARDING PROPOSED CHANGES TO
CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2, VOLUME 1**

LEGEND FOR EXPRESS TERMS

1. Existing California amendments or code language being modified are in italics when they appear in the model code text: All such language appears in *italics*, modified language is underlined.
2. New California amendments: All such language appears underlined and in italics.
3. Repealed text: All such language appears in ~~strikeout~~.

INITIAL EXPRESS TERMS

**CHAPTER 1
SCOPE AND ADMINISTRATION
DIVISION I
CALIFORNIA ADMINISTRATION**

Carry forward existing California Chapter 1, Division I of the 2013 California Building Code (CBC) for OSHPD 1, 2, 3 & 4.

**DIVISION II
SCOPE AND ADMINISTRATION**

Adopt only those sections of the 2015 International Building Code (IBC) Chapter previously adopted and carry forward existing amendments of the 2013 California Building Code (CBC) for OSHPD 1, 2, 3 & 4 with the following modifications:

PART 1 – SCOPE AND APPLICATION

**SECTION 101
GENERAL**

...

[A] 101.4.6 Energy. The provisions of the *California Energy Code* shall apply to all matters governing the design and construction of buildings for energy efficiency.

~~**Exception:** [OSHPD 1, 2, & 4] Not required by OSHPD.~~

...

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5
Reference: Health and Safety Code Section 129850

**CHAPTER 2
DEFINITIONS**

Adopt entire 2015 International Building Code (IBC) Chapter and carry forward existing amendments of the 2013 California Building Code (CBC) for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 6 TYPES OF CONSTRUCTION

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 8 INTERIOR FINISHES

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 9 FIRE PROTECTION SYSTEMS

Adopt entire 2015 International Building Code (IBC) Chapter without amendments for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 10 MEANS OF EGRESS

Adopt entire 2015 International Building Code (IBC) Chapter and carry forward existing amendments of the 2013 California Building Code (CBC) for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1226, 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 11 ACCESSIBILITY

Entire Chapter not adopted for OSHPD 1, 2, 3, & 4.

NOTATION:

Authority: Health and Safety Code Sections 1226, 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 12 INTERIOR ENVIRONMENT

Adopt entire 2015 International Building Code (IBC) Chapter and carry forward existing amendments of the 2013 California Building Code (CBC) for OSHPD 1, 2, 3 & 4 with the following modifications:

SECTION 1210 TOILET AND BATHROOM REQUIREMENTS

...
1210.2 Finish materials. Walls, floors and partitions in toilet and bathrooms shall comply with Sections 1210.2.1 through 1210.2.4.

[OSHPD 1, 2 & 3] Facilities subject to OSHPD 1, 2, & 3 shall also comply with Section 1224.4.11.

[OSHPD 4] Facilities subject to OSHPD 4 shall also comply with Section 1227.9.

...

SECTION 1224 [OSHPD 1] HOSPITALS

1224.1 Scope. ...

1224.2 Application. New buildings and additions, alterations or repairs to existing buildings subject to licensure shall comply with applicable provisions of the California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code (Parts 3, 4, 5, 6 and 9 of Title 24) and this section.

Exceptions:

1. ...
2. *A change in function shall require compliance with all the functional requirements for new construction in this code, including requirements in Sections 1224, 1225, 1226, and 1227.*
2. *3. The provisions of this section do not prohibit the use of alternate space utilization...*
3. *4. Nothing in this section ...*
4. *5. Acute psychiatric hospitals ...*
5. *6. When the Corrections Standards Authority ...*

...

1224.3 Definitions

Specific terms and definitions are provided to facilitate consistency in the interpretation and application of these requirements. Some of these terms may have a broader definition in other contexts, but the definitions provided here reflect the use of the terms for OSHPD requirements.

...

CHANGE IN FUNCTION. A change in function is a change in activity, service or licensed service provided, within the project limits, that does not necessarily change the use, specific use, and/or occupancy. Conversion of a space that results in a change in activity such that the space will be required to satisfy the functional space requirements under a different code sub-section than that of the prior use is considered a change in function.

...

CLEAR DIMENSION. An unobstructed room dimension exclusive of built-in casework and equipment and available for functional use.

...

LOCATION TERMINOLOGY (terms for relationship to an area or room)

IN. Located within the identified area or room.

DIRECTLY ACCESSIBLE. Connected to the identified area or room through a doorway, pass-through, or other opening without going through an intervening room or public space.

ADJACENT. Located next to but not necessarily connected to the identified area or room.

IMMEDIATELY ACCESSIBLE. Available either in or adjacent to the identified area or room.

READILY ACCESSIBLE. Available on the same floor as the identified area or room.

...

OPERATING ROOM. A room specifically designed for the performance of surgical procedures. (In common understanding, this means most types of surgical procedures, especially those involving the administration of anesthesia, multiple personnel, recovery room access, and a fully controlled environment.

HYBRID OPERATING ROOM. A room that meets the definition of an operating room and is also equipped to enable diagnostic imaging before, during, and after surgical procedures. Imaging equipment is permanently installed in the room and may include MRI, fixed single-plane and bi-plane tomographic imaging systems, and computed tomographic equipment. **Note:** Use of portable imaging technology does not make an operating room a hybrid operating room.

...

PATIENT CARE LOCATIONS

BAY (patient). A space for human occupancy with one hard wall at the headwall and three soft walls (e.g., cubicle curtains or portable privacy screen).

CUBICLE. A space intended for human occupancy that has at least one opening and no door and is enclosed on three sides with full-height or partial-height partitions.

PATIENT CARE STATION. A designated space for a specific patient care function. This term does not imply any structural requirement (e.g., a Post-anesthesia Care Unit (PACU)) can have 10 patient care stations of which three are rooms, three are cubicles, and four are bays).

...

ROOM. A space enclosed by hard walls and having a door. Where the word "room" or "office" is used, a separate, enclosed space for the one named function is intended. Otherwise, the described area may be a specific space in another room or common area.

...

1224.4 GENERAL CONSTRUCTION.

1224.4.1 Services/systems and utilities. See Section 3416A or 3424 for single-story light frame skilled-nursing facilities and intermediate care facilities.

1224.4.2 Environmental engineering and support Service spaces. ...

1224.4.4 Support areas for patients patient care. Identifiable spaces shall be provided for each function indicated in all Basic and applicable Supplemental Service Space sections with requirements for support areas. The following rooms and spaces are common to most types of health care facilities and the requirements associated with each, as listed below, shall be used unless modified under a specific Service Space section.

Relocate Section 1224.14.2.1 "Administrative center(s) or nurse station(s)" to Section 1224.4.4.2 and re-number "Specimen and blood collection facilities" as new Section 1224.4.4.3:

1224.4.4.2 Administrative center(s) or nurse station(s). This area shall have space for counters and storage and ~~shall have convenient access to handwashing fixtures~~ at least one hand-washing station shall be located in, adjacent to, or directly accessible to the administrative center or nurse station. It may be combined with or include centers for reception, charting and communication.

1224.4.4.3 1224.4.4.2 Specimen and blood collection facilities.

1224.4.4.3.1 1224.4.4.2.1 Specimen collection facilities.

Relocate Section 1224.14.2.8 "Medication station" to new Section 1224.4.4.4 and format as a list:

1224.4.4.4 Medication station. Provision shall be made for distribution of medications. This shall be done from a medication preparation room or from a self-contained dispensing unit.

1224.4.4.4.1 Medication preparation room. If provided, this room shall be directly accessible from the nursing station. ~~It shall contain a work counter, handwashing fixture, refrigerator, and locked storage for controlled drugs.~~ When a medicine preparation room is to be used to store one or more self-contained medicine dispensing units, the room shall be designed with adequate space to prepare medicines with the self-contained medicine dispensing unit(s) present. Medicine preparation rooms shall include:

1. Work counter.
2. Handwashing station.
3. Refrigerator.
4. Locked storage for controlled drugs.

1224.4.4.4.2 Self-contained medication dispensing unit. If provided, a self-contained medicine dispensing unit shall be located at the nurses' station, in the clean utility room, or in an alcove.

Relocate Section 1224.14.2.10 "Nourishment area" to new Section 1224.4.4.5 and format as a list:

1224.4.4.5 Nourishment area or room. ~~There shall be a nourishment area with~~ Nourishment areas or rooms required in patient care areas shall include the following:

1. Sink
2. Work counter
3. Refrigerator
4. Storage cabinets, ~~and~~
5. Equipment for hot and cold nourishment between scheduled meals.
6. The nourishment shall include space for trays and dishes used for nonscheduled meal service.
7. Provisions and space shall be included for separate temporary storage of unused and soiled dietary trays not picked up at mealtime.
8. Handwashing fixtures separate from the nourishment sink shall be in or adjacent to the nourishment area.

Relocate Section 1224.14.2.6 "Clean utility room" to new Section 1224.4.4.6 and format as a list:

1224.4.4.6 Clean utility/workroom. The clean workroom or clean supply room shall be separate from and have no connection with the soiled workroom or soiled holding room. If the room is used for preparing patient care items, it shall contain the following:

1. ~~a w~~Work counter
2. ~~a h~~Handwashing station fixture, ~~and~~
3. ~~s~~Storage facilities for clean and sterile supplies

1224.4.4.6.1 Clean supply room. If the room is used only for storage and holding as part of a system for distribution of clean and sterile materials, the work counter or a handwashing station may be omitted. Soiled and clean utility or holding rooms shall be separated and have no direct connection.

Relocate Section 1224.14.2.7 "Soiled workroom or soiled holding room" as new Section 1224.4.4.7 and format as a list:

1224.4.4.7 Soiled utility/workroom or soiled holding room. ~~This~~ The soiled workroom or soiled holding room shall be separate from and have no connection with either the clean workrooms or clean supply rooms. The soiled workroom utilities utility/workroom shall contain a

1. ~~e~~Clinical sink (or equivalent flushing-rim fixture). ~~The room shall contain~~
2. ~~a h~~Handwashing station fixture. ~~The above fixtures shall both have a hot and cold mixing faucet. The room shall have~~
3. ~~a w~~Work counter ~~and~~
4. ~~s~~Space for separate covered containers for soiled linen and/or waste.

1224.4.4.7.1 Soiled holding room. Rooms used only for temporary holding soiled material may omit the clinical sink and work counter. If the flushing-rim clinical sink is eliminated, facilities for cleaning bedpans shall be provided elsewhere.

Amend Section 1224.4.5 with defined terms added to Section 1224.3.

1224.4.5 Outpatient waiting rooms. Waiting rooms for outpatients shall provide a seating area and space for wheelchairs and have public corridor access. ~~to, or provisions for, p~~Public toilets, drinking fountains and telephone shall be readily accessible.

Amend Section 1224.6.3 and Table 1224.4.6.1 "Station Outlets for Oxygen, Vacuum (Suction), and Medical Air":

1224.4.6 Miscellaneous requirements.

1224.4.6.3 Hyperbaric facilities. The design and construction of hyperbaric facilities shall conform to NFPA 99: Health Care Facilities and Section 1224.39.5.

**TABLE 1224.4.6.1
STATION OUTLETS FOR OXYGEN, VACUUM (SUCTION), AND MEDICAL AIR^{1, 6}**

	LOCATION	OXYGEN	VACUUM	MEDICAL AIR
21	Not used <u>Endoscopy procedure room</u>	<u>1/room</u>	<u>3/room</u>	=
...
36	Autopsy room	-	1 per workstation	-
37	MRI	1/room	1/room	1/room
<u>38</u>	<u>Interventional imaging procedure room</u>	<u>2/room</u>	<u>2/room</u>	<u>1/room</u>
<u>39</u>	<u>Hyperbaric suite pre-procedure/patient holding area</u>	<u>2/station</u>	<u>2/station</u>	=
<u>40</u>	<u>Electroconvulsive therapy procedure room</u>	<u>1/room</u>	<u>1/room</u>	=

**TABLE 1224.4.6.5
[OSHPD 1, 2, 3 & 4] LOCATION OF NURSE CALL DEVICES**

KEY: ● Required

Area Designation	Patient Station	Bath Station	Staff Emergency Station	Code Call Station	Nurse Master Station	Duty Station	Notes
<u>Nursing Units</u>							
Patient toilets, showers, and baths		●					2
<u>Patient toilets, showers, and baths</u>		●					<u>2</u>
<u>Inpatient Nursing Unit bed location</u>	●	●					1, 2, 3, 4
Critical care bed locations, including NICU	●		●	●			1, 2, 4, 5
LDR/LDRP rooms	●		●	●			1, 2, 3, 4
Newborn and special care nurseries			●	●			
Examination/treatment room			●			●	
<u>Support Areas</u>							
Nurse/control station					●		
Medication preparation room						●	
Clean workroom						●	
Soiled workroom						●	

Staff lounge						•	
Other Clinical Areas Diagnostic & Treatment Areas							
Psychiatric seclusion ante/exam rooms			•				
Operating and cesarean delivery rooms			•				2
Emergency exam, treatment, triage rooms	•		•	•			1, 2, 4
Observation unit patient station			•				
Operating and cesarean delivery rooms			•				2
Preoperative patient care area preparation and holding areas	•		•				1, 2
Recovery—PACU			•	•			2, 4
MRI, CT, stress testing areas			•	•			2, 4
Diagnostic radiology, fluoroscopy and ultrasound procedure room			•				2
Cardiac catheterization, interventional imaging radiology, angiography			•	•			
Nuclear medicine procedure room Endoscopy procedure room			•				2
Electroconvulsive therapy procedure room			•				

Notes

1. One device shall be permitted to accommodate both patient station and emergency staff assistance station functionality.
2. A visible signal shall be activated in the corridor at the patient's door, at the nurse/control station, and at all duty stations. In multi-corridor nursing units, additional visible signals shall be installed at corridor intersections.
3. Two-way voice communication shall be provided with the nurse/control station. **Exception:** Skilled nursing facilities.
4. One device shall be permitted to accommodate both emergency staff assistance and code call station functionality.
5. A patient station shall not be required in the NICU.

Add subsection 1224.4.8:

1224.4.7 Corridors.

1224.4.7.5 Connections. Corridor systems shall connect all patient rooms and basic services.

Exception: Covered pedestrian walkways connecting separate buildings are permitted for ambulatory, psychiatric or chemical dependency patients.

1224.4.7.6 Departmental boundaries. Department/service space areas shall be contiguous and include internal circulation to access each of the rooms/spaces associated with it, as identified under the specific Service Space requirements.

Amend Section 1224.4.9.1:

1224.4.9 Windows and screens.

1224.4.9.1 Windows. Rooms approved for the housing of patients shall be provided with natural light by means of exterior glazed openings excluding clerestory windows, obscure glass and skylights, with an area not less than one tenth of the total floor area.

Exception: Newborn intensive care units shall also comply with Section 1224.29.2.13-12 Daylight.

Relocate Section 1224.5 "Noise Control" as new Section 1224.4.19:

1224.5 ~~Reserved NOISE CONTROL~~...

1224.4.19 Noise Control.

1224.4.19.1 ~~1224.5.1 Impact noises.~~ Recreation rooms, exercise rooms, equipment rooms and similar spaces where impact noises may be generated, shall not be located directly over patient bed areas or delivery and operating suites, unless special provisions are made to minimize such noise.

1224.4.19.2 ~~1224.5.2 Noise reduction.~~ The noise reduction criteria shown in Table 1224.5 1224.4.19 shall apply to partitions, floors, and ceiling construction in patient areas.

Relocate "Table 1224.4 SOUND TRANSMISSION LIMITATION IN ACUTE CARE GENERAL HOSPITALS" to new Section 1224.4.19:

**TABLE ~~1224.5~~ 1224.4.19
SOUND TRANSMISSION LIMITATIONS
IN ACUTE CARE GENERAL HOSPITALS**

1224.14 NURSING SERVICE SPACE.

1224.14.1.6 Handwashing stations fixtures. A handwashing ~~station fixture~~ shall be provided in the patient room. This handwashing station shall be located at or adjacent to the entrance to the patient room with unobstructed access for use by health care personnel and others entering and leaving the room. Water spouts used shall have clearances adequate to avoid contaminating utensils and the contents of carafes, etc. In multiple-bed rooms the handwashing ~~station fixture~~ shall be located outside of the patient's cubicle curtain so that it is immediately accessible to staff. Where renovation of patient rooms is undertaken a handwashing ~~station fixture~~ shall be located in the patient toilet room or patient room.

1224.14.2 Service areas. Unless otherwise indicated, provision for the services listed below shall be in or immediately ~~readily~~ accessible to each nursing unit. ...

1224.14.2.1 Administrative center(s) or nurse station(s). ~~This area shall have space for counters... charting and communication.~~ Administrative center(s) or nurse station shall be provided in accordance with Section 1224.4.4.2.

1224.14.2.2 Nurse or supervisor office(s).

1224.14.2.4 Multipurpose room(s). Multipurpose rooms shall be provided for staff, patients, patients' families for conferences, reports, education, training sessions, and consultation. These rooms must be readily accessible to each nursing unit. ~~They may be on other floors if convenient for regular use.~~ One such room may serve several nursing units and/or departments.

1224.14.2.6 Clean utility/workroom. ~~If the room is used for preparing patient care items... shall be separated and have no direct connection.~~ Clean utility/workroom shall be provided in accordance with to Section 1224.4.4.6.

1224.14.2.7 Soiled workroom or soiled holding room. ~~This room shall be separate from the clean utility room... facilities for cleaning bedpans shall be provided elsewhere.~~ Soiled workroom or soiled holding room shall be provided in accordance with Section 1224.4.4.7.

1224.14.2.8 Medication station. ~~Provision shall be made for distribution of medications... self-contained medicine dispensing unit.~~ Medication station shall be provided in accordance with Section 1224.4.4.4.

~~1224.14.2.8.1 Medicine preparation room....~~

~~1224.14.2.8.2 Self-contained medicine dispensing unit....~~

1224.14.2.10 Nourishment area. ~~There shall be a nourishment area with sink... in or adjacent to the nourishment area.~~ A nourishment area or room shall be provided in accordance with Section 1224.4.4.5.

1224.14.2.14 Showers and bathtubs. When individual bathing facilities are not provided in patient rooms, there shall be at least one shower and/or bathtub for each 12 beds without such facilities. Each bathtub or shower shall be in an individual room or enclosure that provides privacy for bathing, drying, and dressing.

1224.14.2.14.1 Special bathing facilities. Special bathing facilities, including space for attendant, shall be provided for patients on gurneys, carts, and wheelchairs at the ratio of one per 100 beds or a fraction thereof. This The special bathing facility may be located in a nursing unit on a separate floor if convenient for use.

1224.14.2.15 Patient toilet room(s). ~~Common patient toilet room(s).~~ in addition to those serving bed areas, shall be conveniently located adjacent to multipurpose room(s) and within, or directly accessible to, each central bathing facility.

1224.14.3.6 Adjoining toilet room. Each isolation room shall have its own directly accessible adjoining toilet room with an emergency nurse call system, a lavatory, a shower providing a seat or a space for a shower chair and a toilet equipped with a bedpan flushing attachment with a vacuum breaker.

Amend Section 1224.15:

1224.15 Surgical service space. SURGICAL SERVICE SPACE. ...

1224.15.1 General. A minimum of one operating room and one recovery bed is required. The surgical service space shall be divided into two designated areas: 1) semi-restricted areas (e.g. storage areas for clean and sterile supplies, sterile processing rooms, scrub stations, and corridors leading to restricted areas of the surgical suite, etc.); and 2) restricted areas (e.g. operating rooms, hybrid operating rooms, sterile procedure rooms, cardiac catheterization labs, etc.) that can be reached only through a semi-restricted area. The surgical service space shall be located and arranged to provide direct support from the anesthesia/recovery service space with a common door to and to prevent nonrelated traffic through the surgical service space.

An operating room suite design with a sterile core shall provide for no cross traffic of staff and supplies from decontaminated/soiled areas to the sterile/clean areas. The use of facilities outside the operating room for soiled/decontaminated processing and clean assembly and sterile processing shall be designed to move the flow of goods and personnel from dirty to clean/sterile without compromising universal precautions or aseptic techniques in ~~both~~ either departments.

Exception: Surgical service space is not required in a rural general acute care hospital ... approved by the Department of Public Health, Licensing and Certification.

1224.15.1 1224.15.2 Surgery.

~~1224.15.1.1~~ **1224.15.2.1 General operating room(s).** ~~In new construction, e~~Each room shall have a minimum clear floor area of 400 square feet (37.16 m²) with a minimum of 20 feet (6096 mm) clear dimension between fixed cabinets and built-in shelves; and a system for emergency communication. X-ray or imaging viewing capabilities shall be provided.

Exception:

4. Where renovation of existing operating rooms is undertaken in facilities built under the 2001 or prior California Building Code, each operating room shall have a minimum clear floor area of 324 square feet (30.10 m²) with a minimum of 18 feet (5486 mm) clear dimension between fixed cabinets and built-in shelves.
- ~~2. For shelled floor spaces built under the 2001 or prior California Building Code, each existing operating room shall have a minimum clear floor area of 324 square feet (30.10 m²) with a minimum of 18 feet (5486 mm) clear dimension between fixed cabinets and built-in shelves.~~

~~1224.15.1.2~~ **1224.15.2.2 Surgical cystoscopic and other endo-urologic procedures.** ~~In new construction e~~Each room shall have a minimum clear floor area of 250 square feet (23.23 m²) with a minimum of 15 feet (4572 mm) clear dimension between fixed cabinets and built-in shelves. X-ray viewing and/or other imaging modality capability capabilities shall be provided.

Exception:

4. Where renovation of existing operating rooms is undertaken in facilities built under the 2001 or prior California Building Code, rooms for surgical cystoscopy shall have a minimum clear floor area of 180 square feet (16.72 m²). Cast rooms for open reductions, if provided, shall have a minimum clear floor area of 180 square feet (16.72 m²), no dimension of which shall be less than 11 feet (3353 mm).
- ~~2. For shelled spaces built under the 2001 or prior California Building Code, each surgical cystoscopy shall have a minimum clear floor area of 180 square feet (16.72 m²). Cast rooms for open reductions, if provided, shall have a minimum floor area of 180 square feet (16.72 m²), no dimension of which shall be less than 11 feet (5486 mm).~~

1224.15.2 Preoperative patient holding area(s). ~~In facilities with two or more operating rooms...Provisions for patient privacy such as cubicle curtains shall be provided.~~

1224.15.3.3 Sub-sterile areas. If provided within the surgery suite, a sub-sterile area(s) shall be equipped with a flash sterilizer, warming cabinet, countertop, and handwashing station fixture. If a sterilizing facility(ies) with high-speed sterilizer(s) or other sterilizing equipment for immediate or emergency use are provided, they shall be directly accessible from the operating room(s) it serves or shall be located inside the clean core if the clean core is directly accessible from the operating room(s). This room shall be accessible without traveling through any operating room, grouped to service several operating rooms for convenient, efficient use; and a work space and handwashing fixture shall be included. Other facilities for processing and sterilizing reusable instruments, etc., may be located in another hospital department such as central sterile supply services.

1224.15.3.4 Medication station. A medication station ~~S~~shall be provided in accordance with Section ~~4224.14.2.8~~ 1224.4.4.4.

Amend Section 1224.16.1:

1224.16 ANESTHESIA / RECOVERY SERVICE SPACE

1224.16.1 General Post-anesthetic care units (PACUs). ~~Each PACU shall contain a medication station in accordance with Section 1224.14.2.8; handwashing fixtures; nurse control with charting facilities; clinical sink, refrigerator, provisions for bedpan cleaning; and storage space for gurneys, supplies, and equipment. Additionally, the design shall provide a minimum of 80 square feet (7.43 m²) for each patient position with a clearance of at least 5 feet (1524 mm) between patient gurneys and a minimum of 4 feet (1218 mm) between the sides and the foot of patient gurneys and adjacent walls or any other fixed obstructions. Provisions for patient privacy such as cubical curtains shall be made. In new construction, at least one door to the recovery room shall access directly from the surgical service space without crossing public corridors. Handwashing fixtures shall be provided with at least one for every four gurneys uniformly distributed to provide equal access from each patient gurney. The anesthesia/recovery service space shall provide perioperative support services to the surgical service space as required under this section. Perioperative services shall include preoperative patient care and post-operative recovery with a Post-Anesthesia Care Unit (PACU). The anesthesia/recovery service space shall be located adjacent to the surgical service space with direct access to the surgical suite's semi-restricted corridor.~~

Exception: In a rural general acute care hospital, when the surgical service space is not required, the anesthesia/recovery service space is not required. The hospital must maintain written transfer agreements with one or more general acute care hospitals that provide surgical and anesthesia services. Written transfer agreements shall be approved by the Department of Public Health, Licensing and Certification.

Relocate Section 1224.15.2 as new Section 1224.16.2:

1224.16.2 Preoperative patient care area. In facilities with two or more operating rooms, area(s) with patient care stations shall be provided to accommodate gurney patients or sitting space for ambulatory patients not requiring gurneys. The preoperative area is an unrestricted area and These area(s) shall be under direct visual control of the nursing staff and may be part of the recovery service space. If the preoperative patient care area will serve other purposes, such as overflow PACU or holding area, applicable requirements in Section 1224.16.3 PACU shall be met.

1224.16.2.1 Space requirements. Each gurney station shall be have a minimum clear floor area of 80 square feet (7.43 m²); and shall have a minimum clearance of 3 feet (9133 mm) on shall be provided between the sides and foot of patient lounge chairs/gurneys and foot of the gurney adjacent walls, partitions or fixed elements.

1224.16.2.2 Patient privacy. Provisions for patient privacy such as cubicle curtains shall be made.

1224.16.2.3 Handwashing stations. Handwashing station(s) shall be provided in the preoperative service area at a ratio of one for each 4 stations in open bay areas. A handwashing station shall be provided in each single care station room.

1224.16.3 Recovery and Post-Anesthesia Care Unit (PACUs). The recovery area and Post-Anesthesia Care Unit is an unrestricted area and located such that at least one door to the recovery room shall provide access directly from the surgical service space without crossing unrestricted corridors. A minimum of 1.5, or major fraction thereof, post-anesthesia care stations per operating room shall be provided. If pediatric surgery is provided, pediatric recovery stations shall be provided. They shall be separate from adult stations, and shall include space for family or visitors and be visible from the nurse station.

1224.16.3.1 Space requirements. A minimum of 4 feet (1218 mm) clearance shall be provided between the sides and the foot of patient gurneys, or beds, and adjacent walls or other fixed elements. A minimum clear floor area of 80 square feet (7.43 m²) shall be provided for each station in an open-bay plan. A minimum clearance of 5 feet (1524 mm) shall be provided between

patient gurneys or beds, and a minimum of 3 feet (914 mm) clearance shall be provided between the foot of the gurney or bed, to a closed cubicle curtain.

1224.16.3.2 Patient privacy. Provisions for patient privacy such as cubicle curtains shall be made.

1224.16.3.3 Handwashing stations. Handwashing stations shall be provided in the post-anesthesia care unit with at least one for every four patient positions uniformly distributed to provide equal access from each patient station. A handwashing station shall be provided in each single care station room.

1224.16.4 Reserved.

1224.16.5 Support areas for patient care

1224.16.5.1 Administrative area / nurse station. A nurse station shall be provided in postoperative patient care areas, and shall allow direct observation of the patients and charting facilities. The nurse station shall comply with the requirements of Section 1224.4.4.2.

1224.16.5.2 Clinical sink. A clinical sink shall be provided in postoperative patient care areas with provisions for bedpan cleaning.

1224.16.5.3 Medication station. Each Post-Anesthesia Care Unit shall contain a medication station. The medication station shall comply with the requirements of Section 1224.4.4.4.

1224.16.5.4 Ice-making. Ice-making equipment shall be provided in the perioperative service space. Ice-making equipment is permitted to be located in preoperative or postoperative patient care areas, however, it shall not be located in semi-restricted areas.

1224.16.5.5 Storage. Storage shall be provided for gurneys, supplies and equipment.

1224.16.6 Support areas for staff. Staff toilet rooms shall be immediately accessible to the postoperative patient care area(s) to maintain staff availability to patients.

1224.16.7 Support areas for patients, families, and visitors.

1224.16.7.1 Waiting area A waiting area, in compliance with Section 1224.4.5, shall be provided.

1224.16.7.2 Patient change area. A changing area shall be provided for outpatient use in perioperative areas in support of surgical suites that provide outpatient procedures. The changing area shall include space for changing or gowning, provisions for storing patients' belongings during the procedure, and access to patient toilet(s).

1224.18 RADIOLOGICAL/DIAGNOSTIC IMAGING SERVICE SPACE. Space and equipment shall be provided to accommodate all required elements, and any additional imaging modalities included in the service space, as required in this section. If interventional or image-guided procedures are performed in the imaging services area, additional provisions shall be as described in Section 1224.28 Supplemental Surgery and other Special Procedure Services. If nuclear medicine is provided in the imaging services area, spaces shall also comply with the requirements described in Section 1224.34 Nuclear Medicine.

1224.18.1 Minimum requirements. Hospital shall provide a minimum of:

3. A toilet room shall adjoining and be directly accessible to each fluoroscopy room, in addition to the fluoroscopy toilet rooms, other common patient toilet room facilities shall be located adjacent to or in the radiological/diagnostic imaging service space immediate vicinity.

...

6. Handwashing stations ~~fixtures~~ located within the unit.

1224.18.2 Angiography. ...

1224.18.2.1 Interventional angiography procedures. If interventional angiography procedures are to be performed in the angiography room, the suite ~~must~~ shall comply with ~~general operating room interventional imaging requirements in Section 1224.15.1.1~~ 1224.28.4 and ~~have the support of the service areas in Section 1224.15.3.~~ If cardiac catheterization procedures are performed refer to Section 1224.28.2.

1224.18.3 Computerized tomography (CT) scanning. ...

1224.18.3.1 Spaces required. ...

1224.18.3.2 Intraoperative computerized tomography. If provided, intraoperative CT scanning spaces shall comply with Section 1224.28.5.

...

1224.18.4 Magnetic resonance imaging (MRI). ...

1224.18.4.1 ~~Handwashing~~ Hand-washing station. Handwashing ~~Hand-washing~~ station(s) shall be ~~provided convenient~~ immediately accessible to the MRI scanner room, ~~but need not be within the room.~~

...

1224.18.4.6 Intraoperative magnetic resonance imaging. If provided, the intraoperative magnetic resonance imaging (iMRI) suite shall comply with Section 1224.28.5.

...

1224.18.7.2 Patient dressing rooms ~~areas~~. Dressing rooms ~~areas~~ shall be provided ~~convenient~~ adjacent to the imaging rooms.

...

1224.19 PHARMACEUTICAL SERVICE SPACE

1224.19.1.2 Location. Provide for ~~convenient~~ immediate accessibility to staff toilet rooms and lockers.

1224.20 DIETETIC SERVICE SPACE

1224.20.2.3 Storage.

1. Food storage spaces shall be ~~convenient~~ readily accessible to the receiving area and shall be located to exclude traffic through the food preparation area to reach them. Storage spaces for bulk, refrigerated, and frozen foods shall be provided. At least one week's (7 days) supply of staple foods and at least two (2) days' supply of frozen, and two (2) days' supply of perishable foods shall be maintained on the premises. Food storage components shall be grouped for convenient access from receiving and to the food preparation areas. All food shall be stored clear of the floor. Lowest shelf shall be not less than 12 inches (305 mm) above the floor or shall be closed in and sealed tight for ease of cleaning.
- ...
4. Waste storage and recycling facilities (per local requirements) shall be located in a separate room ~~easily~~ immediately accessible to the outside for direct pickup or disposal.

1224.20.2.5 Food preparation workspaces. Provide workspaces for food preparation, cooking, and baking. These areas shall be as close as possible to the user (i.e. tray assembly and dining). Provide additional spaces for thawing and portioning.

1224.20.2.6 Assembly and distribution. ~~Provide a~~ The patient tray assembly area and locate within close proximity shall be immediately accessible to the food preparation and distribution areas.

1224.20.2.10 Ware-washing facilities. ...

3. ~~Convenient~~ Handwashing stations shall be provided in the ware-washing space.

1224.20.2.12 Waste storage room. A food waste storage room shall be ~~conveniently located~~ readily accessible to the food preparation and ware washing areas but not within the food preparation area. It shall have direct access to the hospital's waste collection and disposal facilities.

1224.20.2.15 Toilet rooms and locker spaces. Toilet rooms shall be provided for the exclusive use of the dietary staff. They shall not open directly into the food preparation areas, but shall be ~~in close proximity~~ readily accessible to them. An enclosed, separate locker area shall be provided for dietetic service employee's clothing and personal belongings.

...
1224.23 STORAGE.

1224.23.1 General storage. Hospitals shall provide general storage space of at least 20 square feet (1.86 m²) per bed in addition to specialized storage spaces. All storage spaces shall be located within the hospital building and readily accessible to the connecting corridor required under Section 1224.4.7.5 on the site of the facility.

...
1224.28 SUPPLEMENTAL SURGERY AND SPECIAL PROCEDURE SERVICES. When provided, the following supplemental surgery and special procedure services shall meet the requirements below:

1224.28.1 Cardiovascular and other special procedures. When provided, the cardiovascular room shall have a minimum clear floor area of 650 square feet (60.39 m²), with a minimum of 20 feet (6090 mm) clear dimension. Orthopedic surgical and other special procedure rooms shall have a minimum clear floor area of 600 square feet (55.74 m²), with a minimum of 20 feet (6090 mm) clear dimension. When open-heart surgery is performed, an additional room in the restricted area of the surgical service space ~~preferably adjoining~~ that is directly accessible to this operating room, shall be designated as a pump room where extra corporeal pump(s), supplies and accessories are stored and serviced. Appropriate plumbing and electrical connections shall be provided in the cardiovascular, pump, and storage rooms.

1224.28.2 Cardiac catheterization.

1224.28.2.1 Procedure room. A procedure room with a minimum clear floor area of 400 square feet (37.16 m²) for the procedure room in addition to spaces for control, monitoring and recording equipment, and x-ray power and controls, and a minimum of one scrub sink for each catheterization laboratory. This space does not include the control room.

1224.28.2.1.1 Emergency response space. Where electrophysiology studies are performed, dedicated space and equipment for emergency resuscitation and stabilization shall be immediately accessible to the procedure room.

1224.28.3 Freestanding cardiac catheterization laboratory service space. ...

1224.28.4 Interventional imaging. Image-guided interventional procedures shall be performed in procedure rooms in compliance with this section. Cardiac catheterization operating rooms shall be in compliance with Section 1224.28.2, and hybrid operating rooms shall be in compliance with Section 1224.28.5.

1224.28.4.1 Space requirements. The procedure room shall meet the space, clearance, and storage requirements for the imaging equipment contained in the room and the following:

1. A minimum clear dimension of 18 feet (5486 mm).
2. The procedure room shall also be sized to allow a minimum clearance of 4 feet (1219 mm) on all sides of the procedure table.

1224.28.4.2 Pre-procedure and recovery. Pre-procedure and recovery areas shall be immediately accessible to procedure rooms and separate from corridors. The pre-procedure and recovery areas shall comply with the requirements of Section 1224.16 Anesthesia/recovery Service Space.

1224.28.4.3 Interventional MRI facilities. Interventional and intraoperative magnetic resonance imaging (I-MRI) procedure rooms shall comply with Section 1224.28.5 Hybrid Operating Rooms.

1224.28.4.4 Control room or area. A control room or area shall be provided.

1. The control room or area shall be sized to accommodate the image-recording and viewing equipment.
2. A shielded view window permitting direct observation of the patient from the control console shall be provided.
3. The shielded control room shall be configured to prevent radiation exposure into occupied areas of the control room when ionizing radiation modalities are used.
4. Where the procedure room requires positive (or negative) pressure, a door shall be provided between the control room and the procedure room or between the combined control room/procedure room and other adjacent space.
5. Where control functions for ionizing radiation exposures take place in the procedure room, storage for personal radiation protection devices shall be provided.

1224.28.4.5 Scrub facilities. Scrub sinks shall be located outside of sterile areas. A minimum of one scrub sink station shall be provided for each interventional imaging procedure room. Scrub sinks shall have water supply controls not requiring direct contact of the hands for operation.

1224.28.4.6 Medication station. A medication station shall be provided in compliance with the requirements in Section 1224.4.4.4.

1224.28.4.7 Reading room. A reading room for reviewing images shall be available for use by the interventional imaging suite.

1224.28.4.8 Electrical equipment room. Electronic equipment or enclosures large enough to contain x-ray transformers, power modules, and associated electronics and electrical gear shall be provided. Sharing of electronics equipment rooms by multiple procedure rooms is permitted.

1224.28.4.9 Clean utility room. A clean utility room shall be provided in accordance with the requirements in Section 1224.4.4.6.

1224.28.4.10 Soiled workroom. A soiled workroom shall be provided in accordance with Section 1224.4.4.7.

1224.28.4.11 Housekeeping room. A housekeeping room shall be provided in accordance with the requirements of Section 1224.4.15.

1224.28.4.12 Staff changing areas. Staff changing areas shall be provided and arranged to ensure a traffic pattern so that personnel can enter from outside the suite, change their clothing, and move directly into the semi-restricted corridor within the interventional imaging suite.

1224.28.5 Hybrid operating room(s). Hybrid operating rooms shall comply with the requirements of Section 1224.15 and comply with the requirements in this section.

1224.28.5.1 Space requirements. Each hybrid operating room shall meet the space, clearance, and storage requirements for the imaging equipment contained in the room and the following:

1. A minimum clear floor area of 650 square feet (60.39 m²) is required for a hybrid operating room unless the imaging equipment requires a larger area.
2. The minimum clear dimension shall be 24 feet (7315 mm) unless the requirements for the specific imaging equipment require a greater distance.
3. If mobile storage units are used in lieu of fixed cabinets, the minimum clear dimension shall be available between such units when they are parked against a permanent partition.

1224.28.5.2 Control room. If required, a control room shall be provided that accommodates the imaging system control equipment and the following requirements:

1. The control room shall have a minimum clear floor area of 120 square feet (11.15 m²), which may include fixed work surfaces.
2. The room shall be physically separated from the hybrid operating rooms with walls and a door.
3. The room shall have viewing windows that provide for a full view of the patient and the surgical team.
4. If the control room is adjacent to a restricted area, it must be physically separated from the restricted area with walls and a door.

1224.28.5.3 Imaging equipment room. An imaging equipment room shall be provided for each hybrid operating room.

1224.28.5.4 Radiation protection. If the imaging equipment emits ionizing radiation, protection shall be provided in accordance with Section 1224.18.1.1.

1224.28.5.5 Requirements for specific types of hybrid operating rooms.

1224.28.5.5.1 CT. Hybrid operating rooms with intraoperative computerized tomography (CT) systems shall have control rooms that comply with Section 1224.18.3.1.

1224.28.5.5.2 iMRI. Hybrid operating rooms with intraoperative magnetic resonance imaging (iMRI) systems shall comply with the following:

1. Space and configuration requirements in Section 1224.18.4, except the clearances shall meet the requirements of 1224.28.5.1.
2. The control room shall comply with Section 1224.18.4, Item 1.
3. The anteroom shall comply with Section 1224.18.4.2.
4. Entry doors to iMRI hybrid rooms shall swing outward from inside the room.

1224.28.5.5.3 Vascular imaging. Hybrid operating rooms with vascular imaging systems shall comply with Section 1224.28.4.4.

1224.28.5.6 Pre-procedure and recovery. Pre-procedure and recovery areas shall be immediately accessible to procedure rooms and separate from corridors. The pre-procedure and recovery areas shall comply with the requirements of Section 1224.16 (Anesthesia/recovery Service Space).

...

1224.28.6 Electroconvulsive Therapy. If electroconvulsive therapy (ECT) is provided, the requirements of this section shall be met. Where a psychiatric unit is part of a general acute care hospital (Section 1224.31 Psychiatric Nursing Unit), all the requirements in this section shall be permitted to be accommodated in a procedure suite that complies with the requirements in this section or in an operating room in a surgical suite that meets the requirements in Section 1224.15.

1224.28.6.1 General. The ECT procedure area may be a single procedure room or a suite of procedure rooms.

1224.28.6.2 ECT procedure room.

- 1. Space requirements.** Each ECT procedure room shall have a minimum clear floor area of 200 square feet (18.6 m²) with a minimum clear dimension of 14 feet (4267 mm)
- 2. Handwashing station.** A handwashing station shall be provided.
- 3. Documentation area.** Accommodation for written or electronic documentation shall be provided.

1224.28.6.3 Pre-procedure and recovery area. When ECT services have a low-volume of procedures, the ECT procedure room may be used for pre-procedure patient care and recovery. If a pre-procedure and recovery areas are provided they shall comply with the requirements of Section 1224.16.

1224.28.6.4 Emergency equipment storage. Space shall be provided in the procedure room(s) for storage of emergency equipment such as a CPR cart. A separate emergency equipment storage is permitted to serve more than one ECT procedure room.

1224.28.6.5 Patient support areas. A waiting area and changing area shall be provided for outpatient use in perioperative areas in support ECT suites that provide outpatient procedures. The waiting room shall comply with Section 1224.4.5. The changing area shall include space for changing or gowning, provisions for storing patients' belongings during the procedure, and access to patient toilet(s).

...

1224.29 INTENSIVE CARE UNITS

1224.29.1.7 Handwashing stations fixtures. Handwashing stations fixtures shall be directly accessible convenient to nurse stations and patient bed areas. There shall be at least one handwashing station fixture for every three beds in open plan areas, and one in each patient room. The handwashing station fixture shall be located near the entrance to the patient cubicle or room.

1224.29.1.12 Medication station. A medication station shall be provided in accordance with Section 1224.4.4.4 1224.14.2-8.

1224.29.1.14 Additional service spaces. The following additional service spaces shall be immediately accessible available within each intensive service space. These may be shared by more than one intensive care unit provided that direct access is available from each.

...

1224.29.1.14.5 Ice machine. ~~Each unit There shall be available have~~ equipment to provide ice for treatments and nourishment. Ice-making equipment may be in the clean utility room or at the nourishment station. Ice intended for human consumption shall be from self-dispensing icemakers.

1224.29.1.15 Support. The following shall be provided and shall be located immediately adjacent accessible to the unit:

...

1224.29.2.5 Control station. A central area shall serve as a control station, and shall have space for counters and storage, and ~~shall have convenient~~ direct access to a handwashing station fixture. It may be combined with or include centers for reception, and communication and patient monitoring.

1224.29.2.10.4 Commercial infant formula. Where a commercial infant formula is used, omission of the separate cleanup and preparation rooms shall be permitted, and storage and handling in the NICU workroom or another appropriate room that is ~~conveniently~~ readily accessible at all hours shall be permitted. The preparation area shall have the following:

...

1224.30 PEDIATRIC AND ADOLESCENT UNIT. ...

1224.30.3.2 Infant formula. Space for preparation and storage of infant formula shall be provided ~~within~~ immediately accessible to the unit ~~or other convenient location~~.

1224.30.3.3 Toilet rooms. Patient toilet room(s) with a lavatory in each room, in addition to those serving bed areas, shall be ~~conveniently~~ located adjacent to play area(s) and in or directly accessible to each central bathing facility.

1224.32 OBSTETRICAL FACILITIES (PERINATAL UNIT SPACE)

1224.32.3.7 Recovery room(s) (LDR or LDRP rooms may be substituted). Each recovery room shall contain at least two beds and have a nurse ~~control~~ station, with charting facilities, located to permit visual ~~control~~ observation of all beds. Each room shall include a handwashing station fixture and a medication station. A clinical sink with bedpan flushing device shall be directly accessible available, as shall storage for supplies and equipment. Provide visual privacy of the new family.

...

1224.32.3.8.1 Services. ...

...

2. Soiled workroom or soiled holding room. See Section 1224.4.4.7 ~~1224.14.2.7~~.

...

1224.32.3.8.2 Shared services. ...

...

1224.32.3.8.2.2 Waiting room. This room shall have toilet rooms(s), telephone(s) and drinking fountains(s) that are immediately accessible ~~conveniently located~~. The toilet rooms(s) shall contain a lavatory.

1224.32.3.8.2.5 Clean utility room. A clean utility room shall be provided if clean materials are assembled within the obstetrical service space prior to use. If a clean utility room is provided see Section 1224.4.4.6 ~~1224.14.2.6~~.

1224.32.3.8.2.6 Storage

1. Clean sterile storage area readily accessible available to the delivery room.

1224.32.3.8.2.9 Staff lounge. Lounge and toilet room facilities for obstetrical staff ~~convenient shall be readily accessible~~ to cesarean operating room(s), delivery room(s), labor room(s) and recovery room(s). Each toilet room shall contain a handwashing station fixtures.

1224.32.5.1 General. Infants shall be housed in nurseries that comply with the standards below. All nurseries shall be adjacent immediately accessible to the postpartum unit and obstetrical facilities. The nurseries shall be located and arranged to preclude the need for unrelated traffic. No nursery shall open directly onto another nursery. Each nursery shall contain the following:

...

1224.32.5.1.3 Lactation. A consultation/demonstration/breast feeding or pump room shall be provided ~~convenient in a location that is readily accessible~~ to the nursery. Provisions shall be made, either within the room or ~~conveniently located nearby~~ immediately accessible to the room, for a sink, counter, refrigeration and freezing, storage for pump and attachments, and educational materials. ~~The This area provided for the unit for these purposes, when conveniently located,~~ may be shared between units.

1224.33 EMERGENCY SERVICE.

1224.33.1 Definition. Levels of emergency care range from initial emergency management as Standby Emergency Medical Service, with a Physician on call; to definitive emergency care as Basic Emergency Medical Service, with a Physician on duty; to a Comprehensive Emergency Medical Service as an Emergency Department.

1224.33.2 Standby ~~e~~Emergency ~~m~~Medical ~~s~~Service. If provided, initial emergency management shall be provided in a specifically designated area of the hospital which shall include the following elements:

1224.33.2.1 Exterior entrance. A well-marked, illuminated and covered entrance at grade level. The emergency vehicle cover shall provide shelter for both the patient and the emergency medical crew during transfer from an emergency vehicle into the building. This exterior entrance shall not be substituted for the required accessible entrance to the hospital, protected from the weather by canopy or roof overhang assigned for passengers loading zone. Ambulance entrances shall provide a minimum of 6 feet (183 mm) in clear width to accommodate bariatric stretchers, mobile patient lift devices, and accompanying attendants. ~~Reception, triage and control station~~ shall be located to permit staff observation and control of access to treatment area, pedestrian and ambulance entrances, and public waiting area.

1224.33.2.2 Treatment room. Standby emergency service shall include at least one treatment room with the following elements:

1. The area shall not be less than 120 square feet (11.15 m²) of clear floor area, exclusive of toilet room(s), waiting area and storage.
2. Each treatment room shall contain an examination light, work counter, and ~~handwashing fixtures station.~~
3. ~~m~~Medical equipment, cabinets, medication storage and counter space for writing.
4. The dimensions and arrangement of treatment rooms shall be such that there is a minimum of 3 feet (914 mm) between the sides and foot of the bed/gurney and any wall or any other fixed obstruction. The treatment room may have additional space and provisions for several patients with cubicle curtains for privacy.
5. ~~Multiple-bed station~~ treatment rooms shall provide a minimum of 80 square feet (7.43 m²) per patient gurney, with a minimum 8 foot width (2,438 mm) and 3 feet (914 mm) at the foot of the bed/gurney, with a minimum of 5 feet (1524 mm) between patient gurneys. Patient gurneys shall be separated from adjoining cubicles by curtains. Handwashing fixtures shall be provided for each four treatment stations or major fraction thereof in multiple-station areas.

Exceptions:

- 4- Where renovation of existing treatment rooms is undertaken in facilities approved under the 2001 or prior California Building Code, existing treatment rooms may be renovated, or replaced in kind one for one in the renovated space. Such treatment rooms shall have no less than 80 square feet (7.43 m²) of clear floor area, the least dimension of which shall be 8 feet (2438 mm).
- 2- ~~For shelled spaces approved under the 2001 or prior California Building Code as future emergency service space, treatment rooms, shall have no less than 80 square feet (7.43 m²) of clear floor area per bed, with a minimum dimension of 8 feet (2438 mm).~~

1224.33.2.3 Storage. Equipment and supply storage shall be provided and shall be sized for general medical/surgical emergency supplies, medications and equipment such as ventilator, defibrillator, splints, etc. This storage shall be located in an alcove or room, out of corridor or hallway traffic, and under staff control.

1224.33.2.4 Lobby. Provisions for reception, control, and public waiting, including a public toilet room(s) with handwashing fixture(s), and public telephone.

1224.33.2.5 Toilet room(s). Patient toilet room(s) with handwashing fixture(s) convenient to shall be immediately accessible to the treatment room(s).

1224.33.2.6 Communication. ~~A~~Communication hookup connections to the Poison Control Center and local EMS system shall be provided.

1224.33.2.7 Observation area. A patient cubicle with a minimum clear floor area of 100 square feet (9.29 m²) shall be provided under the visual control of an emergency service staff work area. The patient station shall have space at bedside for visitors and shall have provision for visual privacy from casual observation by other patients and visitors. A handwashing station shall be located in each room, and at least one handwashing station shall be provided for every four patient stations, or major fraction thereof, in open-bay areas.

Exception: For small and rural hospitals, the observation area need not be dedicated solely for that purpose.

1224.33.2.78 Airborne infection isolation exam/treatment room. If provided, the airborne infection isolation exam/treatment room shall comply with the requirements of Section 1224.29.1.13 1224.4.4.1.3 except for separate toilet room, bathtubs, or shower.

1224.33.3 Basic eEmergency mMedical sService. When 24-hour basic emergency service is to be provided, at a minimum, all the provisions of Standby Emergency Service under Section 1224.33.2 and the following shall be provided:

1224.33.3.1 Exterior entrance. In addition to the requirements of Section 1224.33.2.1, Grade-level well marked, illuminated, and covered entrance with the emergency entrance shall have direct access from public roads for ambulance and vehicle traffic conforming with the requirements of the local authorities having jurisdiction. Entrance and driveway shall be clearly marked. If a raised platform is used for ambulance discharge, provide a ramp for pedestrian and wheelchair access.

1224.33.3.2 Patient access. Paved emergency access shall be provided to permit discharge of patients from automobiles and ambulances, and temporary parking convenient to the entrance.

1224.33.3.3 Reception, triage, and control station(s). This area shall be located to permit staff observation and control of access to treatment areas, pedestrian and ambulance entrances, and public waiting area.

1224.33.3.4 Wheelchair and gurney storage. Storage for wheelchairs and gurneys for arriving patients shall be located out of circulation paths with convenient access from to emergency entrances.

1224.33.3.5 Public waiting area, with toilet room facilities, drinking fountains, and telephone. A public waiting area shall be provided in compliance with Section 1224.4.5 and include provision of public toilet room(s), drinking fountains, and telephone adjacent to the waiting area, dedicated to, and within, the Emergency Service Space.

1224.33.3.6 Examination and or treatment room(s). Examination and treatment rooms shall meet the requirements under Section 1224.33.2.2. Shall have a minimum clear floor area of 120 square feet (11.15 m²). The room shall contain work counter(s); cabinets; handwashing fixtures; and a vision panel adjacent to and/or in the door. The dimensions and arrangement of examination and treatment rooms shall be such that there is a minimum of 3 feet (914 mm) between the sides and foot of the bed/gurney and any wall or any other fixed obstruction. When treatment cubicles are in open multi bed areas, each cubicle shall have a minimum of 80 square feet (7.43 m²) of clear space with a minimum 8 foot (2438 mm) width and 3 feet (914 mm) at the foot of the bed, with a minimum of 5 feet (1524 mm) between patient gurneys, and shall be separated from adjoining cubicles by curtains. Handwashing fixtures shall be provided for each four treatment cubicles or major fraction thereof in multiple bed areas.

Exceptions:

1. Where renovation of existing examination or treatment room(s) is undertaken in facilities approved under the 2001 or prior California Building Code, existing examination or treatment rooms may be renovated, or replaced, in kind one for one in the renovated space. Such examination or treatment rooms shall have no less than 80 square feet (7.43 m²) of clear floor area, the least dimension of which shall be 8 feet (2438 mm).
2. For shelled spaces approved under the 2001 or prior California Building Code as future Emergency Service space, examination or treatment room(s) shall have no less than 80 square feet (7.43 m²) of clear area, the least dimension of which shall be 8 feet (2438 mm).

1224.33.3.7 Trauma/cardiac rooms. These rooms are for emergency procedures, including emergency surgery, and shall have at least 250 square feet (23.23 m²) of clear floor space. A minimum clearance of 5 feet (152 mm) shall be provided around all sides of the procedure table or gurney. Each room shall have cabinets and emergency supply shelves, image viewing capability, examination lights, and counter space for writing. Additional space with cubicle curtains for privacy may be provided to accommodate more than one patient at a time in the trauma room with a minimum clear floor area of 200 square feet (18.58 m²) for each patient bay defined by the privacy curtains. There shall be storage provided for immediate access to attire used for universal precautions. Doors leading from the ambulance entrance to the cardiac trauma room shall have an opening with a minimum width of 5 feet (1524 mm). At least one scrub sink shall be located outside the entrance to each trauma room. One scrub station consisting of two scrub positions is permitted to serve two trauma rooms if located adjacent to the entrance of each procedure room. The placement of scrub sinks shall not restrict the minimum required corridor width.

1224.33.3.8 Orthopedic and cast work. Provisions may be made in separate room(s) or in the trauma room. At least one orthopedic or cast room shall be provided within the emergency service space. They Provisions shall include storage for splints and other orthopedic supplies, traction hooks, image viewing capability, and examination lights. If a sink is used for the disposal of plaster of paris, a plaster trap shall be provided. The clear floor space for this area shall be a minimum of 180 square feet (16.7 m²).

1224.33.3.9 Poison Control and EMS communications center. Communication connections shall be provided as required under Section 1224.33.2.6. The communications center may be a

part of the staff work and charting area.

1224.33.3.10 Emergency equipment storage space. Equipment and supply storage shall be provided as required under Section 1224.33.2.3.

1224.33.3.11 Patients' toilet rooms. A patient toilet room with a lavatory shall be immediately accessible to the treatment room(s). Where there are more than eight treatment stations areas, a minimum of two toilet rooms, with a lavatory in each toilet room, shall be required.

1224.33.3.12 Storage. Provide rooms for clean, soiled or used supplies.

1224.33.3.12.1 Soiled workroom or soiled holding. See Section 1224.4.4.744.2.7. This room is for the exclusive use of the emergency service space.

1224.33.3.12.2 Clean utility room. See Section 1224.4.4.644.2.6.

1224.33.3.13 Administrative center or nurses' station for staff work and charting. These areas shall have space for counters, cabinets, and medication storage, and shall have convenient access to be provided with handwashing fixtures stations. They may be combined with or include centers for reception and communication.

1224.33.3.14 Staff lounge. A staff lounge shall be located within the Emergency Department and include staff clothing change areas with lockers, showers, toilets and handwashing stations for male and female staff.

1224.33.3.15 Housekeeping room. A housekeeping room, compliant with Section 1224.4.15, shall be located within the unit and dedicated to the emergency service space directly accessible from the unit.

1224.33.3.16 Airborne infection isolation exam/treatment room. If provided shall comply with the requirements of Section 1224.29.1.13 1224.4.4.1.3 except for separate toilet room, bathtubs or shower.

1224.33.3.17 Secured holding room. If provided, shall have at least one holding/seclusion room of 120 square feet (11.15 m²). This room shall allow for security, patient and staff safety, patient observation and sound proofing. When a secure holding room is provided, it shall meet the following requirements. The location of the secure holding room(s) shall facilitate staff observation and monitoring of patients in these areas. The secure holding room shall have a minimum clear floor area of 60 square feet (5.57 square meters) with a minimum wall length of 7 feet (2.13 meters) and a maximum wall length of 11 feet (3.35 meters). This room shall be designed to prevent injury to patients:

1. All finishes, light fixtures, vents, diffusers, and fire protection/alarm components shall be tamper resistant and ligature resistant.
2. There shall not be any electrical outlets, medical gas outlets, or similar devices.
3. There shall be no sharp corners, edges, or protrusions, and the walls shall be free of objects or accessories of any kind.
4. Patient room doors shall swing out and shall have hardware on the exterior side of the door only. The minimum width shall be 44 inches (1120 mm).
5. A small impact-resistant view panel or window shall be provided in the door for discreet staff observation of the patient.

1224.33.4 Comprehensive Emergency Medical Service. When 24-hour comprehensive emergency service is to be provided, an Emergency Department shall be provided. At a minimum, all the provisions of Stand-by Emergency Service under Section 1224.33.2, the provisions of Basic Emergency Service under Section 1224.33.3, and all of the following shall be provided:

1224.33.4.1 Triage stations. In addition to the requirements of Section 1224.33.3.3, the triage area shall include triage station(s) with the following minimum requirements:

1. 100 square feet (9.29 m²) minimum clear floor area for each private triage room and 80 square feet (7.4 m²) minimum clear floor area for each station in open-bay triage areas.
2. Provisions for patient privacy.
3. Handwashing station in each triage room. In open-bay triage areas, one handwashing station shall be provided for every four triage stations.
4. Immediate access to emergency call and code call stations.
5. Medical gas outlets for triage areas in compliance with Table 1224.4.6.1.

1224.33.4.2 Fast-track area. A fast-track area may be used for treating patients presenting simple and less serious conditions. If a fast-track area is provided, it shall meet the following requirements:

1. Space requirements – each fast-track station shall have a minimum 100 square feet (9.29 m²) of clear floor area.
2. Each station shall include a handwashing station, work/documentation counter, examination table light.
3. Storage areas for supplies and medication.
4. A separate procedure room may be provided. It shall have a minimum clear floor area of 120 square feet (11.15 m²).

1224.33.4.3 Pre-screening stations. A pre-screening area may be used prior to admission to the Emergency Department. If pre-screening is provided, each station must have a minimum of 80 square feet (7.4 m²) of clear floor area, a handwashing station, documentation counter, and a storage cabinet. Pre-screening stations, whether private rooms or open bays, are considered a part of the waiting area and must meet the same ventilation requirements.

1224.33.4.4 Diagnostic service areas. Radiological/Imaging services shall be readily accessible. The Emergency Department shall be supported by Clinical Laboratory services. A STAT lab may be provided within the emergency medical service space in addition to more comprehensive support provided by the Clinical Lab.

1224.33.4.5 On-call room(s). Provisions shall be made to accommodate on-call sleeping room(s) for physicians and/or medical staff within the Emergency Department.

1224.33.4.6 Police and press room. Provisions shall be made to accommodate police briefing/debriefing and press releases. This may be located outside the Emergency Department.

1224.33.5 1224.33.4 Other space considerations.

1224.33.4.5.1 Observation units. Observation rooms for the monitoring of patients up to 24 hours may be provided as a distinct unit within the emergency department. If provided the unit shall have the following:

1. Handwashing fixtures stations shall be provided in each patient room or for each four treatment cubicles stations, or major fraction thereof. Handwashing fixtures stations shall be convenient directly accessible to nurse stations and patient bed care areas.
2. Each patient bed-area station shall have a minimum of 120 square feet (11.15 m²) of clear floor area including space at each bedside for visitors and provision for visual privacy from casual observation by other patients and visitors.
3. One toilet room shall be provided for each eight-six treatment cubicles stations, or major fraction thereof.
4. An administrative center/nurse station, in compliance with Section 1224.4.4.2, positioned to allow staff to observe each patient care station or room.

5. A nourishment area in compliance with Section 1224.4.4.5. sink, work counter, refrigerator, storage cabinets.

1224.34 NUCLEAR MEDICINE

1224.34.1 General. If nuclear medicine is provided, the following shall be provided:

1224.34.1.1 Radiation Protection. ...

1224.34.1.2 Nuclear medicine room. Shall be sSized to accommodate the equipment and a gurney. -Provide a handwashing fixture.

When provided, the following facilities shall meet the requirements below:

1224.34.1.2.1 Scintigraphy (Gamma Camera) Facilities. Shall include the following:

1. Scanner room. The scanner room shall provide a minimum clearance of 4 feet (1218 mm).at each side and the foot of the table.
2. Handwashing stations shall be provided throughout the gamma camera suite at locations of patient contact and at locations where radiopharmaceutical materials are handled, prepared, or disposed of.

1224.34.1.2.2 Positron Emission Tomography (PET). Shall include the following:

1. Scanner room shall provide a minimum clearance of 4 feet (1218 mm) at each side and the foot of the table. Additional space shall be provided when PET is combined with CT, and include compliance with Section 1224.18.3 and shielding requirements in Section 1224.34.1.1.
2. Cyclotron room. Where radiopharmaceuticals are prepared on-site, a cyclotron shall be provided. Cyclotron facilities shall be located in access-restricted areas. Shielding requirements for cyclotron facilities shall comply with Section 1224.34.1.1.
3. Control room. A control room shall be provided with a full direct view of the patient in the PET scanner.
4. Patient uptake/cool-down room. A shielded room with access to a dedicated patient toilet, to accommodate radioactive waste, and lavatory shall be provided.
5. Handwashing stations shall be provided throughout the PET suite at locations of patient contact and at locations where radiopharmaceutical materials are handled, prepared, or disposed of.
6. Pre-procedure patient care and recovery area shall be provided to accommodate at least two stretchers. This area shall comply with Section 1224.34.2.6.
7. Computer equipment room shall be provided in support of the equipment provided.
8. Contaminated (hot) soiled holding shall be provided and operationally integrated to minimize incidental exposure to ionizing radiation.

1224.34.1.2.3 Single-Photon Emission Computed Tomography (SPECT) Facilities.

When provided shall include the following:

1. Scanner room. Scanner room shall provide a minimum clearance of 4 feet (1218 mm) at each side and the foot of the table.
2. Control room. A control room shall be provided with a full direct view of the patient in the SPECT scanner.
3. Computer equipment room shall be provided in support of the equipment provided.
4. Handwashing stations shall be provided throughout the SPECT suite at locations of patient contact and at locations where radiopharmaceutical materials are handled, prepared, or disposed.

...

1224.34.2 Support areas for nuclear medicine services. ...

1224.34.2.2 Cleanup. Provisions for cleanup shall be located within the service space and be readily accessible for convenient access and use. ~~It~~ They shall include a service sink or floor receptacle as well as storage space for equipment and supplies.

...

1224.34.2.5 Dose administration area. ~~Provide and locate near a dose administration area that is immediately accessible to the preparation area.~~ Since as much as several hours may elapse for the dose to take effect, the area shall provide visual privacy from other areas.

1224.34.2.6 Pre-procedure/Holding area. A pre-procedure/holding area for patients on gurneys or beds shall be provided out of traffic and under control of staff and may be combined with the dose administration area with visual privacy between the areas.

1224.34.2.7 Patient dressing rooms. ~~Located convenient~~ Patient dressing rooms shall be immediately accessible to the waiting area and procedure rooms. Each dressing room shall include a seat or bench, a mirror, and provisions for hanging patients' clothing and for securing valuables.

1224.34.2.8 Patient toilet room(s). Patient toilet rooms shall be ~~Reserved~~ for nuclear medicine patients and shall be ~~located convenient~~ directly accessible to the nuclear medicine laboratory.

1224.34.2.9 Staff toilet rooms(s). Staff toilet rooms ~~shall be located convenient~~ readily accessible to the nuclear medicine laboratory.

...

1224.34.2.14 Hot lab for scintigraphy (gamma camera), PET, and SPECT facilities. A securable area or room shall be provided in which radiopharmaceuticals can be safely stored and doses can be calculated and prepared.

1. A single hot lab shall be permitted to serve multiple scanners and nuclear medicine modalities.
2. The hot lab shall be shielded in compliance with Section 1224.34.1.1.
3. A source storage area, a dose area, and a storage area for syringe shields shall be provided.

1224.34.3 Radiotherapy service space.

1224.34.3.1 Radiation therapy space. If radiation therapy is provided, the following shall be accommodated:

- ...
5. Direct access to or space provided for radiation measurement and calibration equipment, including a calibration constancy instrument and access to a secondary standard dose meter.
- ...
- 5.3 Direct access to or space provided for brachytherapy equipment which shall meet the requirements of Chapter 31C and the California Radiation Control Regulations, California Code of Regulations, Title 17, Division 1, Chapter 5, Subchapter 4.
- ...

1224.34.3.3 Room sizes. Rooms shall be sized as follows:

1. Cobalt rooms and linear accelerators shall be sized in accordance with equipment requirements and shall accommodate a gurney for litter borne patients. Layout shall provide for preventing the escape of radioactive particles. Openings into the room, including doors, ductwork, vents and electrical raceways and conduits, shall be baffled to prevent direct exposure to other areas of the facility.
2. Simulator, accelerator and cobalt rooms shall be sized to accommodate the equipment

with patient access on a gurney, medical staff access to the equipment and patient, and service access.

3. Where a table is used, the room shall be sized to provide a minimum clearance of 4 feet (1218 mm) on three sides of the table to facilitate bed transfer and provide access to the patient. The door swing shall not encroach on the equipment space, patient circulation space, or transfer space.
4. Minimum room size shall be 260 square feet (24.15 m²) for the simulator room; 680 square feet (63.17 m²), including the maze, for accelerator rooms; 200 square feet (18.58 m²) for brachytherapy rooms; and 450 square feet (41.81 m²) for cobalt rooms.

1224.34.3.4 General support area. ...

1. A gurney hold area ...
2. Exam or treatment room ...

Exceptions:

1. ...
2. ...
3. Darkroom is optional. If provided, shall be convenient readily accessible to the treatment room(s).
4. Patient gowning ...
5. Film files area ...

1224.34.5 Additional support areas for cobalt room.

1224.34.5.1 Hot lab. Hot lab. A hot lab shall be provided in accordance with Section 1224.34.2.14.

1224.34.6 High dose rate brachytherapy room. Radiosurgery suite. If radiosurgery (gamma knife/cyber knife) is provided, the following shall be provided:

1224.34.6.1 General. The radiosurgery suite shall be located near the imaging services suite to facilitate image acquisition prior to radiosurgery treatment. Location of gamma knife or cyber knife treatment rooms in a radiation therapy suite shall be permitted.

1224.34.6.2 Radiosurgery treatment rooms. Radiosurgery (gamma knife/cyber knife) treatment rooms shall provide a minimum clearance of 4 feet (1218 mm) shall be provided on all sides of the treatment table/chair. The door shall not encroach on the equipment or on patient circulation or transfer space. A handwashing station shall be provided in each radiosurgery treatment room.

1224.34.6.3 Pre-procedure/recovery accommodations. If provided, pre-procedure/recovery patient care stations shall meet the following requirements:

1. Pre-procedure and recovery area(s) shall be immediately accessible to procedure rooms and separate from corridors. The pre-procedure and recovery patient area or room shall be arranged to permit visual observation of the patient by staff before and after the procedure. Bays, cubicles, or single-bed rooms shall be permitted to serve as patient care stations.
2. Area. Where open bays are used, each patient care station shall have a minimum clear floor area of 80 square feet (7.43 m²).
3. Clearances. Each bay or cubicle shall have a minimum clearance of 3 feet (914 mm) between walls or partitions and the sides and foot of gurneys or patient beds. Each bay shall have a minimum clearance of 4 feet (1218 mm) between sides of gurneys or patient beds.
4. Patient privacy. Provisions such as cubicle curtains shall be provided for patient privacy.

5. Handwashing station. A handwashing station shall be provided within the pre-procedure/recovery area.

1224.34.6.4 Support areas for radiosurgery treatment rooms. The following shall be provided:

1. Space for sterilization of head-frames.
2. Area for target planning.
3. Medication station.
4. Nourishment area.
5. Head-frame storage.
6. Toilet room(s) for patients, staff and the public.
7. Area for sedation of pediatric patients.

...
1224.36 RENAL DIALYSIS SERVICE SPACE (ACUTE AND CHRONIC)

1224.36.2.4 Handwashing stations fixtures. ~~Handwashing stations~~ shall be located convenient directly accessible to the nurses' station and to patient treatment areas. ~~There shall be at least one handwashing stations fixture shall serve~~ no more than four patient stations. These shall be uniformly distributed to provide equal access from each patient station.

1224.36.2.14 Housekeeping room. Provide adjacent a housekeeping room that is immediately accessible to, and for the exclusive use of, the unit.

...
1224.39 OUTPATIENT SERVICE SPACE.

...
1224.39.2 Outpatient surgery. ...

- ...
2. Preoperative patient holding shall be provided in accordance with Section 1224.16.2 1224.15.2.

1224.39.3 Gastrointestinal endoscopy. ...

...
1224.39.3.1.2 Handwashing station fixture. A separate dedicated handwashing station with hands-free controls shall be available provided in the procedure room.

1224.39.3.3 Pre-operative patient holding. A pre-operative patient holding area shall be provided in accordance with Section 1224.16.2 1224.15.2.

1224.39.3.4 Post-anesthesia recovery area. A post-anesthesia recovery area shall meet the requirements of Section 1224.16.3.

1224.39.4 CANCER TREATMENT/INFUSION THERAPY SERVICE SPACE.

...
1224.39.4.2.4 Handwashing stations fixtures. ~~Handwashing stations~~ shall be located convenient directly accessible to the nurses' station and patient treatment areas. There shall be at least one handwashing station fixture to serve no more than four patient stations. These shall be uniformly distributed to provide equal access from each patient station.

1224.39.4.2.11 Housekeeping room. Provide a housekeeping room that is immediately accessible Adjacent to and for the exclusive use of the unit.

1224.39.4.3.1 Staff lounge, lockers and toilets(s). Space shall be available for male and female personnel for staff clothing change area and lounge. The areas shall contain lockers, toilets(s), and handwashing stations fixtures.

...

1224.39.5 HYPERBARIC THERAPY SERVICE SPACE.

1224.39.5.1 General. *If provided, clinical hyperbaric oxygen therapy service space shall meet the requirements of the "Hyperbaric Facilities" chapter in NFPA 99: Health Care Facilities Code and shall comply with the following:*

1244.39.5.2 Hyperbaric chambers.

1224.39.5.2.1 Class A chamber (multi-place facilities).

1. **Clearances.** *There shall be a minimum clearance of 3 feet (914 mm) around the chamber. The area in front of the chamber entry designed for gurney or bed access shall have a minimum clearance of 8 feet (2438 mm) for gurney or bed approach. The area in front of the chamber entry designed for ambulatory or wheelchair access only shall have a minimum clearance of 5 feet (1524 mm) for wheelchair approach.*
2. **Entries.** *Chamber entries shall be provided with access ramps that are flush with the chamber entry doorway. Chamber entries not designed for gurney/bed access shall be a minimum of 3 feet (914 mm).*

1224.39.5.2.2 Class B chamber. (mono-place facilities)

1. **Clearances.** *There shall be a minimum clearance of 3 feet (914 mm) around the chamber. A minimum clearance of 44 inches (1118 mm) shall be provided between the control sides of two chambers. The area in front of the chamber entry shall be designed for gurney or bed access with a minimum clearance of 8 feet (2438 mm) for gurney or bed approach.*
2. **Oxygen.** *An oxygen service valve shall be provided for each chamber.*

1224.39.5.3 Pre-procedure patient holding area(s). *In facilities with a Class A hyperbaric chamber or with three or more Class B chambers, a pre-procedure/patient holding area shall be provided to accommodate patients on gurneys or beds and sitting space for ambulatory patients. The area shall permit visual observation of the patient by nursing staff and be located out of traffic flow. Each gurney station shall be a minimum clear floor area of 80 square feet (7.43 m²) and shall have a minimum clearance of 3 feet (914 mm) on the sides of the gurneys and the foot of the gurney. There shall be provisions for privacy such as cubicle curtains.*

1224.39.5.4 Medical gas station outlets. *Refer to Table 1224.4.6.1 Station Outlets for Oxygen, Vacuum (Suction) and Medical Air.*

1224.39.5.5 Support areas for the hyperbaric suite.

1224.39.5.5.1 Reception/control desk. *An administrative center/nurse station shall be provided within the hyperbaric suite.*

1224.39.5.5.2 Examination/treatment room(s). *Room(s) for individual consultation and treatment shall be provided and meet the requirements of Section 1224.4.4.1.*

1224.39.5.5.3 Clean linen storage. *A clean linen storage area shall be provided. This may be within the clean utility room, a separate closet or an approved distribution system. If a closed cart system is used, storage may be in an alcove. It must be out of the path of normal traffic and under staff control.*

1224.39.5.5.4 Clean supply room. *A clean supply room shall be provided and meet the requirements of Section 1224.4.4.6.1. This room may be omitted if the suite is served by a cart system.*

1224.39.5.5.5 Gas cylinder room. *The gas cylinder room shall provide space to house eight (H) cylinders and two gas manifolds, consisting of at least two (H) cylinders on each manifold.*

1224.39.5.5.6 Gurney and wheelchair storage. Space for gurney and wheelchair storage shall be provided.

1224.39.5.5.7 Housekeeping room. A housekeeping room shall be provided and shall be immediately accessible to the hyperbaric suite.

1224.39.5.5.8 Compressor room. A compressor room shall be provided to house the chamber compressors, accumulator tanks and fire suppression system.

1224.39.5.6 Support areas for staff. Toilet rooms with a handwashing stations shall be immediately accessible to the hyperbaric suite for staff use.

1224.39.5.7 Support areas for patients.

1224.39.5.7.1 Patient waiting area. The patient waiting area shall be provided and meet the requirements of Section 1224.39.1.

1224.39.5.7.2 Patient changing areas. Changing area(s) for outpatients shall be provided for patient clothing and for securing valuables.

1224.39.5.7.3 Patient toilet room. A patient toilet room with a handwashing station shall be directly accessible to the hyperbaric suite.

NOTATION:

Authority: Health and Safety Code Sections 1226, 1275, 18928, 18949.3, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

SECTION 1225 [OSHPD 2] SKILLED NURSING AND INTERMEDIATE-CARE FACILITIES

Relocate and amend Section 3424 to Section 1225.2.1.

1225.2. Application. New buildings and additions ...

3424.1 1225.2.1. Services/systems and utilities. Services/systems and utilities that are necessary to the operation of a skilled nursing facility or intermediate care facility shall meet the requirements of this section. Examples of services/systems and utilities include but are not limited to normal power; emergency power; nurse call; fire alarm; communication and data systems; space-heating systems; process load systems; cooling systems; domestic hot and cold water systems; means of egress systems; fire-suppression systems; building drain and sewer systems; and medical gas systems that support licensed services.

Exception: Remodel projects that use available existing services/systems and utilities are exempted from the requirements of this section. The enforcing agency may exempt minor addition, minor alteration, and minor remodel projects and projects to upgrade existing services/systems and utilities from the requirements of this section.

3424.1.1 Services/systems and utilities for skilled nursing facilities and intermediate care facilities.

3424.1.1.1 1225.2.1.1. New buildings, and additions, alterations and remodels.

Services/systems and utilities for new buildings, and additions, alterations and remodels shall not only originate in, or pass through or under nonconforming structures. The structures must be which are under the jurisdiction of the Office of Statewide Health Planning and Development (OSHPD).

~~Exception: As an alternate to this section, skilled nursing and intermediate care facilities may meet the requirements in Section 3416A.1.1.1 for hospital buildings.~~

~~**3424.1.1.2 Alterations and remodels.** Services/systems and utilities for alterations or remodels of existing buildings may pass through nonconforming structures provided that the structure is under the jurisdiction of OSHPD, and the new services/systems and utilities passing through the buildings are anchored and braced for seismic forces in accordance with these regulations for new buildings and are free of adverse seismic interactions caused by potential failure of overhead or adjacent components.~~

3424.2 1225.2.2 Means of egress for single-story wood frame or light-steel frame skilled nursing facilities and intermediate care facilities. Means of egress for single-story wood frame or light-steel frame skilled nursing facilities and intermediate care facilities shall comply with the requirements of Sections 3424.2.1 and 3424.2.2. ~~**3424.2.2 Jurisdiction.** Means of egress for skilled nursing facilities and intermediate care facilities shall only pass through buildings that are under the jurisdiction of the Office of Statewide Health Planning and Development (OSHPD).~~

~~**3424.2.1 New facilities or additions to existing facilities.** Means of egress for new skilled nursing facilities or intermediate care facilities, or additions to existing skilled nursing facilities or intermediate care facilities shall only pass through conforming buildings.~~

~~Exception: As an alternate, the nursing facilities and intermediate care facilities may meet the egress requirements in Sections 3417A.1.1.1.1 through 3417A.1.1.1.5 for hospital buildings.~~

...

1225.4 COMMON ELEMENTS.

...

1225.4.2.2.5 Ice-making facilities. Ice-making facilities may be located in the food preparation area or in a separate room. They shall be easily cleanable and ~~convenient~~ immediately accessible to the dietary function.

1225.4.2.2.6 Assembly and distribution. A patient tray assembly area shall be provided and shall be ~~located within close proximity~~ immediately accessible to the food preparation and distribution areas.

1225.4.2.2.7 Ware-washing facilities. ...

3. ~~Convenient~~ Handwashing stations shall be provided in the ware-washing space.

1225.4.2.2.11 Toilet rooms. Toilet rooms shall be provided for the exclusive use of the dietary staff. They shall not open directly into the food preparation areas, but shall be readily accessible ~~in close proximity~~.

1225.4.5.2.5 Location. All storage spaces shall be ~~directly~~ readily accessible ~~on the site of~~ in the licensed facility.

1225.5 SKILLED NURSING UNIT MODELS. ...

1225.5.1 MEDICAL MODEL.

1225.5.1.1 General construction. ...

1225.5.1.2 NURSING SERVICE SPACE.

1225.5.1.2.1 Patient bedrooms. ...

1225.5.1.2.2 Bed clearance. The dimensions and arrangement shall be such that there is Aa minimum distance of 3 feet (914 mm) ~~shall be provided between~~

the sides and foot of the beds and any wall or any other fixed obstruction. In multiple-bed rooms, in addition to the above, a minimum clearance of 3 feet (914 mm) shall be provided between beds and a clearance of 4 feet (1219 mm) shall be available at between the foot of each beds and walls or fixed objects to permit the passage of equipment and beds.. in multi-patient rooms, and 3 feet (914 mm) in single-patient rooms.

1225.5.2 HOUSEHOLD MODEL

1225.5.2.6.3 Staff toilet rooms. ~~Staff toilet rooms shall be provided conveniently located readily accessible to each resident unit.~~

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 18949.3 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

SECTION 1226 [OSHPD 3] CLINICS

1226.4 General construction. ...

1226.4.9.3 Waste holding room. ...

The waste holding room shall comply with the following:

1. The waste holding room shall be a minimum of ...
2. The waste holding room shall have 100 percent ...
3. All finishes in the waste holding room ...
4. The waste holding room shall ~~have convenient~~ be immediately accessible to an exterior door.

1226.4.13.1 Administrative center(s) or nurse stations(s). This area shall have space for counters and storage and shall have ~~convenient~~ direct access to a handwashing station fixtures (refer to Section 1224.3 for definition of handwashing station fixture). It may be combined with or include centers for reception, charting and communication.

1226.4.13.2.1 Medicine preparation room or area. ...

-
4. ~~Convenient~~ Immediate access to handwashing station fixture.

1226.4.13.2.2 Self-contained medicine-dispensing unit. When provided, the location of a self-contained medicine-dispensing unit shall be permitted in the clean workroom or at the administrative center or nurses' station, provided there is adequate security for medications and adequate lighting to easily identify drugs. ~~Convenient~~ Immediate access to a handwashing station fixture shall be provided.

1226.4.17.2 Storage for employees. Provide storage for staff personal effects with locking drawers or cabinets (may be individual desks or cabinets). Such storage shall be ~~convenient~~ readily accessible to individual workstations and shall be staff controlled.

1226.5 OUTPATIENT CLINICAL SERVICES OF A HOSPITAL.

...

1226.5.5.1.2 Outpatient change area. A separate space shall be provided where outpatients change from street clothing. This shall include provisions for clothing storage, space for clothing change and gowning area. Dressing rooms shall be provided ~~convenient~~ readily accessible to the imaging rooms.

1226.5.6 X-ray examination services. ...

3. Fluoroscopy room, when provided, shall have a toilet room adjoining directly accessible to the ~~each fluoroscopy room.~~ This toilet room is in addition to other common patient toilet room facilities located adjacent to or in the immediate vicinity in the radiological/imaging service space.

HYPERBARIC THERAPY

1226.5.14 Hyperbaric therapy service space. When provided, hyperbaric therapy service space shall comply with Section 1224.39.5 and the provisions of this section:

1226.5.14.1 General. Refer to Section 1224.39.5.1.

1226.5.14.2 Hyperbaric chambers. Refer to Section 1224.39.5.2.

1226.5.14.3 Pre-procedure patient holding area(s). Refer to Section 1224.39.5.3.

1226.5.14.4 Medical gas station outlets. Refer to Section 1224.39.5.4.

1226.5.14.5 Support areas for the hyperbaric suite.

1226.5.14.5.1 Reception/control desk. Refer to Section 1224.39.5.5.1.

1226.5.14.5.2 Examination/treatment room(s). Refer to Section 1224.39.5.5.2.

1226.5.14.5.3 Clean linen storage. Refer to Section 1224.39.5.5.3.

1226.5.14.5.4 Clean supply room. Refer to Section 1224.39.5.5.4.

1226.5.14.5.5 Gas cylinder room. Refer to Section 1224.39.5.5.5.

1226.5.14.5.6 Gurney and wheelchair storage. Refer to Section 1224.39.5.5.6.

1226.5.14.5.7 Housekeeping room. Refer to Section 1224.39.5.5.7.

1226.5.14.5.8 Compressor room. Refer to Section 1224.39.5.5.8.

1226.5.14.6 Support areas for staff. Refer to Section 1224.39.5.6.

1226.5.14.7 Support areas for patients.

1226.5.14.7.1 Patient waiting area. Refer to Section 1224.39.5.7.1.

1226.5.14.7.2 Patient changing area. Refer to Section 1224.39.5.7.2.

1226.5.14.7.3 Patient toilet room. Refer to Section 1224.39.5.7.3.

PRIMARY CARE CLINICS

1226.6 PRIMARY CARE CLINICS. Primary care clinics and outpatient clinical services of a hospital providing services equivalent to a primary care clinic shall comply with Sections 1226.4.3 through 1226.4.8 and the provisions of this section.

1226.6.1 Examination and treatment areas.

1226.6.1.1 Examination room(s). Refer to Section 1224.4.4.1.

1226.6.1.2 Treatment room(s). Treatment room(s) for minor procedures (e.g. surgical procedures, casting), if provided, shall have a minimum area of 120 square feet (11.15 m²), the

least dimension of which shall be a minimum of 10 feet (3048 mm), excluding such spaces such as vestibules and work counters, and shall meet the requirements in Section 1224.4.4.1.

1226.6.1.3 Dental examination and treatment areas. When provided, the examination and treatment space shall be permitted to be a room or a patient care station in an open treatment area.

1226.6.1.3.1 Area. The treatment space shall have a minimum clear floor area of 80 square feet (7.4 m²). This space is required for each station in an open operator or treatment area. A minimum of 3 feet (915 mm) clearance shall be provided along the full length of one side of the chair, the head of the chair, and between the cuspidor and the head of the chair on the other side for assisting dental staff.

1226.6.1.3.2 Pediatric patients. At least one private consultation/treatment room shall be provided when pediatric patients are treated in a facility.

1226.6.1.3.3 Handwashing. Each treatment room shall include a handwashing station. If treatment is provided at stations in an open operator, a handwashing station may be permitted to serve two treatment stations.

1226.6.1.3.4 Imaging. If provided, space for a dental panoramic x-ray system and printer shall also comply with shielding requirements in Section 1226.5.5.2 and alcove requirements in Section 1224.18.1.1.

1226.6.1.4 Oral surgery. When provided, treatment areas for procedures for which general anesthesia is used, shall comply with the requirements in Section 1226.8.

1226.6.2 Support areas for examination rooms.

1226.6.2.1 Administrative center or nurse station. Refer to Section 1226.4.13.1.

1226.6.2.2 Medication station. Refer to Section 1226.4.13.2.

1226.6.2.3 Clean utility room. Refer to Section 1226.4.13.3.

1226.6.2.4 Soiled workroom or soiled linen holding. Refer to Section 1226.4.13.4.

1226.6.2.5 Consultation room. Dental facilities must provide a consultation room for private conferences with patients.

1226.6.2.6 Sterilization facilities. If sterile processing and/or high level disinfection is provided, the sterile processing room shall consist of a decontamination area and a clean work area. The sterile processing/high level disinfection room shall be designed to provide one-way flow of contaminated materials/instruments to the sterilizer/high level disinfection equipment. Sterile/high level disinfected instruments should be distributed from the area in such a manner that processed items do not pass through the decontamination area.

1226.6.2.6.1 Decontamination area. The decontamination area shall be equipped with the following:

1. Countertop, separated from clean countertop by 4 feet minimum distance.
2. Handwashing station separate from the instrument washing sink.
3. Sink for washing instruments. To avoid splash, the decontamination sink shall be separated from the clean work area by either a 4-foot distance from the edge of the sink or a separating wall or screen. If a screen is used, it shall extend a minimum of 4 feet (1220 mm) above the sink rim.
4. Storage for supplies.

1226.6.2.6.2 Clean work area. The clean work area shall be equipped with the following:

1. Countertop, separated from decontamination countertop by 4 feet minimum distance.

2. Sterilizer/high level disinfection equipment, as required for the services provided.
3. Handwashing station; may share with decontamination area handwashing station.
4. Built-in storage for supplies.

1226.6.2.7 Laboratory. Facilities for laboratory services shall be provided in dental facilities or through a contract arrangement with a laboratory service.

1226.6.3 Support areas for patients.

...

SURGICAL CLINICS

1226.8 SURGICAL CLINICS. ...

1226.8.1 Outpatient surgical service space.

1226.8.1.1 Operating room(s). Refer to Section 1224.39.2, Item 1.

1226.8.1.2 Preoperative patient holding Perioperative services. Provide preoperative patient holding and post-anesthesia recovery area. Refer to Section 1224.15.21224.16.

1226.8.1.3 Post-anesthesia recovery area. ~~Refer to Section 1224.16.~~

1226.9 CHRONIC DIALYSIS CLINICS. ...

1226.9.2.1.1 Handwashing stations fixtures. Handwashing stations fixture(s) shall be located convenient directly accessible to the administrative center or nurses' station and to patient treatment areas. There shall be at least one HHandwashing fixture stations may serving no more than four patient stations. These shall be uniformly distributed to provide equal access from each patient station. Refer to Section 1224.3 for the definition of a handwashing station fixture.

1226.9.2.5 Housekeeping room. Provide a housekeeping room that is immediately accessible adjacent to, and for the exclusive use of, the unit. ~~In addition, In addition, ‡This room shall be have~~ a minimum floor area of 15 square feet (1.4 m²) and shall include the following: ...

1226.10 REHABILITATION CLINICS. ...

1666.10.3 Public and administrative.

...

1226.10.3.1.3 Toilets(s). Refer to Section 1224.4.5 1224.4.4.5.

1226.10.3.1.4 Drinking fountain. Refer to Section 1224.4.5 1224.4.4.5.

1226.10.3.1.5 Telephone. Refer to Section 1224.4.5 1224.4.4.5.

1226.11 ALTERNATIVE BIRTHING CLINICS. ...

1226.11.2.6 Clean-up room. Each birthing room shall have immediate access to a clean-up room with a handwashing station fixture and work space which is separate from any sterilizing facilities. The clean-up room shall provide 24 square feet (2.23 m²) per birthing room, up to eight rooms, with no dimension less than 6 feet (1829 mm).

NOTATION:

Authority: Health and Safety Code Sections 1226, 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 13 ENERGY EFFICIENCY

Entire Chapter not adopted for OSHPD 1, 2, 3, & 4.

NOTATION:

Authority: Health and Safety Code Sections 1226, 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 14 EXTERIOR WALLS

Adopt entire 2015 International Building Code (IBC) Chapter and carry forward existing amendments of the 2013 California Building Code (CBC) for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

Adopt entire 2015 International Building Code (IBC) Chapter and carry forward existing amendments of the 2013 California Building Code (CBC) for OSHPD 1, 2 & 4.

NOTATION:

Authority: Health and Safety Code Sections 1275, 18928, 129790 and 129850; Government 11152.5

Reference: Health and Safety Code Section 129850

**2016 CALIFORNIA BUILDING CODE
OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT
STRUCTURAL FINAL EXPRESS TERMS INDEX**

1. Preambles for Express Terms
2. Chapter 1– Scope and Administration
3. Chapter 2 – Definitions
4. Chapter 14 – Exterior Walls
5. Chapter 15 – Roof Assemblies and Rooftop Structures
6. Chapter 16 – Structural Design
7. Chapter 16A – Structural Design
8. Chapter 17 – Structural Tests and Special Inspections
9. Chapter 17A – Structural Tests and Special Inspections
10. Chapter 18 – Soils and Foundations
11. Chapter 18A– Soils and Foundations
12. Chapter 19 – Concrete
13. Chapter 19A – Concrete
14. Chapter 20 – Aluminum
15. Chapter 21 – Masonry
16. Chapter 21A – Masonry
17. Chapter 22 – Steel
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19. Chapter 23 – Wood
20. Chapter 24 – Glass & Glazing
21. Chapter 25 – Gypsum Board & Plaster
22. Chapter 34A – Existing Structures
23. Chapter 35 – Referenced Standards
24. Appendix J – Grading
25. Appendix L – Earthquake Recording Instrumentation

**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT (OSHPD)
REGARDING PROPOSED CHANGES TO

THE CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2, VOLUMES 1 & 2**

The Office of Statewide Health Planning and Development (OSHPD) proposes to adopt the 2015 edition of the International Building Code (IBC 2015) of International Code Council for codification and effectiveness in the 2016 edition of the California Building Code as presented on the following pages, including any necessary amendments. OSHPD further proposes to:

- Adopt new building standards that are not addressed by the 2015 model code proposed for adoption.
- Adopt new necessary amendments to the 2015 model code proposed for adoption.
- Relocate existing adopted and necessary amendments of the current model code into the format of the 2015 model code proposed for adoption. These amendments with editorial changes only are outside the rulemaking and are not subject to public comments. All amendments shown highlighted are existing and are not part of the rulemaking.

LEGEND FOR EXPRESS TERMS

1. Model code text: All International Building Code (IBC) text is shown in regular/*italics* type face.
2. Existing California amendments: All such language appears in *italics*.
3. Code language being modified: All such language appears in *italics and underlined*.
4. Repealed text: Repeal of 2015 IBC language appears in ~~strikeout~~.
5. Existing deletion: IBC model code language that was deleted in the previous Code Adoption Cycles is shown for clarity only. This language appears in ~~strikeout and highlight~~.
6. Existing amendments in 2013 CBC, Chapter 19A: Existing amendments in Sections 1903A through 1905A of the 2013 CBC which are *underlined and italicized* appear in *underline, italics and highlight*. Deletion of existing amendments in Sections 1903A through 1905A appears in ~~*italics, strikeout, and underline*~~.
7. Instructions: Texts which are instructions only that are not amendments and will not be printed appears in ~~blue highlight~~.

Note:

Following each chapter of the proposed regulations is a notation that cites specific statute(s) that authorizes the adoption of these regulations and statute that allows for regulations to clarify the subject matter being implemented, interpreted or made specific by the authority statute(s).

2016 CALIFORNIA BUILDING CODE

CHAPTER 1 SCOPE AND ADMINISTRATION DIVISION I CALIFORNIA ADMINISTRATION

SECTION 1.1 GENERAL

1.1.1 Title. These regulations shall be known as the California Building Code, may be cited as such and will be referred to herein as "this code." The California Building Code is Part 2 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the 2012 2015 International Building Code of the International Code Council with necessary California amendments.

...

SECTION 1.10 OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT

1.10.1 OSHPD 1. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

...

1.10.1.2 Applicable building standards. California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9 and 11.

The provisions of Title 24, Part 2, as adopted and amended by OSHPD, shall apply to the applications listed in Section 1.10.1.

OSHPD 1 adopts the following building standards in Title 24, Part 2:

Chapters 2 through 10, 12, 14, 15, 16A, 17A, 18A, 19A, 20, 21A, 22A, 23, 24, 25, 26, 30, 31, 32, 33, 34A, 35, ~~Appendix J~~ and Appendix L.

...

1.10.2 OSHPD 2. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

...

1.10.2.2 Applicable building standards. California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9, 10 and 11.

The provisions of Title 24, Part 2, as adopted and amended by OSHPD, shall apply to the applications listed in Section 1.10.2.

OSHPD 2 adopts the following building standards in Title 24, Part 2:

Chapters 2 through 10, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 30, 31, 32, 33, 34, and 35, ~~Appendices J and L~~.

...

1.10.3 OSHPD 3. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

...

1.10.3.2 Applicable building standards. California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9, 10 and 11.

The provisions of Title 24, Part 2, as adopted and amended by OSHPD, shall apply to the applications listed in Section 1.10.3.

OSHPD 3 adopts the following building standards in Title 24, Part 2:
Chapter 12.

...

1.10.4 OSHPD 4. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

...

1.10.4.2 Applicable building standards. California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9, 10 and 11.

The provisions of Title 24, Part 2, as adopted and amended by OSHPD, shall apply to the applications listed in Section 1.10.4.

OSHPD 4 adopts the following building standards in Title 24, Part 2:

Chapters 2 through 10, 12, 14, 15, 16A, 17A, 18A, 19A, 20, 21A, 22A, 23, 24, 25, 26, 30, 31, 32, 33, 34A, 35 and Appendices J and Appendix L.

...

DIVISION II SECTION 101 GENERAL

[A] 101.1 Title. These regulations shall be known as the *California Building Code of the State of California*, hereinafter referred to as "this code."

...

[A] 101.4.7 Existing buildings. The provisions of the *International California Existing Building Code* shall apply to all matters governing the repairs, alterations, change of occupancy, additions and relocation of existing buildings.

[OSHPD 1] The provisions of the Chapter 34A of this code shall apply to all matters governing the repairs, alterations, change of occupancy, additions, and relocation of existing structures and portions thereof under OSHPD jurisdiction. All references to the International/California Existing Building Code shall be replaced by equivalent provisions in Chapter 34A.

[OSHPD 2 & 4] The provisions of the California Existing Building Code, Chapter 4 the "Prescriptive Compliance Method" shall apply to all matters governing the repairs, alterations, change of occupancy, additions, and relocation of existing structures and portions thereof under OSHPD jurisdiction.

Exception: Performance objectives for incidental and minor additions and alterations of nonconforming buildings shall be permitted to be in accordance with the California Existing Building Code Table 301.1.4.2.

SECTION 102 APPLICABILITY

[A] 102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

...

[A] 102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.4.1 and 102.4.2 through 102.4.4.

...

102.4.3 Code References. [OSHPD 1, 2, 3 & 4] All reference to International Codes or other similar codes in referenced standards shall be replaced by equivalent provisions in the California Building Standard Codes.

102.4.4 Reference in Standards. [OSHPD 1, 2, 3 & 4] All references listed in reference standards shall be replaced by referenced standards listed in Chapter 35 of this code, where applicable, and shall include all amendments to the reference standards in this code.

...

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

[A] 104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official* shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

...

[A] 104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative materials, design or methods of construction is not *approved*, the *building official* shall provide in writing, stating the reasons why the alternative was not *approved*. [OSHPD 1, 2 & 4] Alternative system shall satisfy ASCE 7 Section 1.3, unless more restrictive requirements are established by this code for an equivalent system. [OSHPD 1, 2 & 4] Alternative systems shall also satisfy the California Administrative Code, Section 7-104.

...

104.11.3 Peer review. [OSHPD 1 & 4] When peer review is required, it shall be performed pursuant to Section 3414A.

104.11.4 Earthquake monitoring instruments. [OSHPD 1 & 4] The enforcement agency may require earthquake monitoring instruments for any building that receives approval of an alternative system for the Lateral Force Resisting System (LFRS). There shall be a sufficient number of instruments to characterize the response of the building during an earthquake and shall include at least one tri-axial free field instrument or equivalent. A proposal for instrumentation and equipment specifications shall be forwarded to the enforcement agency for review and approval.

The instruments shall be interconnected for common start and common timing. Each instrument shall be located so that access is maintained at all times and is unobstructed by room contents. A sign stating "MAINTAIN CLEAR ACCESS TO THIS INSTRUMENT" shall be posted in a conspicuous location.

The Owner of the building shall be responsible for the implementation of the instrumentation program. Maintenance of the instrumentation and removal/processing of the records shall be the responsibility of the enforcement agency or its designated agent.

SECTION 105 PERMITS

[A] 105.1 Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

...

[A] 105.3.2 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the building official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated. *[OSHPD 1, 2, & 4] Time limitation shall be in accordance with the California Administrative Code, Chapter 7, Section 7-129.*

...

SECTION 106 FLOOR AND ROOF DESIGN LOADS

[A] 106.1 Live loads posted. In commercial, *institutional* or industrial buildings, for each floor or portion thereof designed for live loads exceeding 50 psf (2.40 kN/m²), such design live loads shall be conspicuously posted by the owner or owner's authorized agent in that part of each *story* in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.

106.1.1 Snow Load Posting. *[OSHPD 1, 2, & 4] Snow loads used in design shall be posted as for live loads.*

106.1.2 Load Posting Responsibility. ~~*[OSHPD 1, 2, & 4] The owner or governing board shall be responsible for keeping the actual load below the allowable limits.*~~

[A] 106.2 Issuance of certificate of occupancy. A certificate of occupancy required by Section 111 shall not be issued until the floor load signs, required by Section 106.1, have been installed.

[A] 106.3 Restrictions on loading. It shall be unlawful to place, or cause or *permit* to be placed, on any floor or roof of a building, structure or portion thereof, a load greater than is permitted by this code.

SECTION 107 SUBMITTAL DOCUMENTS

[A] 107.1 General. Submittal documents consisting of *construction documents*, statement of *special inspections*, geotechnical report and other data shall be submitted in two or more sets with each *permit* application. The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*.

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that review of *construction documents* is not necessary to obtain compliance with this code.

[A] 107.2 Construction documents. *Construction documents* shall be in accordance with Sections 107.2.1 through 107.2.6.

...

[A] 107.3.4.2 Deferred submittals.

Deferral of any submittal items shall have the prior approval of the *building official*. The *registered design professional in responsible charge* shall list the deferred submittals on the *construction documents* for review by the *building official*.

Documents for deferred submittal items shall be submitted to the *registered design professional in responsible charge* who shall review them and forward them to the *building official* with a notation indicating that the deferred submittal documents have been reviewed and been found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been *approved by the building official*. [OSHPD 1, 2, & 4] *Deferred submittals shall be in accordance with the California Administrative Code, Chapter 7, Section 7-126.*

...

~~(All existing amendments that are not revised above shall continue without any change)~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

**CHAPTER 2
DEFINITIONS**

...

**SECTION 201
GENERAL**

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

...

**SECTION 202
DEFINITIONS**

...

ACTIVE EQUIPMENT/COMPONENT. [OSHPD 1, 2, 3 & 4] *Equipment/Component containing moving or rotating parts, electrical parts such as switches or relays, or other internal components that are sensitive to earthquake forces and critical to the function of the equipment.*

ALTERNATIVE SYSTEM. [OSHPD 1 & 4] *Alternative materials, design and methods of construction in accordance with Section 104.11, Section 11.1.4 of ASCE 7 or structural design criteria as approved by the enforcement agency.*

...

DIAPHRAGM. ...

...

Diaphragm, rigid. [OSHPD 1 & 4] ~~A diaphragm is rigid for the purpose of distribution of story shear and torsional moment where so indicated in Section 12.3.1 of ASCE 7.~~

...

ENFORCEMENT AGENT. [OSHPD 1, 2, 3 & 4] *That individual within the agency or organization charged with responsibility for agency or organization compliance with the requirements of this Code. Used interchangeably with Building Official and Code Official.*

...

Freestanding Acute Psychiatric Building (APB). [OSHPD 1] A freestanding building, as defined in the California Administrative Code Section 7-111, that provides 24-hour inpatient Acute Psychiatric Services as defined in the Health and Safety Code (H&SC) Section 1250(b) or as special services in accordance with H&SC Section 1255(a)(5) of a general acute care hospital defined in H&SC Section 1250(a) and all structures required for their continuous operation or access/egress.

Freestanding Skilled Nursing Building (SNB). [OSHPD 1] A freestanding building, as defined in the California Administrative Code Section 7-111, that provides skilled nursing and/or intermediate care as defined in the Health and Safety Code Section 1250(c) or (d), and all structures required for their continuous operation or access/egress.

...

General Acute Care Building (GAC Building). [OSHPD 1] Hospital buildings as defined in the California Administrative Code Section 7-111 and all structures required for their continuous operation or access/egress, except Freestanding Skilled Nursing Building (SNB) and Acute Psychiatric Building (APB).

...

INCIDENTAL STRUCTURAL ALTERATIONS, ADDITIONS, OR REPAIRS. [OSHPD 1, 2 & 4]

Alterations, additions or repairs which would not reduce the story lateral shear force-resisting capacity by more than 5 percent or increase the story shear by more than 5 percent in any existing story or a combination thereof with equivalent effect (not exceeding 5 percent total). The calculation of lateral shear force-resisting capacity and story shear shall account for the cumulative effects of additions and alterations since original construction.

...

MAJOR STRUCTURAL ALTERATIONS, ADDITIONS, OR REPAIRS. [OSHPD 1, 2 & 4] Alterations, additions, or repairs of greater extent than minor structural alterations, additions or repairs.

...

MINOR STRUCTURAL ALTERATIONS, ADDITIONS, OR REPAIRS. [OSHPD 1, 2 & 4] Alterations, additions or repairs of greater extent than incidental structural additions or alterations which would not reduce the story shear lateral-force-resisting capacity by more than 10 percent or increase the story shear by more than 10 percent in any existing story or a combination thereof with equivalent effect (not exceeding 10 percent total). base shear by more than 10 percent. The calculation of lateral shear force-resisting capacity and story shear shall account for the cumulative effects of additions and alterations since original construction.

NEXT GENERATION ATTENUATION (NGA). [OSHPD 1, 2 & 4] Attenuation relations used for the 2008 United States Geological Survey (USGS) seismic hazards maps (for the Western United States) or their equivalent as determined by the enforcement agency.

...

NON-GENERAL ACUTE CARE BUILDING (NON-GAC BUILDING). [OSHPD 1] A non-freestanding SPC building, which is removed from general acute care services in accordance with the Section 3418A that remains under OSHPD jurisdiction as part of an OSHPD 1 Hospital building.

...

NPC 1, NPC 2, NPC 3/NPC 3R, NPC 4, and NPC 5. [OSHPD 1] ~~are the~~ Building nonstructural performance categories for Hospital Buildings defined in Table 11.1 of California Administrative Code (Part 1, Title 24 CCR), Chapter 6.

...

RETROFIT. [OSHPD 1, 2 & 4] The construction of any new element or system, or the alteration of any existing element or system required to bring an existing building, or portion thereof, conforming to

earlier code requirements, into conformance with standards of the currently effective California Building Standards Code.

...

RUGGED EQUIPMENT. [OSHPD 1, 2, 3 & 4] Rugged equipment refers to an amplexness of construction that gives such equipment the ability to survive earthquake strong motions without significant loss of function.

...

SIGNIFICANT LOSS OF FUNCTION. [OSHPD 1, 2 & 4] Significant loss of function for equipment or components means the equipment or component cannot be restored to its original function by competent technicians after a design earthquake because the equipment or component require parts that are not normally stocked by the Owner or not readily available.

...

SPC BUILDING. [OSHPD 1] Means a structure with an independent vertical and lateral force resisting system (LFRS) and a distinct building structural performance category assigned by OSHPD.

...

SPC 1, SPC 2, SPC 3, SPC 4, SPC 4D and SPC 5. [OSHPD 1] ~~are the b~~ Building structural performance categories for Hospital Buildings defined in Table 2.5.3 of California Administrative Code (Part 1, Title 24 CCR), Chapter 6.

...

SUBSTANTIAL STRUCTURAL DAMAGE. [OSHPD 1, 2, & 4] A condition where one or both of the following apply:

1. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than ~~33~~ 10 percent from its pre-damage condition; or
2. The capacity of any vertical component carrying gravity load, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than ~~20~~ 10 percent from its pre-damage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.

...

SURFACE MOUNTED COMPONENT. [OSHPD 1, 2 & 4] Means component directly attached to only one continuous flat surface of wall, floor or roof, without supports. Surface mounted components are directly attached to a surface by attachments (without any supports) and are not rigidly connected to anything else (e. g. distribution system, other components, etc.).

...

TORQUE-CONTROLLED POST-INSTALLED ANCHOR. [OSHPD 1, 2 & 4] A post-installed anchor that is set by the expansion of one or more sleeves or other elements against the sides of the drilled hole through the application of torque, which pulls the cone(s) into the expansion sleeve(s); after setting, tensile loading can cause additional expansion (follow-up expansion).

...

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

CHAPTER 14 EXTERIOR WALLS

SECTION 1401 GENERAL

1401.1 Scope. The provisions of this chapter shall establish the minimum requirements for exterior walls; exterior wall coverings; exterior wall openings; exterior windows and doors; architectural trim; balconies and similar projections; and bay and oriel windows.

...

SECTION 1405 INSTALLATION OF WALL COVERINGS

1405.1 General. Exterior wall coverings shall be designed and constructed in accordance with the applicable provisions of this section.

1405.1.1 Additional requirements. [OSHPD 1, 2, and 4] In addition to the requirements of Sections 1405.6, 1405.7, 1405.8, 1405.9, and 1405.10, the installation of anchored or adhered veneer shall comply with applicable provisions of Section ~~1410~~ 1411.

...

SECTION ~~1410~~ 1411 [OSHPD 1, 2, AND 4] ADDITIONAL REQUIREMENTS FOR ANCHORED AND ADHERED VENEER.

1411.1 ~~1410.1~~ General. In no case shall veneer be considered as part of the backing in computing strength or deflection nor shall it be considered a part of the required thickness of the backing. Veneer shall be anchored in a manner which will not allow relative movement between the veneer and the wall.

Anchored or adhered veneer shall not be used on overhead horizontal surfaces.

1411.2 ~~1410.2~~ Adhered Veneer. Units of tile, masonry, stone or terra cotta which exceed 5/8 inch (16 mm) in thickness shall be applied as for anchored veneer where used over exit ways or more than 20 feet (6096 mm) in height above adjacent ground elevation.

1411.2.1 ~~1410.2.1~~ Bond Strength and Tests. Veneer shall develop a bond to the backing in accordance with TMS 402, Section 6.3.2.4 12.3.2.4. Not less than two shear tests shall be performed for the adhered veneer between the units and the supporting element. At least one shear test shall be performed at each building for each 5,000 square feet (465 m²) of floor area or fraction thereof.

~~All existing amendments that are not revised above shall continue without any change.~~

Notation:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1501 GENERAL

1501.1 Scope. The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies, and rooftop structures.

...

SECTION 1507 REQUIREMENTS FOR ROOF COVERINGS

1507.1 Scope. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions.

...

1507.3.10 Additional requirements. [OSHPD 1, 2, and 4] In addition to the requirements of 1507.3.6 and 1507.3.7, the installation of clay and concrete tile roof coverings shall comply with seismic anchorage provisions of Section 1513. 4512.

...

1507.7 Slate shingles. The installation of slate shingles shall comply with the provisions of this section.

...

1507.7.8 Additional requirements. [OSHPD 1, 2, and 4] In addition to the requirements of Section 1507.7.5, the installation of slate shingle roof coverings shall comply with the requirements of Sections 1507.3.6 and 1507.3.7, the installation of slate shingle roof coverings shall comply with seismic anchorage provisions of Section 1513. 4512.

...

SECTION 1513 4512 [OSHPD 1, 2, AND 4] SEISMIC ANCHORAGE OF SLATE SHINGLE, CLAY AND CONCRETE TILE ROOF COVERINGS

1513.1 4512.1 Fasteners. Nails shall be long enough to penetrate into the sheathing 3/4 inch (19 mm). Where sheathing is less than 3/4 inch (19 mm) in thickness, nails shall be driven into supports, unless nails with ring shanks are used.
All fasteners shall be corrosion resistant and fabricated of copper, stainless steel, or brass, or shall have a hot dipped galvanized coating not less than 1.0 ounce of zinc per square foot (305 gm/m²). Nails for slate shingles and clay or concrete tile shall be copper, brass or stainless steel with gage and length per common ferrous nails.

1513.2 4512.2 Wire. Wire for attaching slate shingles and clay or concrete tile shall be copper, brass or stainless steel capable of supporting four times the weight of tile.
Wire supporting a single tile or shingle shall not be smaller than 1/16 inch (1.6 mm) in diameter. Continuous wire ties supporting more than one tile shall not be smaller than 0.084 inch (2 mm) in diameter.

1513.3 4512.3 Metal strips. Metal strips for attaching slate shingles and clay or concrete tile shall be copper, brass or stainless steel capable of supporting four times the weight of tile.

1513.4 4512.4 Clay or Concrete Tiles. Clay or concrete tile shall be installed in accordance with Table 1507.3.7 and as described herein.

1. On wood roofs or roofs of other material to which wood strips are secured, every cover or top tile when fastened with nails shall be nailed directly into 1-1/4 inches (32 mm) sound grain soft wood strips of sufficient height to support the tile.
Pan or bottom tiles shall be nailed directly to the roof sheathing or to wood strips. Wood strips shall be secured to the roof by nails spaced not over 12 inches (305 mm) apart.
2. On concrete roofs, wires shall be secured in place by wire loops embedded into the concrete not less than 2 inches (51 mm). The wire loops shall be spaced not more than 36 inches (914

mm) on center parallel to the eaves, and spaced vertically to allow for the minimum 3 inches (76 mm) lapping of the tile.

3. Where continuous ties of twisted wire, interlocking wires or metal strips extending from the ridge to eave are used to attach tile, the ties shall be attached to the roof construction at the ridge, eave, and at intervals not exceeding 10 feet 0 inch (3048 mm) on center. The ties within 2 feet 0 inch (610 mm) of the rake shall be attached at intervals of 5 feet 0 inch (1524 mm). Attachment for continuous ties shall be nails, screws, staples or approved clips of the same material as the ties and shall not be subjected to withdrawal forces. Attachments for continuous ties shall have an allowable working stress shear resistance of not less than twice the dead weight of the tile tributary to the attachment, but not less than 300 pounds (136 kg).
4. Tile with projecting anchor lugs at the bottom of the tiles shall be held in position by means of 1-inch by 2-inch (25mm by 51mm) wood stripping nailed to the roof sheathing over the underlay.
5. Clay or concrete tile on roofs with slopes exceeding 24 units vertical in 12 units horizontal (200 percent slope) shall be attached as required for veneer in Chapter 14. The nose of all tiles shall be securely fastened.
6. Clay or concrete tile shall have a minimum of two fasteners per tile. Tiles that are 8 inches (203 mm) in width or less are permitted to be fastened at the center of the head with one fastener per tile.
7. Interlocking clay or concrete tile shall have a minimum of one nail near center of head or two wire ties per tile.

1513.5 1512.5 Slate Shingles. Slate shingles on roofs with slopes exceeding 24 units vertical in 12 units horizontal (200 percent slope) shall be attached as required for veneer in accordance with Chapter 14.

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

CHAPTER 16 STRUCTURAL DESIGN

SECTION 1601 GENERAL

1601.1 Scope. The provisions of this chapter shall govern the structural design of buildings, structures and portions thereof regulated by this code.

1601.2 Enforcement Agency Approval. [OSHPD 2] In addition to requirements of the California Administrative Code and the California Building Code, any aspect of project design, construction, quality assurance, or quality control programs for which this code requires approval by the design professional, are also subject to approval by the enforcement agency.

...

SECTION 1603 CONSTRUCTION DOCUMENTS

1603.1 General. Construction documents shall show the size, section and relative locations of

structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.8 shall be indicated on the construction documents.

[OSHPD 2] Additional requirements are included in Section 7-115 and 7-125 of the California Administration Code (Part 1, Title 24, C.C.R).

...

SECTION 1607 LIVE LOADS

1607.1 General. Live loads are those loads defined in Chapter 2 of this code.

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_0 , AND MINIMUM CONCENTRATED LIVE LOADS⁹

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
...
<u>36.</u> [OSHPD 2] Storage racks and wall-hung cabinets.	Total Loads ⁹	

...

n. [OSHPD 2] The minimum vertical design live load shall be as follows:

Paper media:

- 12-inch-deep (305 mm) shelf 33 pounds per lineal foot (482 N/m)
- 15-inch-deep (381 mm) shelf 41 pounds per lineal foot (598 N/m), or
- 33 pounds per cubic foot (5183 N/m³) per total volume of the rack or cabinet, whichever is less.

Film media:

- 18-inch-deep (457 mm) shelf 100 pounds per lineal foot (1459 N/m), or
- 50 pounds per cubic foot (7853 N/m³) per total volume of the rack or cabinet, whichever is less.

Other media:

- 20 pounds per cubic foot (311 N/m³) or 20 pounds per square foot (958 Pa), whichever is less, but not less than actual loads.

...

SECTION 1612 FLOOD LOADS

1612.3 Establishment of flood hazard areas. To establish flood hazard areas, the governing body shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for [INSERT NAME OF JURISDICTION]," dated [INSERT DATE OF ISSUANCE], as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

Exception: [OSHPD 2] The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency's Flood Insurance Study (FIS) adopted by the local authority having jurisdiction where the project is located.

...

SECTION 1613 EARTHQUAKE LOADS

1613.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A. The seismic design category for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7.

Exceptions:

1. Detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C, or located where the mapped short-period spectral response acceleration, S_s , is less than 0.4 g.
 2. The seismic-force-resisting system of wood-frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section. *[OSHPD 2] Not permitted by OSHPD, see Section 2308.*
 3. Agricultural storage structures intended only for incidental human occupancy.
 4. Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.
 5. *[OSHPD 2] Seismic Design Category shall be in accordance with exception to Section 1613.3.5.*
- ...

1613.3.1 Mapped acceleration parameters. The parameters S_s and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(8). Where S_1 is less than or equal to 0.04 and S_s is less than or equal to 0.15, the structure is permitted to be assigned to *Seismic Design Category A*.

Exception: *[OSHPD 2] Seismic Design Category shall be in accordance with exception to Section 1613.3.5.*

...

1613.3.5 Determination of seismic design category. Structures classified as *Risk Category I, II or III* that are located where the mapped spectral response acceleration parameter at 1-second period, S_1 , is greater than or equal to 0.75 shall be assigned to *Seismic Design Category E*. Structures classified as *Risk Category IV* that are located where the mapped spectral response acceleration parameter at 1-second period, S_1 , is greater than or equal to 0.75 shall be assigned to *Seismic Design Category F*. All other structures shall be assigned to a *seismic design category* based on their *risk category* and the design spectral response acceleration parameters, S_{DS} and S_{D1} , determined in accordance with Section 1613.3.4 or the site-specific procedures of ASCE 7. Each building and structure shall be assigned to the more severe *seismic design category* in accordance with Table 1613.3.5(1) or 1613.5.5(2), irrespective of the fundamental period of vibration of the structure, T .

Exception: *[OSHPD 2] Structures not assigned to seismic design category E or F above shall be assigned to seismic design category D.*

1613.3.5.1 Alternative seismic design category determination.

...

Exception: *[OSHPD 2] Seismic design category shall be determined in accordance with exception to Section 1613.3.5.*

1613.3.5.2 Simplified design procedure. Where the alternate simplified design procedure of ASCE 7 is used, the seismic design category shall be determined in accordance with ASCE 7.

Exception: [OSHPD 2] Seismic design category shall be determined in accordance with exception to Section 1613.3.5.

...

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275 and 129850

CHAPTER 16A STRUCTURAL DESIGN

SECTION 1601A GENERAL

1601A.1 Scope. The provisions of this chapter shall govern the structural design of buildings, structures and portions thereof regulated by this code.

1601A.1.1 Application. The scope of application of Chapter 16A is as follows:

1. ~~Reserved for CSA~~
2. Applications listed in Section 1.10.1, and 1.10.4, regulated by the Office of Statewide Health Planning and Development (OSHPD). These applications include hospitals, skilled nursing facilities, intermediate care facilities, and correctional treatment centers.

Exception: [OSHPD 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light-steel-frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 16 and any applicable amendments therein.

1601A.1.2 Amendments in this chapter. OSHPD adopt this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. ~~Reserved for CSA~~
2. Office of Statewide Health Planning and Development:
[OSHPD 1] - For applications listed in Section 1.10.1.
[OSHPD 4] - For applications listed in Section 1.10.4.

1601A.2 Enforcement Agency Approval. In addition to requirements of the California Administrative Code and the California Building Code, any aspect of project design, construction, quality assurance, or quality control programs for which this code requires approval by the Registered & Design Professional (RDP), are also subject to approval by the enforcement agency.

SECTION 1602A DEFINITIONS AND NOTATIONS

1602A.1 Definitions. The following terms are defined in Chapter 2 except those defined below which shall, for the purposes of this section, have the meanings shown herein.

...

HOSPITAL BUILDING. Any building defined in Section 129725, Health and Safety Code.

SECTION 1603A CONSTRUCTION DOCUMENTS

1603A.1 General. Construction documents shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603A.1.1 through 1603A.1.8 shall be indicated on the *construction documents*.

...

[OSHPD 1] Additional requirements are included in Section 7-115 and 7-125 of the California Administrative Code. (*Part 1, Title 24, C.C.R.*).

...

1603A.1.5 Earthquake design data. The following information related to seismic loads shall be shown, regardless of whether seismic loads govern the design of the lateral-force-resisting system of the building:

1. Risk Category
2. Seismic importance factor, I_e .
3. Mapped spectral response accelerations, S_s and S_1 .
4. Site class.
5. Design spectral response acceleration parameters, S_{DS} and S_{D1} .
6. Seismic design category.
7. Basic seismic-force-resisting system(s).
8. Design base shear.
9. Seismic response coefficient(s), C_s .
10. Response modification factor(s), R .
11. Analysis procedure used.
12. *Applicable horizontal structural irregularities.*
13. *Applicable vertical structural irregularities.*
14. *Location of base as defined in Section 1613A.2.*

1603A.1.5.1 Connections. Connections that resist design seismic forces shall be designed and detailed on the design drawings.

...

1603A.1.9 ~~1603A.1.10~~ Construction Procedures. Where unusual erection or construction procedures are considered essential by the Registered Design Professional (RDP) in order to accomplish the intent of the design or influence the construction design, such procedure shall be indicated on the construction documents.

1603A.2 Site Data Reports. Geotechnical and Geohazard reports for review by the enforcement agency shall be accompanied by a description of the project prepared by the Registered Design Professional (RDP) in responsible charge, which shall include the following:

1. Type of service such as General Acute Care Facility, Skilled Nursing Facility, Intermediate Care Facility, Acute Psychiatric Facility, Central Utility Plants, etc.
2. Construction materials used for the project such as Steel, Concrete, Masonry, Wood, etc.
3. Type of construction project such as new, addition, alteration, repair, etc.
4. For existing buildings, extent of construction such as incidental, minor, major, and/or voluntary seismic improvements as defined in Sections 202 and 3402A-2 **[OSHPD 1 & 4]**.
5. Seismic Force Resisting System used for each structure in the project.
6. Foundation system that will be used for each structure in the project such as spread footing, drilled piers, etc.
7. Analysis procedure used and basis of design such as ASCE 7 Equivalent Lateral Force Procedure, ASCE 41 Nonlinear Dynamic Procedure, etc.

8. Building characteristics such as number of stories above and below grade, foot print area at grade, grade slope on site, etc.
9. Special features such as requirement for shoring, underpinning, retaining walls, etc.

1603A.3 Structural Design Basis and Calculations. The application for the approval of construction documents that involves structural elements or components shall be accompanied by complete and accurate structural design computations, which shall comply with requirements prescribed by the enforcement agency:

1. The computations shall be preceded by a detailed index.
2. The computations including each major subsection shall be prefaced by a statement clearly and concisely outlining the basis for the structural design and indicating the manner in which the structure will resist the vertical loads and lateral forces.
3. The computations shall be sufficiently complete to the extent that calculations for the individual structural members and connections can be readily interpreted.

SECTION 1604A GENERAL DESIGN REQUIREMENTS

1604A.3 Serviceability. Structural systems and members thereof shall be designed to have adequate stiffness to limit deflections and lateral drift. See Section 12.12.1 of ASCE 7 for drift limits applicable to earthquake loading.

1604A.3.1 Deflections. The deflections of structural members shall not exceed the more restrictive of the limitations of Sections 1604A.3.2 through 1604A.3.6 or that permitted by Table 1604A.3.

TABLE 1604A.3 - DEFLECTION LIMITS^{a, b, c, h, i}

CONSTRUCTION	L or L_r	S or W	$D + (L$ or $L_r)$ ^{d,g}
...
Veneered walls, anchored veneers and adhered veneers over 1 inch (25 mm) thick, including the mortar backing	—	1/600	—
Farm buildings	—	—	1/180
Greenhouses	—	—	1/120

...

1604A.3.7 Horizontal diaphragms. The maximum span-width depth ratio for any roof or floor diaphragm consisting of steel and composite steel slab decking shall not exceed those given in Table 4.2.4 of AF & PA SDPWS for wood or maximum span-depth ratio given in Table 1604A.4 for steel and composite steel slab decking, unless test data and design calculations acceptable to the enforcement agency are submitted and approved for the use of other span-width or span-depth ratios. Concrete diaphragms shall not exceed the span- depth ratios for the equivalent composite steel-slab diaphragm in Table 1604A.4.

TABLE 1604A.4 – MAXIMUM HORIZONTAL DIAPHRAGM SPAN AND SPAN-DEPTH RATIOS^{1,3,4}

FLEXIBILITY FACTOR(F) ²	MAXIMUM DIAPHRAGM SPAN FOR MASONRY OR CONCRETE WALLS (feet)	DIAPHRAGM SPAN-DEPTH LIMITATION			
		Rotation (torsion) Not Considered in Diaphragm		Rotation (torsion) Considered in Diaphragm	
		Masonry or Concrete Walls	Flexible Walls	Masonry or Concrete Walls	Flexible Walls
More than 150	Not to be used	Not to be used	2:1	Not to be used	1-1/2:1
70-150	200	2:1 or as required for deflection	3:1	Not to be used	2:1
10-70	400	2-1/2:1 or as required for deflection	4:1	As required for deflection	2-1/2:1
1-10	No limitation	3:1 or as required for deflection	5:1	As required for deflection	3:1
Less than 1	No limitation	As required for deflection	No limitation	As required for deflection	3-1/2:1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.6 N/m, 1 psi = 6894 Pa

¹ Diaphragms shall satisfy span-depth limitations based on flexibility.

² Flexibility Factor (F) is the average deflection in micro inches (10⁻⁶) or μm of the diaphragm web per foot (m) of span stressed with a shear of 1 pound per foot (N/m).

³ The total deflection Δ of the diaphragm may be computed from the equation: Δ = Δ_f + Δ_w.

Where:

Δ_f = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams. The flexural stiffness of the web of diaphragms consisting of bare steel decking shall be neglected.

Δ_w = Web deflection of the diaphragm may be determined solving the following equation:

$$F = \frac{\Delta_w \times 10^6}{q_{ave} L}$$

Where:

L = Distance in feet (m) between the vertical resisting element (such as a shear wall) and the point to which the deflection is to be determined.

q_{ave} = Average shear in the diaphragm in pounds per foot (N/m) over length L.

⁴ When applying these limitations to cantilevered diaphragms, the allowable span-depth ratio will be half of that shown.

1604A.3.8 Deflections. Deflection criteria for materials not specified shall be developed by the project architect or structural engineer in a manner consistent with the provisions of this section and approved by the enforcement agency.

...

1604A.4 Analysis. Load effects on structural members and their connections shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short- and long-term material properties.

Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the added eccentricities expected to occur during their service life.

Any system or method of construction to be used shall be based on a rational analysis in accordance with well-established principles of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.

The total lateral force shall be distributed to the various vertical elements of the lateral force-resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements assumed not to be a part of the lateral force-resisting system are permitted to be incorporated into buildings provided their effect on the action of the system is considered and provided for in the design. Structural analysis shall explicitly include consideration of stiffness of diaphragms in accordance with ASCE 7 Section 12.3.1. A diaphragm is rigid for the purpose of distribution of story shear and torsional moment when the lateral deformation of the diaphragm is less than or equal to two times the average story drift. Where required by ASCE 7, provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to eccentricity between the center of application of the lateral forces and the center of rigidity of the lateral force resisting system.

Every structure shall be designed to resist the overturning effects caused by the lateral forces specified in this chapter. See Section 1609A for wind loads, Section 1610A for lateral soil loads and Section 1613A for earthquake loads.

...

1604A.5 Risk category. Each building and structure shall be assigned a *risk category* in accordance with Table 1604A.5. Where a referenced standard specifies an occupancy category, the risk category shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a risk category be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

...

TABLE 1604A.5 - RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
...	...
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: ... <ul style="list-style-type: none"> Group I-2 occupancies with an occupant load of 50 or more resident care recipients, but not having surgery or emergency treatment facilities. ...
IV	Buildings and other structures designated as essential facilities, including but not limited to: <ul style="list-style-type: none"> Group I-2 occupancies having surgery or emergency treatment facilities. [OSHPD 1 & 4] Hospital Buildings as defined in the California Administrative Code, Section 7-111 and all structures required for their continuous operation or access/egress. ...

...

1604A.8.2 Structural walls. Walls that provide vertical load-bearing resistance or lateral shear resistance for a portion of the structure shall be anchored to the roof and to all floors and members that provide lateral support for the wall or that are supported by the wall. The connections shall be capable of resisting the horizontal forces specified in Section 1.4.4 of ASCE 7 for walls of structures assigned to Seismic Design Category A and to Section 12.11 of ASCE 7 for walls of structures assigned to all other seismic design categories. *For anchorage of concrete or masonry walls to roof and floor diaphragms, the out-of-plane strength design force shall not be less than 280 lb/linear ft (4.09 kN/m) of wall.* Required anchors in masonry walls of hollow units or cavity walls shall be embedded in a reinforced grouted structural element of the wall. See Sections 1609A for wind design requirements and 1613A for earthquake design requirements.

...

SECTION 1605A LOAD COMBINATIONS

1605A.1 General. Buildings and other structures and portions thereof shall be designed to resist:

...

1605A.1.1 Stability. Regardless of which load combinations are used to design for strength, where overall structure stability (such as stability against overturning, sliding, or buoyancy) is being verified, use of the load combinations specified in Section 1605A.2 or 1605A.3 shall be permitted. Where the load combinations specified in Section 1605A.2 are used, strength reduction factors applicable to soil resistance shall be provided by a *registered design professional*. The stability of retaining walls shall be verified in accordance with Section 1807A.2.3. *When using allowable stress design, factor of safety for soil bearing values shall not be less than the overstrength factor of the structures supported.*

...

SECTION 1606A DEAD LOADS

...

1606A.3 Roof Dead Loads. *The design dead load shall provide for the weight of at least one additional roof covering in addition to other applicable loadings if the new roof covering is permitted to be applied over the original roofing without its removal, in accordance with Section 1511. ~~1510~~.*

...

SECTION 1607A LIVE LOADS

...

1607A.1 General. Live loads are those loads defined in Chapter 2 of this code.

1607A.2 Loads not specified. For occupancies or uses not designated in Table 1607A.1, the live load shall be determined in accordance with a method approved by the building official.

1607A.3 Uniform live loads. The live loads used in the design of buildings and other structures shall be the maximum loads expected by the intended use or occupancy but shall in no case be less than the minimum uniformly distributed unit loads required by Table 1607A.1.

...

TABLE 1607A.1 - MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS⁹

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
...
17. Hospitals [OSHPD 1 & 4]		
Corridors above first floor	80 100	1,000
Operating rooms, laboratories	60	1,000
Patient rooms	40	1,000
Mechanical and electrical equipment areas including open areas around equipment	50	—
Storage: Light Heavy	125 250	1000
Dining Area (Not used for assembly)	100	1000
Kitchen and serving areas	50	
...
36. Storage racks and wall-hung cabinets.	Total Loads ⁿ	

...

n. The minimum vertical design live load shall be as follows:

Paper media:

12-inch-deep (305 mm) shelf 33 pounds per lineal foot (482 N/m)
15-inch-deep (381 mm) shelf 41 pounds per lineal foot (598 N/m), or

33 pounds per cubic foot (5183 N/m³) per total volume of the rack or cabinet, whichever is less.

Film media:

18-inch-deep (457 mm) shelf 100 pounds per lineal foot (1459 N/m), or

50 pounds per cubic foot (7853 N/m³) per total volume of the rack or cabinet, whichever is less.

Other media:

20 pounds per cubic foot (311 N/m³) or 20 pounds per square foot (958 Pa), whichever is less, but not less than actual loads.

...

1607A.12.6 1607A.12.5 Uncovered open-frame roof structures. Uncovered open-frame roof structures shall be designed for a vertical live load of not less than 10 pounds per square foot (0.48 kN/m²) of the total area encompassed by the framework.

...

1607A.14 Interior walls and partitions. Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the loads to which they are subjected but not less than a horizontal load of 5 psf (0.240 kN/m²). The 5 psf (0.24 kN/m²) service working load need not be applied simultaneously with wind or seismic loads. The deflection of such walls under a load of 5 psf (0.24 kN/m²) shall not exceed the limits in Table 1604A.3.

...

SECTION 1608A SNOW LOADS

1608A.2 Ground snow loads. The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with ASCE 7 or Figure 1608A.2 for the contiguous United States and Table 1608.2 for Alaska. Site-specific case studies shall be made in areas designated "CS" in Figure 1608A.2. Ground snow loads for sites at elevations above the limits indicated in Figure 1608A.2 and for all sites within the CS areas shall be approved. Ground snow load determination for such sites shall be based on an extreme value statistical analysis of data available in the vicinity of the site using a value with a 2-percent annual probability of being exceeded (50-year mean recurrence interval). Snow loads are zero for Hawaii, except in mountainous regions as approved by the building official.

TABLE 1608.2 — GROUND SNOW LOADS, pg, FOR ALASKAN LOCATIONS

LOCATION	POUNDS PER SQUARE FOOT	LOCATION	POUNDS PER SQUARE FOOT	LOCATION	POUNDS PER SQUARE FOOT
Adak	30	Galena	60	Petersburg	150
Anchorage	50	Gulkana	70	St. Paul Islands	40
Angeon	70	Homer	40	Seward	50
Barrow	25	Juneau	60	Shemya	25
Barter Island	35	Kenai	70	Sitka	50
Bethel	40	Kodiak	30	Talkeetna	120
Big Delta	50	Kotzebue	60	Unalakleet	50
Cold Bay	25	McGrath	70	Valdez	160
Cordova	100	Nenana	80	Whittier	300
Fairbanks	60	Nome	70	Wrangell	60
Fort Yukon	60	Palmer	50	Yakutat	150

For SI: 1 pound per square foot = 0.0479 kN/m².

FIGURE 1608A.2 - Not shown for Clarity

SECTION 1609A WIND LOADS

...

1609A.1.3 Story Drift for Wind Loads. *The calculated story drift due to wind pressures with ultimate design wind speed, V_{ult} , shall not exceed 0.008 times the story height for buildings less than 65 feet (19,812 mm) in height or 0.007 times the story height for buildings 65 feet (19,812 mm) or greater in height.*

Exception: [OSHDP 1 & 4] *This story drift limit need not be applied for single-story open structures.*

...

SECTION 1612A FLOOD LOADS

...

1612A.3 Establishment of flood hazard areas. To establish flood hazard areas, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for [INSERT NAME OF JURISDICTION]," dated [INSERT DATE OF ISSUANCE], Agency's Flood Insurance Study (FIS) adopted by the local authority having jurisdiction where the project is located, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

...

SECTION 1613A EARTHQUAKE LOADS

1613A.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7 with all the modifications incorporated herein, excluding Chapter 14 and Appendix 11A. The seismic design category for a structure is permitted to shall be determined in accordance with Section 1613A or ASCE 7.

Exceptions:

- ~~1. Detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C, or located where the mapped short-period spectral response acceleration, S_s , is less than 0.4 g.~~
- ~~2. The seismic force-resisting system of wood-frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.~~
- ~~3. Agricultural storage structures intended only for incidental human occupancy.~~

Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.

1613A.2 Definitions. The following terms are defined in Chapter 2 except those defined below which shall, for the purposes of this section, have the meanings shown herein. Definition provided in ASCE 7 Section 11.2 and [OSHDP 1 & 4] Section 3402A.1 and ASCE 7 Section 11.2 shall apply when appropriate in addition to terms defined in this section.

ACTIVE EARTHQUAKE FAULT. A fault that has been the source of earthquakes or is recognized as a potential source of earthquakes, including those that have exhibited surface displacement within Holocene time (about 11,000 years) as determined by California Geological Survey (CGS) under the Alquist-Priolo Earthquake Fault Zoning Act, those included as type A or type B faults for the U.S. Geological Survey (USGS) National Seismic Hazard Maps, and faults considered to have been active in Holocene time by any authoritative source, Federal, State or Local Governmental Agency.

BASE. The level at which the horizontal seismic ground motions are considered to be imparted to the structure or the level at which the structure as a dynamic vibrator is supported. This level does not necessarily coincide with the ground level. See ASCE 7.

...

DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT. Distance measured from the nearest point of the building to the closest edge of an Alquist-Priolo Earthquake fault zone for an active fault, if such a map exists, or to the closest mapped splay of the fault.

HOSPITAL BUILDINGS. Hospital buildings and all other medical facilities as defined in Section 1250, Health and Safety Code.

GENERAL ACUTE CARE HOSPITAL. See Section 1224.3.

IRREGULAR STRUCTURE. A structure designed as having one or more plan or vertical irregularities per ASCE 7 Section 12.3.

...

STRUCTURAL ELEMENTS. Floor or roof diaphragms, decking, joists, slabs, beams, or girders, columns, bearing walls, retaining walls, masonry or concrete nonbearing walls exceeding one story in height, foundations, shear walls or other lateral force resisting members, and any other elements necessary to the vertical and lateral strength or stability of either the building as a whole or any of its parts, including connection between such elements.

...

1613A.3 Seismic ground motion values. Seismic ground motion values shall be determined in accordance with this section.

1613A.3.1 Mapped acceleration parameters. The parameters S_s and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(8). Where S_1 is less than or equal to 0.04 and S_s is less than or equal to 0.15, the structure is permitted to be assigned to Seismic Design Category A.

Figures 1613.3.1(1) through 1613.3.1(8) were stricken in the CBC 2013 and will not be shown in Chapter 16A. These figures are shown in Chapter 16.

...

1613A.3.5 Determination of seismic design category. Structures classified as Risk Category I, II or III that are located where the mapped spectral response acceleration parameter at 1-second period, S_1 , is greater than or equal to 0.75 shall be assigned to Seismic Design Category E. Structures classified as Risk Category IV that are located where the mapped spectral response acceleration parameter at 1-second period, S_1 , is greater than or equal to 0.75 shall be assigned to Seismic Design Category F. All other structures shall be assigned to Seismic Design Category D. a seismic design category based on their occupancy category and the design spectral response acceleration coefficients, S_{DS} and S_{D1} , determined in accordance with Section 1613.5.4 or the site-specific procedures of ASCE 7. Each building and structure shall be assigned to the more severe seismic design category in accordance with Table 1613.5.6(1) or 1613.5.6(2), irrespective of the fundamental period of vibration of the structure, T .

TABLE 1613.3.5(1) – SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD (0.2 second) RESPONSE ACCELERATIONS

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

TABLE 1613.3.5(2) – SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

1613A.3.5.1 Alternative seismic design category determination. *Not permitted by OSHPD.* Where S_1 is less than 0.75, the seismic design category is permitted to be determined from Table 1613.3.5(1) alone when all of the following apply:

1. In each of the two orthogonal directions, the approximate fundamental period of the structure, T_a , in each of the two orthogonal directions determined in accordance with Section 12.8.2.1 of ASCE 7, is less than $0.8 T_s$ determined in accordance with Section 11.4.5 of ASCE 7.
2. In each of the two orthogonal directions, the fundamental period of the structure used to calculate the story drift is less than T_s .
3. Equation 12.8-2 of ASCE 7 is used to determine the seismic response coefficient, C_s .
4. The diaphragms are rigid or are permitted to be idealized as rigid in accordance with Section 12.3.1 in ASCE 7 or for diaphragms permitted to be idealized as flexible in accordance with Section 12.3.1 of ASCE 7, the distance between vertical elements of the seismic force-resisting system does not exceed 40 feet (12 192 mm).

1613A.3.5.2 Simplified design procedure. *Not permitted by OSHPD.* Where the alternate simplified design procedure of ASCE 7 is used, the seismic design category shall be determined in accordance with ASCE 7.

...

1613A.4.1 Additional seismic-force-resisting systems for seismically isolated structures.

Add the following exception to the end of Section 17.5.4.2 of ASCE 7:

Exception: For isolated structures designed in accordance with this standard, the structural system limitations including the structural height limitations in Table 12.2-1 for ordinary steel concentrically braced frames (OCBFs) as defined in Chapter 11 and ordinary intermediate moment frames (OMFs) (IMFs) as defined in Chapter 11 are permitted to be taken as 160 feet (48 768 mm) for structures assigned to Seismic Design Category D, E or F, provided that the following conditions are satisfied:

1. The value of R_f as defined in Chapter 17 is taken as 1.
2. For OMFs and OCBFs, design is in accordance with AISC 341.

3. For IMFs, design is in accordance with AISC 341. In addition, requirements of Section E3.6e of AISC 341 shall be satisfied.

...

1613A.6 Ballasted photovoltaic panel systems. Ballasted, roof-mounted photovoltaic panel systems need not be rigidly attached to the roof or supporting structure. Ballasted non-penetrating systems shall be designed and installed only on roofs with slopes not more than one unit vertical in 12 units horizontal. Ballasted nonpenetrating systems shall be design to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605A, using a coefficient of friction determined by acceptable engineering principles. In structures assigned to Seismic Design Category C, D, E or F, ballasted nonpenetrating systems shall be designed to accommodate seismic displacement determined by nonlinear response history analysis or shake-table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for nonstructural components on roofs.

[OSHPD 1 & 4] Ballasted photovoltaic panel systems shall be considered as an alternative system.

...

SECTION 1615A STRUCTURAL INTEGRITY

1615A.1 General. High-rise buildings that are assigned to Risk Category III or IV shall comply with the requirements of this section. Frame structures shall comply with the requirements of Section 1615A.3. Bearing wall structures shall comply with the requirements of Section 1615A.4.

1615A.2 Definitions. The following words and terms are defined in Chapter 2 *except those defined below shall, for the purposes of this section, have the meanings shown herein.*

...

HIGH-RISE BUILDING. A building with an occupied floor located more than 75 feet (22 860 mm) above the base.

...

SECTION 1616A MODIFICATIONS TO ASCE 7

1616A.1 General. The text of ASCE 7 shall be modified as indicated in Sections 1616A.1.1 through 1616A.1.40 ~~1616A.1.42~~.

1616A.1.1 ASCE 7, Section 1.3. Modify ASCE 7 Section 1.3 by adding Section 1.3.6 as follows:

1.3.6 Structural Design Criteria. Where design is based on ASCE 7 Chapters 16, 17, or 18, ~~and 31~~, the ground motion, ~~wind tunnel design recommendations~~, analysis and design methods, material assumptions, testing requirements, and acceptance criteria proposed by the engineer shall be submitted to the enforcement agency in the form of structural design criteria for approval.

[OSHPD 1 & 4] Peer review requirements in Section 3414A of this code shall apply to design reviews required by ASCE 7 Chapters 17 and 18.

1616A.1.2 ASCE 7, Section 11.1.3. Replace last paragraph of ASCE 7 Section 11.1.3 by the following:

Buildings shall be designed and detailed in accordance with Chapter 12.

1616A.1.3 ASCE 7, Section 11.4.7. Modify ASCE 7 Section 11.4.7 by adding the following:

For buildings assigned to Seismic Design Category E or F, or when required by the building

official, a ground motion hazard analysis shall be performed in accordance with ASCE 7 Chapter 21 as modified by Section 1803A.6 of this code.

1616A.1.4 ASCE 7, Table 12.2 -1. Modify ASCE 7 Table 12.2-1 as follows:

A. BEARING WALL SYSTEMS

- 5. Intermediate Precast Shear Walls – Not permitted by OSHPD.
- 17. Light-framed walls with shear panels of all other materials – Not permitted by OSHPD.

B. BUILDING FRAME SYSTEMS

- 3. Steel ordinary concentrically braced frames – Not permitted by OSHPD.
- 8. Intermediate Precast Shear Walls – Not permitted by OSHPD.
- 24. Light-framed walls with shear panels of all other materials – Not permitted by OSHPD.
- 26. Special steel plate shear wall – Not permitted by OSHPD.

C. MOMENT RESISTING FRAME SYSTEMS

- 2. Steel special truss moment frames – Not permitted by OSHPD.
- 3. Steel intermediate moment frames – Not permitted by OSHPD.
- 4. Steel ordinary moment frames – Not permitted by OSHPD.
- 12. Cold-formed steel –special bolted moment frame - Not permitted by OSHPD.

Exception:

- 1) Systems listed in this section can be used as an alternative system when pre-approved by the enforcement agency.
- 2) Rooftop or other supported structures not exceeding two stories in height and 10 percent of the total structure weight can use the systems in this section when designed as components per ASCE 7 Chapter 13.
- 3) Systems listed in this section can be used for seismically isolated buildings, when permitted by Section 1613A.4.1.

1616A.1.5 ASCE 7, Section 12.2.3.1. Replace ASCE 7 Section 12.2.3.1 Items # 1 and # 2 by the following:

The value of the response modification coefficient, R , used for design at any story shall not exceed the lowest value of R that is used in the same direction at any story above that story. Likewise, the deflection amplification factor, C_d , and the system over strength factor, Ω_o , used for the design at any story shall not be less than the largest values of these factors that are used in the same direction at any story above that story.

1616A.1.6 ASCE 7, Section 12.2.3.2. Modify ASCE 7 Section 12.2.3.2 by adding the following additional requirement:

- f. Where design of elements of the upper portion is governed by special seismic load combinations, the special loads shall be considered in the design of the lower portion.

1616A.1.7 [Reserved for DSA-SS]

1616A.1.8 [Reserved for DSA-SS]

1616A.1.9 [Reserved for DSA-SS]

1616A.1.10 ASCE 7, Section 12.3.3. Modify first sentence of ASCE 7 Section 12.3.3.1 as follows:

12.3.3.1 Prohibited Horizontal and Vertical Irregularities for Seismic Design Categories D through F. Structures assigned to Seismic Design Category D, E, or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted.

1616A.1.11 ASCE 7, Section 12.7.2. Modify ASCE 7 Section 12.7.2 by adding item 6 to read as follows:

6. Where buildings provide lateral support for walls retaining earth, and the exterior grades on opposite sides of the building differ by more than 6 feet (1829 mm), the load combination of the seismic increment of earth pressure due to earthquake acting on the higher side, as determined by a Geotechnical engineer qualified in soils engineering plus the difference in earth pressures shall be added to the lateral forces provided in this section.

1616A.1.12 ASCE 7, Section 12.8.1.3. Replace ASCE 7 Section 12.8.1.3 by the following:

12.8.1.3 Maximum S_s Value in Determination of C_s . For regular structures five stories or less above the base as defined in Section 11.2 and with a period, T , of 0.5 s or less, C_s is permitted to be calculated using the larger of either $S_s = 1.5$ or 80% of the value of S_s determined per Sections 11.4.1 or 11.4.7.

12.8.1.3 Maximum S_{DS} Value in Determination of C_s and E_v

The value of C_s and E_v are permitted to be calculated using a value of S_{DS} equal to 1.0, but not less than 70% of S_{DS} as defined in Section 11.4.4, provided that all of the following criteria are met:

1. The structure does not have irregularities, as defined in Section 12.3.2;
2. The structure does not exceed five stories above the base as defined in Section 11.2;
3. The structure has a fundamental period, T , that does not exceed 0.5 seconds, as determined using Section 12.8.2;
4. The structure meets the requirements necessary for the redundancy factor, ρ , to be permitted to be taken as 1.0, in accordance with Section 12.3.4.2;
5. The site soil properties are not classified as Site Class E or F, as defined in Section 11.4.2; and
6. [Reserved for DSA-SS]
7. [OSHDP 1 & 4] The structure is a nonconforming building not supporting SPC-3 or higher buildings.

1616A.1.13 ASCE 7, Section 12.9.4. Replace ASCE 7 Section 12.9.4 as follows:

12.9.4 Scaling Design Values of Combined Response. Modal base shears used to determine forces and drifts shall not be less than the base shears calculated using the equivalent lateral force procedure of section 12.8.

1616A.1.14 ASCE 7, Section 12.10.2.1. Replace ASCE 7 Exception 1. of Section 12.10.2.1 by the following:

EXCEPTIONS:

1. The forces calculated above need not exceed those calculated using the load combinations with overstrength factor of Section 12.4.3.2 with seismic forces determined by Equation 12.10- 3 and transfer forces, where applicable.

1616A.1.15 ASCE 7, Section 12.12.3. [OSHDP 1 & 4] Replace ASCE 7 Equation 12.12-1 by the following:

$$\delta_M = C_d \delta_{max} \quad \text{(Equation 12.12-1)}$$

1616A.1.16 ASCE 7, Section 12.13.1. Modify ASCE 7 section 12.13.1 by adding Section 12.13.1.1 as follows:

12.13.1.1 Foundations and superstructure-to-foundation connections. The foundation shall be capable of transmitting the design base shear and the overturning forces from the structure into the supporting soil. Stability against overturning and sliding shall be in accordance with Section 1605A.1.1.

In addition, the foundation and the connection of the superstructure elements to the foundation shall have the strength to resist, in addition to gravity loads, the lesser of the following seismic loads:

1. The strength of the superstructure elements.
2. The maximum forces that ~~would occur~~ can be delivered to the foundation in the a fully yielded structural system.
3. Forces from the Load Combinations with overstrength factor in accordance with ASCE 7 Section 12.4.3.2.

Exceptions:

1. Where reference standards specify the use of higher design loads.
2. When it can be demonstrated that inelastic deformation of the foundation and superstructure-to-foundation connection will not result in a weak story or cause collapse of the structure.
3. Where ~~basic structural system~~ seismic force-resisting system consists of light framed walls with shear panels, unless the reference standard specifies the use of higher design loads.

Where the computation of the seismic overturning moment is by the equivalent lateral-force method or the modal analysis method, reduction in overturning moment permitted by section 12.13.4 of ASCE 7 may be used.

Where moment resistance is assumed at the base of the superstructure elements, the rotation and flexural deformation of the foundation as well as deformation of the superstructure-to-foundation connection shall be considered in the drift and deformation compatibility analyses.

1616A.1.17 ASCE 7, Section 13.1.3. [OSHDP 1 & 4] Modify ASCE 7 Section 13.1.3 by the following:

The design of supports and attachments for all nonstructural components shall have a component importance factor, I_p , equal to 1.5.

Exception: Freestanding skilled nursing or acute psychiatric buildings, not providing services/systems, utilities, or access/egress to general acute care buildings designated as SPC 3 or higher in accordance with Chapter 6 of the California Administrative Code, shall be permitted to use component importance factor, I_p , as shown in Table 1616A.1.17.

**TABLE 1616A.1.17
COMPONENT IMPORTANCE FACTOR (I_p)¹ FOR
FREESTANDING SKILLED NURSING AND ACUTE PSYCHIATRIC BUILDINGS**

Description	Importance Factor (I_p) ¹
Architectural components	1.0
Mechanical and electrical components	1.5
Medical devices	1.5
Piping, including in-line components	1.5
HVAC ducts, including in-line components	1.0
Electrical raceways	1.0

¹Components required for life-safety purposes after an earthquake, including emergency and standby power systems, mechanical smoke removal systems, fire protection sprinkler systems, fire alarm control panels, and egress stairways shall have a component importance factor (I_p) of 1.5.

...

1616A.1.18 ASCE 7, Section 13.1.4. Replace ASCE 7 Section 13.1.4 with the following:

13.1.4 Exemptions. The following nonstructural components are exempt from the requirements of this section:

1. Furniture (except storage cabinets as noted in Table 13.5-1).
2. Temporary or moveable (mobile) equipment.

Exceptions:

- a) Equipment shall be anchored if it is permanently attached to the building utility services such as electricity, gas, or water. For the purposes of this requirement, "permanently attached" shall include all electrical connections except plugs for duplex receptacles.
 - b) The enforcement agency shall be permitted to require temporary attachments for movable equipment which is usually stationed in one place and heavier than 400 pounds or has a center of mass located 4 feet (1.22 m) or more above the adjacent floor or roof level that directly support the component, when they are not in use for a period longer than 8 hours at a time.
3. Architectural, mechanical and electrical components in Seismic Design Categories D, E, or F where all of the following apply:
- a. The component is positively attached to the structure;
 - b. Flexible connections are provided at seismic separation joints and between the component and associated ductwork, piping, and conduit; and either:
 - i. The component weighs 400 pounds (1780 N) or less and has a center of mass located 4 feet (1.22 m) or less above the adjacent floor or roof level that directly support the component;

Exception: Special Seismic Certification requirements of this code in accordance with Section 1705A.13.3 ~~1705A.12.4~~ shall be applicable.

or

- ii. The component weighs 20 pounds (89 N) or less or, in the case of a distributed system, 5 lb/ft (73 N/m) or less.

Exception: The enforcement agency shall be permitted to require attachments for equipment with hazardous contents to be shown on construction documents irrespective of weight.

1616A.1.19 ASCE 7, Section 13.4. Replace ASCE 7 Section 13.4.2.3 with the following:

13.4.2.3 Pregualified P post-installed anchors and specialty inserts in Concrete and Masonry.

~~Post-installed anchors and specialty inserts in concrete that are used for component anchorage shall be pre-qualified for seismic applications in accordance with ACI 355.2, ACI 355.4, ICC-ES AC193, ICC-ES AC232, or ICC-ES AC308 or ICC-ES AC446 shall be permitted.~~ Post-installed anchors in masonry ~~used for component anchorage~~ shall be pre-qualified for seismic applications in accordance with ICC-ES AC01, AC58, or AC106.

Use of screw anchors shall be limited to dry interior conditions and shall not be used in building enclosures. Re-use of screw anchors or screw anchor holes shall not be permitted.

1616A.1.20 ASCE 7, Section 13.4.5 Modify ASCE 7 Section 13.4.5 by adding Section 13.4.5.1 as follows:

~~13.4.5.1 1908A.1.1~~ **13.4.5.1 1908A.1.1 Power Actuated Fasteners:**

Power actuated fasteners qualified in accordance with ICC-ES AC 70 shall be deemed to satisfy the requirements of Section 13.4.5. ~~this section.~~

Power actuated fasteners shall be permitted in seismic shear for components exempt from permit requirements by Section 1616A.1.18 of this code and for interior non-bearing non-shear wall partitions only. Power actuated fastener shall not be used to anchor seismic bracing, exterior cladding or curtain wall systems.

Exception: Power actuated fasteners in steel to steel connections pregualified for seismic application by cyclic tests in accordance with ICC-ES AC 70 shall be permitted for seismic design.

1616A.1.21 ~~1616A.1.20~~ ASCE 7, Section 13.5.6. Replace ASCE 7, Section 13.5.6 with the following:

13.5.6 Suspended Ceilings. Suspended ceilings shall be in accordance with this section.

13.5.6.1 Seismic Forces. The weight of the ceiling, W_p , shall include the ceiling grid; ceiling tiles or panels; light fixtures if attached to, clipped to, or laterally supported by the ceiling grid; and other components that are laterally supported by the ceiling. W_p shall be taken as not less than 4 psf (19 N/m²).

The seismic force, F_p , shall be transmitted through the ceiling attachments to the building structural elements or the ceiling-structure boundary.

13.5.6.2 Seismic Design Requirements. Suspended acoustical tile or lay-in panel ceilings shall be designed in accordance with ASTM E 580 Section 5.2.8 and the requirements of

Sections 13.5.6.2.1 and 13.5.6.2.2, or be designed in accordance with Section 13.2.1.1, or be seismically qualified in accordance with Sections 13.2.5 or 13.2.6.

13.5.6.2.1. Industry Standard Construction for Acoustical Tile or Lay-In Panel Ceilings. Acoustical tile or lay-in panel ceilings in Seismic Design Categories D, E, and F shall be designed and installed in accordance with ASTM C635, ASTM C636, and ASTM E 580, Section 5 - Seismic Design Categories D, E, and F as modified by Section 13.5.6.2.2.

Exception to Section 13.5.8.1 shall not be used in accordance with ASTM E 580 Section 5.5.

13.5.6.2.2 Modification to ASTM E 580. Modify ASTM E 580 by the following:

1. **Exitways.** Lay-in ceiling assemblies in exitways of hospitals shall be installed with a main runner or cross runner surrounding all sides of each piece of tile, board or panel and each light fixture or grille. A cross runner that supports another cross runner shall be considered as a main runner for the purpose of structural classification. Splices or intersections of such runners shall be attached with through connectors such as pop rivets, screws, pins, plates with end tabs or other approved connectors. Lateral force diagonal bracing may be omitted in the short or transverse direction of exitways, not exceeding 8 feet wide, when perimeter support in accordance with ASTM E 580 Sections 5.2.2 and 5.2.3 is provided and the perimeter wall laterally supporting the ceiling in the short or transverse direction is designed to carry the ceiling lateral forces. The connections between the ceiling grid, wall angle and the wall shall be designed to resist the ceiling lateral forces.
2. **Corridors and Lobbies.** Expansion joints shall be provided in the ceiling at intersections of corridors and at junctions of corridors and lobbies or other similar areas.
3. **Lay-in panels.** Metal panels and panels weighing more than 1/2 pounds per square foot (24 N/m²) other than acoustical tiles shall be positively attached to the ceiling suspension runners.
4. **Lateral force bracing.** Lateral force bracing is required for all ceiling areas except that they shall be permitted to be omitted in rooms with floor areas up to 144 square feet when perimeter support in accordance with ASTM E 580 Sections 5.2.2 and 5.2.3 are provided and perimeter walls are designed to carry the ceiling lateral forces. The connections between the ceiling grid, wall angle and the wall shall be designed to resist the ceiling lateral forces. Horizontal restraint point spacing shall be justified by analysis or test and shall not exceed a spacing of 12 feet by 12 feet. Restraint Bracing wires shall be secured with four tight twists in 1 1/2 inches, or an approved alternate connection.
5. Ceiling support and bracing wires shall be spaced a minimum of 6" from all pipes, ducts, conduits and equipment that are not braced for horizontal forces, unless approved otherwise by the building official.
5. **Ceiling fixtures.** ~~Fixtures installed in acoustical tile or lay-in panel ceilings shall be mounted in a manner that will not compromise ceiling performance. All recessed or drop-in light fixtures and grilles shall be supported directly from the fixture housing to the structure above with a minimum of two 12 gage wires located at diagonally opposite corners. Leveling and positioning of fixtures may be provided by the ceiling grid. Fixture support wires may be slightly loose to allow the fixture to seat in the grid system. Fixtures shall not be supported from main runners or cross runners if the weight of the fixtures causes the total dead load to exceed the deflection capability of the ceiling suspension system.~~

~~Fixtures shall not be installed so that the main runners or cross runners will be eccentrically loaded.~~

~~Surface-mounted fixtures shall be attached to the main runner with at least two positive clamping devices made of material with a minimum of 14 gage. Rotational spring catches do not comply. A 12 gage suspension wire shall be attached to each clamping device and to the structure above.~~

~~6. **Partitions.** Where the suspended ceiling system is required to provide lateral support for the permanent or relocatable partitions, the connection of the partition to the ceiling system, the ceiling system members and their connections, and the lateral force bracing shall be designed to support the reaction force of the partition from prescribed loads applied perpendicular to the face of the partition. Partition connectors, the suspended ceiling system and the lateral force bracing shall all be engineered to suit the individual partition application and shall be shown or defined in the drawings or specifications.~~

1616A.1.22 ~~1616A.1.21~~ **ASCE 7, Section 13.5.7. [OSHPD 1 & 4]** Modify ASCE 7 Section 13.5.7 by the following:

All access floors shall be special access floors in accordance with Section 13.5.7.2.

1616A.1.23 ~~1616A.1.22~~ **ASCE 7 Tables 13.5-1 and 13.6-1.** Modify ASCE 7, Tables 13.5-1 & 13.6-1 by the following:

1. For components with R_p greater than 1.5, overstrength factor (Ω_0) for design of anchorage to concrete and vibration isolators along with associated snubbers/connections shall be 2.0.
2. For Exterior Nonstructural Wall Elements and Connections, overstrength factor (Ω_0) shall be 1.0.

1616A.1.24 ~~1616A.1.23~~ **ASCE 7, Section 13.6.5.** Modify ASCE 7, Section 13.6.5.6 Exceptions 1 and 2 as follows:

Exceptions:

1. Design for the seismic forces of Section 13.3 shall not be required for raceways where either:
 - a. Trapeze assemblies are used to support raceways and the total weight of the raceway supported by trapeze assemblies is less than 10 lb/ft (146 N/m), or
 - b. The raceway is supported by hangers and each hanger in the raceway run is 12 in. (305 mm) or less in length from the raceway support point to the supporting structure. Where rod hangers are used with a diameter greater than 3/8 inch, they shall be equipped with swivels to prevent inelastic bending in the rod.
2. Design for the seismic forces of Section 13.3 shall not be required for conduit, regardless of the value of I_p , where the conduit is less than 2.5 in. (64 mm) trade size.

1616A.1.25 ~~1616A.1.24~~ **ASCE 7, Section 13.6.7.** Replace ASCE 7, Section 13.6.7 Exceptions 1 and 2 with the following:

Exceptions:

The following exceptions pertain to ductwork not designed to carry toxic, highly toxic, or flammable gases or used for smoke control:

1. Design for the seismic forces of Section 13.3 shall not be required for ductwork where either:

- a. Trapeze assemblies are used to support ductwork and the total weight of the ductwork supported by trapeze assemblies is less than 10 lb/ft (146 N/m); or
- b. The ductwork is supported by hangers and each hanger in the duct run is 12 in. (305 mm) or less in length from the duct support point to the supporting structure. Where rod hangers are used with a diameter greater than 3/8 inch, they shall be equipped with swivels to prevent inelastic bending in the rod.

2. Design for the seismic forces of Section 13.3 shall not be required where provisions are made to avoid impact with larger ducts or mechanical components or to protect the ducts in the event of such impact; and HVAC ducts have a cross-sectional area of 6 ft² (0.557 m²) or less, or weigh 10 lb/ft (146 N/m) or less.

1616A.1.25 ASCE 7, Section 13.6.8.2. ~~Modify ASCE 7, Section 13.6.8.2 by adding Exception as follows:~~

~~Anchor capacities shall be determined in accordance with material chapters of this code in lieu of using those in NFPA 13 and demand shall be based on ASCE 7.~~

1616A.1.26 ASCE 7, Section 13.6.8.3. Replace ASCE 7, Section 13.6.8.3 with the following:

13.6.8.3 Exceptions. Design of piping systems and attachments for the seismic forces of Section 13.3 shall not be required where one of the following conditions apply:

1. Trapeze assemblies are used to support piping whereby no single pipe exceeds the limits set forth in 3a. or b. below and the total weight of the piping supported by the trapeze assemblies is less than 10 lb/ft (146 N/m).
2. The piping is supported by hangers and each hanger in the piping run is 12 in. (305 mm) or less in length from the top of the pipe to the supporting structure. Where pipes are supported on a trapeze, the trapeze shall be supported by hangers having a length of 12 in. (305 mm) or less. Where rod hangers are used with a diameter greater than 3/8 inch, they shall be equipped with swivels to prevent inelastic bending in the rod.
3. Piping having an R_p in Table 13.6-1 of 4.5 or greater is used and provisions are made to avoid impact with other structural or nonstructural components or to protect the piping in the event of such impact and where the following size requirements are satisfied:
 - a. For Seismic Design Categories D, E, or F and values of I_p greater than one, the nominal pipe size shall be 1 inch (25 mm) or less.
 - b. For Seismic Design Categories D, E, or F, where $I_p = 1.0$ the nominal pipe size shall be 3 inches (80 mm) or less.

The exceptions above shall not apply to elevator piping.

1616A.1.27 ASCE 7, Section 13.6.10.1. Modify ASCE 7 Section 13.6.10.1 by adding Section 13.6.10.1.1 as follows:

13.6.10.1.1 Elevators guide rail support. The design of guide rail support-bracket fastenings and the supporting structural framing shall use the weight of the counterweight or maximum weight of the car plus not less than 40 percent of its rated load. The seismic forces shall be assumed to be distributed one third to the top guiding members and two thirds to the bottom guiding members of cars and counterweights, unless other substantiating data are provided. In addition to the requirements of ASCE 7 Section 13.6.10.1, the minimum seismic forces shall be 0.5g acting in any horizontal direction.

1616A.1.28 ASCE 7, Section 13.6.10.4. Replace ASCE 7, Section 13.6.10.4 as follows:

13.6.10.4 Retainer plates. Retainer plates are required at the top and bottom of the car and counterweight, except where safety devices acceptable to the enforcement agency are provided which meet all requirements of the retainer plates, including full engagement of the machined portion of the rail. The design of the car, cab stabilizers, counterweight guide rails and counterweight frames for seismic forces shall be based on the following requirements:

1. The seismic force shall be computed per the requirements of ASCE 7 13.6.10.1. The minimum horizontal acceleration shall be 0.5g for all buildings.
2. W_p shall equal the weight of the counterweight or the maximum weight of the car plus not less than 40 percent of its rated load.
3. With the car or counterweight located in the most adverse position, the stress in the rail shall not exceed the limitations specified in these regulations, nor shall the deflection of the rail relative to its supports exceed the deflection listed below:

RAIL SIZE (weight per foot of length, pounds)	WIDTH OF MACHINED SURFACE (inches)	ALLOWABLE RAIL DEFLECTION (inches)
8	1 ¼	0.20
11	1 ½	0.30
12	1 ¾	0.40
15	1 31/32	0.50
18 ½	1 31/32	0.50
22 ½	2	0.50
30	2 ¼	0.50

For SI: 1 inch = 25 mm, 1 foot = 305 mm.

NOTE: Deflection limitations are given to maintain a consistent factor of safety against disengagement of retainer plates from the guide rails during an earthquake.

4. Where guide rails are continuous over supports and rail joints are within 2 feet (610 mm) of their supporting brackets, a simple span may be assumed.
5. The use of spreader brackets is allowed.
6. Cab stabilizers and counterweight frames shall be designed to withstand computed lateral load with a minimum horizontal acceleration of 0.5g.

1616A.1.29 ASCE 7, Section 16.1.4. Remove ASCE 7 Sections 16.1.4.1 and 16.1.4.2 and modify Section 16.1.4 by the following:

Maximum scaled base shears used to determine forces and drifts shall not be less than the base shears calculated using the equivalent lateral force procedure of Section 12.8.

1616A.1.30 ASCE 7, Section 16.2.2. Modify ASCE 7 Section 16.2.2 by adding the following:

Requirements of this section shall be deemed to be satisfied for new buildings, using acceptance criteria in Section 16.2.4.2, by the nonlinear modeling parameters in ASCE 41.

1616A.1.31 ASCE 7, Section 16.2.3. Modify ASCE 7 Section 16.2.3 by adding the following:

Requirements of this section shall be deemed to be satisfied by using load combinations in Sections 12.4.2.3 and 12.4.3.2 with 25% of the required live loads.

1616A.1.32 ASCE 7, Section 16.2.4. Modify ASCE 7 Section 16.2.4 by the following:

- a) Where site is located within 3.1 miles (5 km) of an active fault at least seven ground motions shall be analyzed and response parameters shall be based on larger of the average of the maximum response with ground motions applied as follows:
 1. Each of the ground motions shall have their maximum component at the fundamental period aligned in one direction.
 2. Each of the ground motion's maximum component shall be rotated orthogonal to the previous analysis direction.
- b) Where site is located more than 5 km from an active fault at least 10 ground motions shall be analyzed. The ground motions shall be applied such that one-half shall have their maximum component aligned in one direction and the other half aligned in the orthogonal direction. The average of the maximum response of all the analyses shall be used for design.

1616A.1.33 ASCE 7, Section 16.2.4.1. [OSHPD 1 & 4] Replace ASCE 7 exception to Section 16.2.3 by the following:

Where this standard requires the consideration of the load combinations with overstrength factor of Section 12.4.3.2, average demand from MCE_R analysis obtained from suite of analysis in accordance with Section 16.2.4 shall be used with Immediate Occupancy (IO) acceptance criteria in Section 16.2.4.2.

1616A.1.34 ASCE 7, Section 16.2.4.2. [OSHPD 1 & 4] Modify ASCE 7 Section 16.2.4.2 by the following:

Acceptance criteria for elements subjected to deformation beyond their linear range of response shall be based on ASCE 41 for Immediate Occupancy (IO) at Design Earthquake (DE) and Life Safety (LS) at Risk-Targeted Maximum Considered Earthquake (MCE_R). For LS acceptance criteria at MCE_R , primary components shall be within the acceptance criteria for primary components and secondary components shall be within the acceptance criteria for secondary components.

1616A.1.35 ASCE 7, Section 17.2.1. Modify ASCE 7, Section 17.2.1 by adding the following:

~~The importance factor, I_p , for parts and portions of a seismic isolated building shall be the same as that required for a fixed base building of the same risk category.~~

1616A.1.35 1616A.1.36 ASCE 7 Section 17.2.4.7. Modify ASCE 7, Section 17.2.4.7 by adding the following:

~~The effects of uplift and/or rocking shall be explicitly accounted for in the analysis and in the testing of the isolator units.~~

1616A.1.37 ASCE 7, Section 17.2.5.2. Modify ASCE 7, Section 17.2.5.2 by adding the following:

~~The separation requirements for the building above the isolation system and adjacent buildings shall be the sum of the factored displacements for each building. The factors to be used in determining separations shall be:~~

- ~~1. For seismically isolated buildings, the deformation resulting from the analyses using the Risk-Targeted Maximum Considered Earthquake unmodified by R_t .~~
- ~~2. For fixed based buildings, C_d times the elastic deformations resulting from an equivalent static analysis using the seismic base shear computed via ASCE 7, Section 12.8.~~

1616A.1.36 1616A.1.38 ASCE 7, Section 17.4. Modify ASCE 7, Section 17.4.2 by adding the following:

17.4.2.3 Linear Procedure. Linear procedures shall not be used in Seismic Design Category E and F structures. ~~be limited to structures located at sites where mapped value of S_s is less than 0.6g.~~

1616A.1.37 ~~1616A.1.39~~ ASCE 7, Section 17.6 Modify ASCE 7, Section 17.6 by adding the following:

17.6.1.1 Minimum Seismic Force. For the response spectrum and linear response history procedures, V_b and V_s , shall not be taken less than those calculated in accordance with Equations 17.5-7 and 17.5-8.

1616A.1.38 ~~1616A.1.40~~ ASCE 7, Section 18.3.1. Modify ASCE 7, Section 18.3.1 by replacing the third paragraph with the following:

If the calculated force in an element of the seismic force resisting system does not exceed 1.5 times its nominal strength for the Risk-Targeted Maximum Considered Earthquake (MCE_R) nor its nominal strength for the Design Earthquake (DE), the element is permitted to be modeled as linear. For this section, the MCE_R and DE response shall be based on largest response due to a single ground motion and not the average response of suite of ground motions.

1616A.1.39 ~~1616A.1.41~~ Earthquake Motion Measuring Instrumentation and Monitoring-Post-Earthquake Structural Verification. [OSHPD 1 & 4] Modify ASCE 7 by the following:

Scope: For buildings with a ~~Seismic Isolation System, a Damping System or a Lateral Force Resisting System (LFRS) not listed in ASCE 7 Table 12.2-1,~~ earthquake motion measuring instrumentation and installed by the owner and monitoring shall be required. Monitoring requirements shall also apply to welded steel moment frames buildings constructed under a permit issued prior to October 25, 1994 post earthquake verification shall be in accordance with this section.

Instrumentation: ~~There shall be a sufficient number of instruments to characterize the response of the building during an earthquake and shall include at least one tri-axial free field instrument or equivalent. A proposal for instrumentation and equipment specifications shall be forwarded to the enforcement agency for review and approval.~~

~~The instruments shall be interconnected for common start and common timing. Each instrument shall be located so that access is maintained at all times and is unobstructed by room contents. A sign stating "MAINTAIN CLEAR ACCESS TO THIS INSTRUMENT" shall be posted in a conspicuous location.~~

~~The owner of the building shall be responsible for the implementation of the instrumentation program. Maintenance of the instrumentation and removal /processing of the records shall be the responsibility of the enforcement agency.~~

Monitoring: ~~After every significant seismic event, where the ground shaking acceleration at the site exceeds 0.3g, or the acceleration at any monitored building level exceeds 0.8g, as measured by the seismic monitoring system in the building, the owner shall retain a structural engineer to make an inspection of the structural system. The inspection shall include viewing the performance of the building, reviewing the strong motion records, and a visual examination of the isolators, dampers, and their connections for deterioration, offset or physical damage. A report for each inspection, including conclusions on the continuing adequacy of the structural system, shall be submitted to the enforcement agency.~~

Verification: After every seismic event that generates ground motions specified in the California Administrative Code, Chapter 6, Section 4.2.0.1 or the damage indicators specified in the California Administrative Code, Chapter 6, Section 4.2.0.2 at a welded steel moment frame building constructed under a permit issued prior to October 25, 1994, the owner shall retain a

structural engineer to perform detailed joint evaluations required to meet the following requirements:

1. A detailed joint evaluation program shall be submitted to the enforcement agency for approval prepared in accordance with the requirements of the California Administrative Code, Chapter 6, Section 4.2.0.3.

2. Upon approval of the joint evaluation program required by Item 1 above for the joint inspections, a project to perform the joint inspections, detailed in the program, shall be submitted and a building permit shall be obtained by the owner no later than 6 months from the date of occurrence of the seismic event.

Exception: Where the ground motions at the building site are less than 0.4g, the permit shall be obtained no later than 12 months from the date of occurrence of the seismic event.

3. A detailed joint evaluation report shall be submitted to the enforcement agency no later than 6 months of obtaining the building permit. The report shall document the findings from the inspections of the joints and include conclusions on the adequacy of the structural system. Where unsafe conditions are discovered, the provisions of Section 116 shall apply.

Where the detailed joint evaluation report is not submitted within the timeframes specified above, the building shall not be issued a building permit for any projects except for those for seismic compliance, maintenance and repair until the detailed joint evaluation work is complete.

1616A.1.40 1616A.1.42 Operational Nonstructural Performance Level Requirements.

[OSHPD 1 & 4] New general acute care hospitals and new building(s) required for general acute care services shall satisfy Operational Nonstructural Performance Level (NPC-5) requirements.

Exception: A new building which is required for general acute care services that is added to an existing general acute care hospital and which has a building area of 4,000 square feet (371 m²) or less, need not satisfy the NPC-5 requirements until the deadline specified in California Administrative Code (Part 1, Title 24 CCR), Chapter 6.

Hospitals and buildings designed and constructed to the provisions of this code for new construction shall be deemed to satisfy Operational Nonstructural Performance Level (NPC-5) requirements when:

1. The facility has on-site supplies of water and holding tanks for sewage and liquid waste, sufficient to support 72 hours of emergency operations for the hospital or building, which are integrated into the building plumbing systems in accordance with the California Plumbing Code.
2. An on-site emergency system as defined in the California Electrical Code is incorporated into the building electrical system for critical care areas. Additionally, the system shall provide for radiological service and an onsite fuel supply for 72 hours of acute care operation.

Emergency and standby generators shall not be located below the higher of the Design Flood Elevation (DFE) or Base Flood Elevation (BFE) plus two feet (BFE + 2 ft.) or 500 year flood elevation, whichever is higher, and shall be located at an elevation close to grade for easy accessibility from outside for maintenance.

All existing amendments that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

CHAPTER 17
SPECIAL INSPECTIONS AND TESTS

SECTION 1701
GENERAL

1701.1 Scope. The provisions of this chapter shall govern the quality, workmanship and requirements for materials covered. Materials of construction and tests shall conform to the applicable standards listed in this code.

...

SECTION 1703
APPROVALS

...

1703.4 Performance. Specific information consisting of test reports conducted by an approved agency in accordance with the appropriate referenced standards, or other such information as necessary, shall be provided for the building official to determine that the product, material or assembly meets the applicable code requirements.

[OSHPD 2] Tests performed by an independent approved testing agency/laboratory having accreditation to the International Standards Organization (ISO) accreditation Standard 17025 or under the responsible charge of a competent approved independent Registered Design Professional shall be deemed to comply with requirements of this section. Test reports for structural tests shall be reviewed and accepted by an independent California licensed structural engineer.

...

SECTION 1704
SPECIAL INSPECTIONS AND TESTS, CONTRACTOR
RESPONSIBILITY AND STRUCTURAL
OBSERVATION

...

1704.2 Special inspections and tests. Where application is made to the building official for construction as specified in section 105, the owner or the owners authorized agent, other than the contractor, shall employ one or more *approved agencies* to provide special inspections and tests during construction on the types of work specified in Section 1705 and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

[OSHPD 2] An inspection agency having accreditation to the International Standards Organization (ISO) accreditation Standard 17020 shall be deemed to comply with the requirements for an approved inspection agency.

...

Exceptions:

...

3. Special inspections and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the conventional light-frame construction provisions of Section 2308. *[OSHPD 2] Not permitted by OSHPD.*

...

**SECTION 1705
REQUIRED SPECIAL INSPECTIONS AND TESTS**

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1705.5.3 [OSHPD 2] Manufactured Trusses and Assemblies. *The fabrication of trusses and other assemblages constructed using wood and metal members, or using light metal plate connectors, shall be continuously inspected by an approved agency. ~~a qualified inspector approved by the enforcement agency~~. The ~~inspector~~ approved agency shall furnish the architect, structural engineer and the enforcement agency with a report that the lumber species, grades and moisture content; type of glue, temperature and gluing procedure; type of metal members and metal plate connectors; and the workmanship conform in every material respect with the duly approved construction documents, plans and specifications. Each inspected truss shall be stamped by the approved agency inspector with an identifying mark.*

...

1705.13.3 Designated Seismic System. For structures assigned to Seismic design Category C, D, E or F and with *designated seismic systems* that are subject to the requirements of Section 13.2.2 of ASCE 7 for certification, the *registered design professional* shall specify on the *approved construction documents* the requirements to be met by analysis, testing or experience data as specified therein. *Certificate of compliance* documenting that the requirements are met shall be submitted to the building official as specified in Section 1704A.5.

1705.13.3.1 Special Seismic Certification. [OSHPD 2]

1. Special seismic certification shall be required for life-safety components, such as emergency and standby power systems, mechanical smoke removal systems, and fire sprinkler/fire protection systems.
2. Equipment and components supporting sub-acute bed(s) shall have special seismic certification in accordance with Section 1705A.

Construction documents for OSHPD 2 buildings without sub-acute beds shall explicitly state that skilled nursing facility or intermediate care facility does not admit patients needing sustained electrical life-support equipment.

...

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

**CHAPTER 17A
SPECIAL INSPECTIONS AND TESTS**

**SECTION 1701A
GENERAL**

1701A.1 Scope. The provisions of this chapter shall govern the quality, workmanship and requirements for materials covered. Materials of construction and tests shall conform to the applicable standards listed in this code.

1701A.1.1 Application. *The scope of application of Chapter 17A is as follows:*

1. ~~Reserved for OSHPD~~

2. Structures regulated by the Office of Statewide Health Planning and Development (OSHDP), which include those applications listed in Section 1.10.1, and 1.10.4. These applications include hospitals, skilled nursing facilities, intermediate care facilities and correctional treatment centers.

Exception: [OSHDP 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light-steel-frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 17 and any applicable amendments therein.

1701A.1.2 Amendments in this chapter. OSHDP adopt this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. ~~Reserved for OSHA~~
2. Office of Statewide Health Planning and Development:
[OSHDP 1] - For applications listed in Section 1.10.1.
[OSHDP 4] - For applications listed in Section 1.10.4.

...

1701A.3 1701A.4 Special inspectors inspections and tests. [OSHDP 1 and 4] In addition to the inspector(s) of record required by the California Administrative Code, Section 7-144, the owner shall employ one or more approved agencies to provide special inspections and tests ~~special inspectors who shall provide inspections during construction on the types of work listed under Chapters 17A, 18A, 19A, 20, 21A, 22A, 23, 24, 25, 34A, and noted in the Test, Inspection, and Observation (TIO) program required by Sections 7-141, 7-145 and 7-149 of the California Administrative Code. Test, Inspection, and Observation (TIO) program shall satisfy requirements of Section s 1704A. 2-3 and 1704A.5.~~

...

SECTION 1702A DEFINITIONS

1702A.1 Definitions. The following terms are defined in Chapter 2 except those defined below which shall, for the purposes of this ~~section~~ chapter, have the meanings shown herein.

...

Quality Assurance (QA). Special inspections and testing provided by an approved agency employed by the Owner. Project specific testing required by approved construction documents shall be performed by the approved agency responsible for Quality Assurance (QA), unless approved otherwise by the building official.

Quality Control (QC). Inspections and materials/functionality testing provided by the fabricator, erector, manufacturer or other responsible contractor as applicable.

...

SPECIAL INSPECTION.

Continuous special inspection. The full-time observation of work requiring special inspection by a special inspector who is present in the area where the work is being performed.

Periodic special inspection. The part-time or intermittent observation of work requiring special inspection by a special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

...

SECTION 1703A APPROVALS

...

1703A.4 Performance. Specific information consisting of test reports conducted by an approved agency in accordance with the appropriate referenced standards, or other such information as necessary, shall be provided for the building official to determine that the product, material or assembly meets the applicable code requirements.

~~Repealed from Section 1703A.12.3~~ **[OSHPD 1 & 4]** *All tests shall be performed by an independent approved testing agency/laboratory having accreditation to the International Standards Organization (ISO) accreditation Standard 17025 or shall be under the responsible charge of a ~~an~~ competent approved independent Registered Design Professional California licensed engineer shall be deemed to comply with requirements of this section. Test reports for structural tests shall be reviewed and accepted by an independent California licensed structural engineer.*

...

SECTION 1704A SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

1704A.1 General. Special inspections and tests, statements of special inspections, responsibilities of contractors, submittal to the building official and structural observation shall meet applicable requirements of this section.

1704A.2 Special inspections and tests. Where application is made to the building official for construction as specified in section 105, the owner ~~or the owners authorized agent, other than contractor,~~ shall employ one or more approved agencies to provide special inspections and tests during construction on the types of work specified in Section 1705A and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

[OSHPD 1 & 4] *An inspection agency having accreditation to the International Standards Organization (ISO) accreditation Standard 17020 shall be deemed to comply with the requirements for an approved inspection agency.*

The inspectors shall act under the direction of the architect or structural engineer or both, and be responsible to the Owner. Where the California Administrative Code (CAC) Section 7-115 (a) 2 permits construction documents to be prepared under the responsible charge of a mechanical, electrical or civil engineer, inspectors shall be permitted to work under the direction of engineer in appropriate branch as permitted therein.

Exceptions:

1. *Special inspections and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.*
2. *Unless otherwise required by the building official, special inspections are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.*
3. *Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light frame construction provisions of Section 2241.7 or the conventional light frame construction provisions of Section 2308.*
4. *The contractor is permitted to employ the approved agencies where the contractor is also the owner.*

...

1704A.2.3 Statement of special inspections. The applicant shall submit a statement of *special inspections prepared by the registered design professional in responsible charge* in accordance with Section 107.1 as a condition for ~~permit issuance~~ *construction documents review*. This statement shall be in accordance with Section 1704A.3.

~~**Exception:** A statement of *special inspections* is not required for portions of structures designed and constructed in accordance with the cold-formed steel light frame construction provisions of Section 2211.7 or the conventional light frame construction provisions of Section 2308.~~

...

1704A.2.4 Report requirement. The *inspector(s) of record* and ~~A~~ approved agencies shall keep records of special inspections and tests. The *inspector of record* and approved agency shall submit reports of special inspections and tests to the building official, and to the registered design professional in responsible charge *as required by the California Administrative Code*. Reports shall indicate that work inspected or tested was or was not completed in conformance to approved construction documents *as required by the California Administrative Code and this code, Title 24 Parts 1 and 2*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge prior to the completion of that phase of the work. A final report documenting required special inspections and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted at a point in time agreed upon prior to the start of work by the owner or owner's authorized agent to the building official.

1704A.2.5 Special inspection of fabricated items. Where fabrication of structural, load-bearing or lateral load resisting members or assemblies is being conducted on the premises of a fabricator's shop, *special inspection* of the fabricated items shall be performed during fabrication.

Exceptions: [OSHPD 1 & 4]

- 1) Special inspections during fabrication are not required where the fabricator maintains approved detailed fabrication and quality control procedures that provide a basis for control of the workmanship and the fabricator's ability to conform to *approved construction documents* and this code. Approval shall be based upon review of fabrication and quality control procedures and periodic inspection of fabrication practices by the *special inspector and/or building official, as determined by the building official.*
- 2) ~~Special inspections are not required where fabricator is registered and approved in accordance with Section 1704.2.5.1.~~

~~**1704.2.5.1 Fabricator approval.** *Special inspections during fabrication are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection.* Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved agency. At completion of fabrication, the approved fabricator shall submit a *certificate of compliance* to the owner or owner's authorized agent for submittal to the *building official as specified in Section 1704.5* stating that the work was performed in accordance with the *approved construction documents*.~~

...

1704A.3.2 Seismic requirements in the statement of special inspections. Where Section 1705A.12 or 1705A.13 specifies *special inspections* or tests for seismic resistance, the statement of special inspections shall identify the *equipment/components that require special seismic certification* designated seismic systems and seismic force resisting systems that are subject to *special inspections* or tests.

...

1704A.4 Contractor responsibility. Each contractor responsible for the construction of a main wind- or seismic force resisting system, *installation of equipment/components requiring special seismic certification designated seismic system* or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the *building official* and the owner or the Owner's authorized agent prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the statement of *special inspections*.

1704A.5 Submittal to the Building official. In addition to the submittal of reports of *special inspections* and tests in accordance with Section 1704A.2.4, reports and certificates shall be submitted by the owner or owner's authorized agent to the building official for each of the following:

1. ~~[OSHPD 1 & 4]~~ *Certificate of Compliance* for the fabrication of structural, load-bearing or lateral load-resisting members or assemblies on the premises of ~~an registered and approved fabricator~~ in accordance with Section ~~1704A.2.5. 1704.2.5.1.~~
2. *Certificate of compliance* for the seismic qualification *manufacturer's certification* of non-structural components, supports and attachments in Section 1705A.13.2.
3. *Certificate of compliance* for the ~~designated seismic system~~ *equipment/components requiring special seismic certification* in accordance with Section 1705A.13.3.

...

1704A.6 Structural observations. ~~Where required by the provisions of Section 1704.6.1 or 1704.6.2,~~
‡ The owner or the owner's authorized agent shall employ a *registered design professional* to perform structural observations. Structural observation does not include or waive the responsibility for inspection in Section 110 or the special inspections in Section 1705A or other sections of this code.

Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations.

At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved.

~~**1704.6.1 Structural observations for seismic resistance.** Structural observations shall be provided for those structures assigned to Seismic Design Category D, E or F where one or more of the following conditions exist:~~

- ~~1. The structure is classified as Risk Category III or IV.~~
- ~~2. The height of the structure is greater than 75 feet (22 860 mm) above the base as defined in ASCE 7.~~
- ~~3. The structure is assigned to Seismic Design Category E, is classified as Risk Category I or II, and is greater than two stories above grade plane.~~
- ~~4. When so designated by the registered design professional responsible for the structural design.~~
- ~~5. When such observation is specifically required by the building official.~~

~~**1704.6.2 Structural observations for wind requirements.** Structural observations shall be provided for those structures sited where Vasd as determined in accordance with Section 1609.3.1 exceeds 110 mph (49 m/sec), where one or more of the following conditions exist:~~

- ~~1. The structure is classified as Risk Category III or IV.~~
- ~~2. The building height is greater than 75 feet (22 860 mm).~~
- ~~3. When so designated by the registered design professional responsible for the structural design.~~
- ~~4. When such observation is specifically required by the building official.~~

**SECTION 1705A
REQUIRED SPECIAL INSPECTIONS AND TESTS**

1705A.1 General. Special inspections and tests of elements and nonstructural components of buildings and structures shall meet the applicable requirements of this section.

...

1705A.2.1 Structural steel. Special inspections and nondestructive testing of structural steel elements in buildings, structures and portions thereof shall be in accordance with the quality assurance inspection requirements of ~~AISC 360 of this section, and Chapter 22A and quality control requirements of AISC 360, AISC 341 and AISC 358.~~

Exception: Special inspection of railing systems composed of structural steel elements shall be limited to welding inspection of welds at the base of cantilevered rail post.

AISC 360, Chapter N and AISC 341, Chapter J are adopted, except as noted below:

The following provisions of AISC 360, Chapter N are not adopted:

- 1. N4., Item 2. (Quality Assurance Inspector Qualifications)*
- 2. N5., Item 2. (Quality Assurance)*
- N5., Item 3. (Coordinated Inspection)*
- N5., Item 4. (Inspection of Welding)*
- N7. (Approved Fabricators and Erectors)*
- N8. (Nonconforming Material and Workmanship)*

In addition to the quality assurance inspection requirements contained in AISC 360, Section N5 Item 6 (Inspection of High-Strength Bolting) (Minimum Requirements for Inspection of Structural Steel Buildings), the requirements of Table 1705A.2.1 of the California Building Code shall apply.

In addition to the quality assurance requirements contained in AISC 360, Section N6 (Minimum Requirements for Inspection of Composite Construction), the requirements of Table 1705A.2.1 of the California Building Code shall apply.

In addition to the quality assurance requirements contained in AISC 341, Chapter J, Section J5 (Inspection Tasks), the requirements of Section 1704A.3 and Table 1705A.2.1 of the California Building Code shall apply.

TABLE 1705A.2.1 - REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD^a	CBC REFERENCE
1. Material verification of high-strength bolts, nuts and washers:				
<i>a. Identification markings to conform to ASTM standards specified in the approved construction documents.</i>	-	X	<i>AISC 360, Section A3.3 and applicable ASTM material standards</i>	-
<i>b. Manufacturer's certificate of compliance required.</i>	-	X	-	-

2. Inspection of high-strength bolting:				
a. Snug-tight joints.	-	X	AISC 360, Section M2.5	-
b. Pretensioned and slip-critical joints using turn-of-nut with matchmarking, twist-off bolt or direct tension indicator methods of installation.	-	X		
c. Pretensioned and slip-critical joints using turn-of-nut without matchmarking or calibrated wrench methods of installation.	X	-		
3. Material verification of structural steel and cold-formed steel deck:				
a. For structural steel, identification markings to conform to AISC 360.	-	X	AISC 360, Section A3.1	2203A.1
b. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents.	-	X	Applicable ASTM material standards	
c. Manufacturer's certified test reports.	-	X		
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.	-	X	AISC 360, Section A3.5 and applicable AWS A5 documents	-
b. Manufacturer's certificate of compliance required.	-	X	-	-
5. Inspection of welding:				
a. Structural steel and cold-formed steel deck:				
1) Complete and partial joint penetration groove welds.	X	-	AWS D1.1, AWS D1.8	1705A.2.1
2) Multipass fillet welds.	X	-		
3) Single-pass fillet welds $> \frac{5}{16}$ "	X	-		
4) Plug and slot welds.	X	-		
5) Single-pass fillet welds $\leq \frac{5}{16}$ "	-	X	AWS D1.3	
6) Floor and roof deck welds.	-	X		

TABLE 1705A.2.1- continued
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD ^a	CBC REFERENCE
b. Reinforcing steel:				
1) Verification of weldability of reinforcing steel other than ASTM A 706.	-	X	AWS D1.4, ACI 318: Sections <u>26.6.4.1,</u> <u>18.2.8,</u> <u>25.5.7.4</u> <u>3.5.2</u>	-
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	-		
3) Shear reinforcement.	X	-		
4) Other reinforcing steel.	-	X		
6. Inspection of steel frame joint details for compliance:				
a. Details such as bracing and stiffening.	-	X	-	1705A.2.1 1705A.2.2
b. Member locations.	-	X		
c. Application of joint details at each connection.	-	X		

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1705A.14 1705A.12, Special inspection for seismic resistance

...

1705A.2.2 Cold-formed steel deck. Special inspections and qualification of welding special inspectors for cold formed steel floor and roof deck shall be in accordance with the quality assurance inspection requirements of SDI QA/QC.

Deck weld special inspection shall also satisfy requirements in Table 1705A.2.1 and Section 1705A.2.5.

...

1705A.2.3.1 1705A.2.2.3 Steel joist and joist girder inspection. Special inspection is required during the manufacture and welding of steel joists or joist girders. The approved agency special inspector shall verify that proper quality control procedures and tests have been employed for all materials and the manufacturing process, and shall perform visual inspection of the finished product. The approved agency special inspector shall place a distinguishing mark, and/or tag with this distinguishing mark, on each inspected joist or joist girder. This mark or tag shall remain on the joist or joist girder throughout the job site receiving and erection process.

...

1705A.2.4.1 1705A.2.2.4 Light-framed steel truss inspection. The manufacture of cold-formed light framed steel trusses shall be continuously inspected by an approved agency a qualified special inspector approved by the enforcement agency. The approved agency special inspector shall verify conformance of materials and manufacture with approved plans and specifications. The approved agency special inspector shall place a distinguishing mark, and/or tag with this distinguishing mark, on each inspected truss. This mark or tag shall remain on the truss throughout the job site receiving and erection process.

1705A.2.5 1705A.2.2.5 Inspection of structural welding. Inspection of all shop and field welding operations shall be made by a qualified welding inspector approved by the enforcement agency.

The minimum requirements for a qualified welding inspector shall be as those for an AWS Certified Welding Inspector (CWI), as defined in the provisions of the AWS QC1. All welding inspectors shall be as approved by the enforcement agency.

Exception: JOSH PD 1 & 41 Inspection and nondestructive testing personnel meeting the requirements of AISC 341 Section J4 (in addition to AISC 360 Section N4) shall be permitted to perform quality control and quality assurance inspections at the premises of an approved fabricator's shop.

The welding inspector shall make a systematic daily record of all welds. In addition to other records, this record shall include:

1. Identification marks of welders.
2. List of defective welds.
3. Manner of correction of defects.

The welding inspector shall check the material, details of construction and procedure, as well as workmanship of the welds. The inspector shall verify that the installation of end-welded stud shear connectors is in accordance with the requirements of AWS D1.1 and the approved plans and specifications. The inspector approved agency shall furnish the architect, structural engineer, and the enforcement agency with a verified report that the welding is proper and has been done in conformity conformance with AWS D1.1, D1.3, D1.8, and the approved construction documents.

1705A.3 Concrete construction. Special inspections and tests of concrete construction shall be performed in accordance with this section and Table 1705A.3.

Exception: Special inspections and tests shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock.
2. Continuous concrete footings supporting walls of buildings three stories or less above grade plane that are fully supported on earth or rock where:
 - 2.1. The footings support walls of light frame construction;
 - 2.2. The footings are designed in accordance with Table 1809.7; or
 - 2.3. The structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the approved construction documents or used in the footing construction.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 MPa).
4. Concrete foundation walls constructed in accordance with Table 1807.1.6.2.
5. Concrete patios, driveways and sidewalks, on grade.

...

1705A.3.3 1705A.3.2 Batch plant inspection. Except as provided under this § section 1705A.3.3, the quality and quantity of materials used in transit-mixed concrete and in batched aggregates shall be continuously inspected by an approved agency special inspector at the location where materials are measured.

1705A.3.3.1 1705A.3.3 Waiver of continuous batch plant inspection. Continuous batch plant inspection may be waived by the registered design professional, subject to approval by the enforcement agency under either of the following conditions:

1. The concrete plant complies fully with the requirements of ASTM C 94, Sections 9.8 and 10.9, and has a current certificate from the National Ready Mixed Concrete Association or another agency acceptable to the enforcement agency. The certification shall indicate that the plant has automatic batching and recording capabilities.

2. For single -story light-framed construction (without basement or retaining wall higher than 6' in height measured from bottom of footing to top of wall) – buildings and isolated foundations supporting equipment only, where deep foundation elements are not used, – where the specified compressive strength f_c of the concrete delivered to the jobsite is 3,500 psi (24.13 MPa) and where the f_c used in design is not greater than 3,000 psi (20.68 MPa).

When continuous batch plant inspection is waived, the following ~~periodic inspection~~ requirements shall apply and shall be described in the construction documents:

1. ~~Qualified technician of the~~ An approved agency testing laboratory shall check the first batch at the start of the day to verify materials and proportions conform to the approved mix design.
2. ~~A~~ L ~~licensed weighmaster shall to positively identify quantity of materials as to quantity and certify to each load by a batch ticket.~~
3. Batch tickets, including material quantities and weights shall accompany the load, shall be transmitted to the inspector of record by ~~a the~~ truck driver with load identified thereon. The load shall not be placed without a batch ticket identifying the mix. The inspector of record shall will keep a daily record of placements, identifying each truck, its load, and time of receipt at the job site, and approximate location of deposit in the structure and shall maintain will transmit a copy of the daily record as required by to the enforcement agency.

1705A.3.4 Inspection of prestressed concrete.

1. In addition to the general inspection required for concrete work, all plant fabrication of prestressed concrete members or tensioning of posttensioned members constructed at the site shall be continuously inspected by an inspector specially approved for this purpose by the enforcement agency.
2. The prestressed concrete plant fabrication inspector shall check the materials, equipment, tensioning procedure and construction of the prestressed members and prepare daily written reports. ~~The inspector~~ approved agency shall make a verified report identifying the members by mark and shall include such pertinent data as lot numbers of tendons used, tendon jacking forces, age and strength of concrete at time of tendon release and such other information that may be required.
3. The inspector of prestressed members posttensioned at the site shall check the condition of the prestressing tendons, anchorage assemblies and concrete in the area of the anchorage, the tensioning equipment and the tensioning procedure and prepare daily written reports. ~~The inspector~~ approved agency shall make a verified report of the prestressing operation identifying the members or tendons by mark and including such pertinent data as the initial cable slack, net elongation of tendons, jacking force developed, and such other information as may be required.
4. The verified reports of construction shall show that of the inspector's own personal knowledge, the work covered by the report has been performed and materials used and installed in every material respect in compliance with the duly approved plans and specifications for plant fabrication inspection. The verified report shall be accompanied by test reports required for materials used. For site posttensioning inspections the verified report shall be accompanied by copies of calibration charts, certified by an approved testing laboratory, showing the relationship between gage readings and force applied by the jacks used in the prestressing procedure

1705A.3.5 Concrete pre-placement inspection. Concrete shall not be placed until the forms and reinforcement have been inspected, all preparations for the placement have been completed, and the preparations have been checked by the inspector of Record.

1705A.3.6 Placing record. A record shall be kept on the site of the time and date of placing the concrete in each portion of the structure. Such record shall be kept until the completion of the structure and shall be open to the inspection of the enforcement agency.

...

TABLE 1705A.3 - REQUIRED SPECIAL INSPECTION AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCE STANDARDS	CBC REFERENCE
...	
4. Inspect anchors post installed in hardened concrete members. ^{b,c} a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. ...	X		ACI318: 17.8.2.4	—
13. Inspection of adhesive anchors in horizontal and upwardly inclined positions. ^e		X	ACI318: D.9.2.2	==

...

c. Installation of all adhesive anchors in horizontal and upwardly inclined positions shall be performed by an ACI/CRSI Certified Adhesive Anchor Installer, except where the factored design tension on the anchors is less than 100 lbs. and those anchors are clearly noted on the approved construction documents or where the anchors are shear dowels across cold joints in slabs on grade where the slab is not part of the lateral force resisting system.

...

1705A.4 Masonry construction. Special inspections and tests of masonry construction shall be performed in accordance with the quality assurance program requirements of TMS 402/ACI 530/ASCE 5, as set forth in Table 3.1.3 Level C requirements, and TMS 602/ACI 530.1/ASCE 6, as set forth in Table 1.19.3 Level C requirements. Special inspection and testing of post-installed anchors in masonry shall be required in accordance with requirements for concrete in Chapters 17A and 19A.

Exception: ~~Special inspections and tests shall not be required for:~~

1. Empirically designed masonry, glass unit masonry or masonry veneer in accordance with Section 2109, 2110 or Chapter 14, respectively, where they are part of structures classified as *Risk Category I, II or III*.
2. Masonry foundation walls constructed in accordance with Table 1807.1.6.3(1), 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4).
3. Masonry fireplaces, masonry heaters or masonry chimneys installed or constructed in accordance with Section 2111, 2112 or 2113, respectively.

1705A.4.1 Empirically designed masonry, g Glass unit masonry and masonry veneer in Risk Category Categories II, III or IV. Special inspections and tests for empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110A or Chapter 14, respectively, in structures classified as *Risk Category Categories II, III or IV*, shall be performed in accordance with TMS 402/ACI 530/ASCE 5 Level B Quality Assurance.

...

1705A.5 Wood construction. Special inspections of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704A.2.5 *except as modified in this section*. Special inspections of site-built assemblies shall be in accordance with this section.

...

1705A.5.3 Wood structural elements and assemblies. Special inspection of wood structural elements and assemblies is required, as specified in this section, to ensure conformance with approved drawings and specifications construction documents, and applicable standards. The approved agency special inspector shall furnish a verified report to the design professional in general responsible charge of construction observation, the structural engineer, and the enforcement agency, in accordance with the California Administrative code and this chapter. The verified report shall list all inspected members or trusses, and shall indicate whether or not the inspected members or trusses conform with applicable standards and the approved drawings and specifications. Any non-conforming items shall be indicated on the verified report.

1705A.5.4 Structural glued laminated timber. Manufacture of all structural glued laminated timber shall be continuously inspected by an approved agency a qualified special inspector approved by the enforcement agency.

The approved agency special inspector shall verify that proper quality control procedures and tests have been employed for all materials and the manufacturing process, and shall perform visual inspection of the finished product. Each inspected member shall be stamped by the approved agency special inspector with an identification mark.

Exception: Special Inspection is not required for non-custom members of 5-1/8 inch maximum width and 18 inch maximum depth, and with a maximum clear span of 32 feet, manufactured and marked in accordance with ANSI/APA A190.1 Section 6.1.1 for non-custom members.

1705A.5.5 Manufactured open web trusses. The manufacture of open web trusses shall be continuously inspected by an approved agency a qualified special inspector approved by the enforcement agency.

The approved agency special inspector shall verify that proper quality control procedures and tests have been employed for all materials and the manufacturing process, and shall perform visual inspection of the finished product. Each inspected truss shall be stamped with an identification mark by the special inspector approved agency.

1705A.5.6 Timber connectors. The installation of all split ring and shear plate timber connectors, and timber rivets shall be continuously inspected by an approved agency a qualified inspector approved by the enforcement agency. The approved agency inspector shall furnish the architect, structural engineer and the enforcement agency with a report verifying ~~duly verified by him~~ that the

materials, timber connectors and workmanship conform to the approved ~~plans and specifications~~ construction documents.

...

1705A.6.1 Soil fill. All fills used to support the foundations of any building or structure shall be continuously inspected by the geotechnical engineer or his or her qualified representative. It shall be the responsibility of the geotechnical engineer to verify that fills meet the requirements of the approved construction documents and to coordinate all fill inspection and testing during the construction involving such fills.

The duties of the geotechnical engineer or his or her qualified representative shall include, but need not be limited to, the inspection of cleared areas and benches prepared to receive fill; inspection of the removal of all unsuitable soils and other materials; the approval of soils to be used as fill material; the inspection of placement and compaction of fill materials; the testing of the completed fills; the inspection or review of geotechnical drainage devices, buttress fills or other similar protective measures in accordance with the approved construction documents.

A verified report shall be submitted by the geotechnical engineer as required by the California Administrative Code. The report shall indicate that all tests and inspection required by the approved construction documents were completed and that the tested materials and/or inspected work meet the requirements of the approved construction documents.

...

1705A.7.1 Driven deep foundations observation. The installation of driven deep foundations shall be continuously inspected by a qualified representative of the geotechnical engineer responsible for that portion of the project.

The representative of the geotechnical engineer shall make a report of the deep foundation pile-driving operation giving such pertinent data as the physical characteristics of the deep foundation pile-driving equipment, identifying marks for each deep foundation pile, the total depth of embedment for each deep foundation; and when the allowable deep foundation pile loads are determined by a dynamic load formula, the design formula used, and the permanent penetration under the last 10 blows. One copy of the report shall be sent to the enforcement agency.

...

1705A.11.1 Structural wood. Continuous special inspection is required during field gluing operations of elements of the main windforce-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of elements of the main windforce resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.

Exception: ~~Special inspections are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other components of the main windforce-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.~~

1705A.11.2 Cold-formed steel light-frame construction. Periodic special inspection is required for welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.

Exception: ~~Special inspections are not required for cold formed steel light frame shear walls and diaphragms, including screwing, bolting, anchoring and other fastening to components of the windforce-resisting system, where either of the following apply:~~

- ~~1. The sheathing is gypsum board or fiberboard.~~

2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).

...

1705A.12 Special inspections for seismic resistance. *Special inspections* for seismic resistance shall be required as specified in Sections 1705A.12.1 through 1705A.12.9, unless exempted by the exceptions of Section 1704A.2.

Exception: ~~The special inspections specified in Sections 1705.12.1 through 1705.12.9 are not required for structures designed and constructed in accordance with one of the following:~~

1. The structure consists of light frame construction; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 35 feet (10 668 mm).
2. The seismic force-resisting system of the structure consists of reinforced masonry or reinforced concrete; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.3.4, does not exceed 0.5; and the building height of the structure does not exceed 25 feet (7620 mm).
3. The structure is a detached one- or two-family dwelling not exceeding two stories above grade plane and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:
 - 3.1. Torsional or extreme torsional irregularity.
 - 3.2. Nonparallel systems irregularity.
 - 3.3. Stiffness soft story or stiffness extreme soft story irregularity.
 - 3.4. Discontinuity in lateral strength weak story irregularity.

1705A.12.1 Structural steel. *Special inspections* for structural steel shall be in accordance with Section 1705A.12.1.1 or 1705A.12.1.2, as applicable.

1705A.12.1.1 Seismic Force-Resisting Systems. *Special inspections* of structural steel in the seismic force resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F shall be performed in accordance with quality assurance requirements of AISC 341 as modified by Section 1705A.2.1 of this code.

Exception: ~~*Special inspections* the seismic force-resisting systems of buildings and structures assigned to *Seismic Design Category* B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, R , of 3 or less, excluding cantilever column systems.~~

1705A.12.1.2 Structural Steel Elements. *Special inspections* of structural steel elements in the seismic force resisting systems of buildings and structures assigned to *Seismic Design Category* B, C, D, E or F, other than those covered in Section 1705A.12.1.1, including struts, collectors, chords, and foundation elements, shall be performed in accordance with quality assurance requirements of AISC 341 as modified by Section 1705A.2.1 of this code.

Exception: ~~*Special inspections* of structural steel element are not required in the seismic force-resisting systems of buildings and structures assigned to *Seismic Design Category* B or C with a response modification coefficient, R , of 3 or less.~~

1705A.12.2 Structural wood. For the seismic force-resisting system of structures assigned to *Seismic Design Category* C, D, E or F:

...

Exception: ~~*Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the~~

seismic force-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

1705A.12.3 Cold-formed steel light-frame construction. For the seismic force-resisting system of structures assigned to *Seismic Design Category C, D, E or F*, periodic special inspection shall be required:

...

Exception: *Special inspections* are not required for cold formed steel light-frame shear walls and diaphragms, including screw installation, bolting, anchoring and other fastening to components of the seismic force-resisting system, where either of the following applies:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

...

1705A.12.4 Special Inspection for Special Seismic Certification. Designated seismic systems.

For structures assigned to *Seismic Design Category C, D, E or F*, the special inspector shall examine equipment and components designated seismic systems requiring special seismic certification qualification in accordance with Section 1705A.13.3 or ASCE 7 Section 13.2.2 and verify that the label, anchorage and mounting conforms to the certificate of compliance.

1705A.12.5 Architectural components. Periodic special inspection is required for the erection and fastening of exterior cladding, interior and exterior nonbearing walls, ceilings, and interior and exterior veneer in structures assigned to *Seismic Design Category D, E or F*.

Exceptions: Periodic special inspection is not required for the following:

1. Exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer 30 feet (9144 mm) or less in height above grade or walking surface.
2. Exterior cladding and interior and exterior veneer weighing 5 psf (24.5 N/m²) or less.
3. Interior nonbearing walls weighing 15 psf (73.5 N/m²) or less.

...

1705A.12.6 Plumbing, mechanical and electrical components. Periodic special inspection of plumbing, mechanical and electrical components shall be required for the following:

1. Anchorage of electrical equipment for emergency or standby power systems in structures assigned to *Seismic Design Category C, D, E or F*.
2. Anchorage of other electrical equipment in structures assigned to *Seismic Design Category D, E or F*.
3. Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to *Seismic Design Category C, D, E or F*.
4. Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to *Seismic Design Category C, D, E or F*.
5. Installation and anchorage of vibration isolation systems in structures assigned to *Seismic Design Category C, D, E or F* where the approved construction documents require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.

...

1705A.12.8 Seismic isolation and damping systems. Periodic special inspection shall be provided for seismic isolation and damping systems in seismically isolated structures assigned to *Seismic Design Category B, C, D, E or F* during the fabrication and installation of isolator units and energy dissipation devices. Continuous special inspection is required for prototype and production testing of isolator units and damping devices.

1705A.12.9 Cold-formed steel special bolted moment frames. Periodic special inspection shall be provided for the installation of cold-formed steel special bolted moment frames in the seismic force-resisting systems of structures assigned to Seismic Design Category D, E or F.

1705A.13 Testing for seismic resistance. Testing for seismic resistance shall be required as specified in Sections 1705A.13.1.1 through 1705A.13.4, unless exempted from special inspections by exceptions of Section 1704A.2.

1705A.13.1 Structural Steel. Nondestructive testing for seismic resistance shall be in accordance with Section 1705A.13.1.1 or 1705A.13.1.2, as applicable.

1705A.13.1.1 Seismic Force-Resisting Systems. Nondestructive testing of structural steel in the seismic force resisting systems of buildings and structures assigned to Seismic Design Category B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.

Exception: Nondestructive testing is not required in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B or C that are not specifically detailed for seismic resistance, with a response modification coefficient, R , of 3 or less, excluding cantilever column systems.

1705A.13.1.2 Structural Steel Elements. Nondestructive testing of structural steel elements in the seismic force resisting systems of buildings and structures assigned to Seismic design Category B, C, D, E or F, other than those covered in Section 1705A.13.1.1, including struts, collectors, chords, and foundation elements, shall be performed in accordance with quality assurance requirements of AISC 341.

Exception: Nondestructive testing of structural steel element is not required in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B or C with a response modification coefficient, R , of 3 or less.

1705A.13.2 Nonstructural Components. For structures assigned to Seismic design Category B, C, D, E or F, where requirements of Section 13.2.1 of ASCE 7 for non-structural components, supports, or attachments are met by manufacturer's certification seismic qualification as specified in Item 2 therein, the registered design professional shall specify on the approved construction documents the requirements for seismic certification qualification by analysis, or testing, or experience data. Certificates of compliance for the seismic qualification manufacturer's certification shall be submitted to the building official as specified in Section 1704A.5.

Seismic sway braces satisfying requirements of FM 1950 shall be deemed to satisfy the requirements of this Section. Component tests shall be supplemented by assembly tests, when required by the building official.

1705A.13.3 Special Seismic Certification. [OSHPD 1 & 4] Designated Seismic System. For structures assigned to Seismic design Category C, D, E or F, and with designated seismic systems equipment and components that are subject to the requirements of Section 13.2.2 of ASCE 7 for special seismic certification, the registered design professional shall specify on the approved construction documents the requirements to be met by analysis, or testing or experience data as specified therein. Certificates of compliance documenting that the requirements are met shall be submitted to the building official as specified in Section 1704A.5.

Active or energized equipment and components shall be certified exclusively on the basis of approved shake table testing in accordance with ICC-ES AC 156. Minimum of two equipment/components shall be tested for a product line with similar structural configuration. Where a range of products are tested, the two equipment/components shall be either the largest and a small unit smallest, or approved alternative representative equipment/components.

Exception: When a single product (and not a product line with more than one product with variations) is certified and manufacturing process is ISO 9001 certified, one test shall be permitted.

~~Relocated to Section 17032.4~~ All tests shall be performed by an independent laboratory having accreditation to the International Standards Organization (ISO) accreditation standard 17025 or shall be under the responsible charge of an independent California licensed engineer. Test reports shall be reviewed and accepted by an independent California licensed structural engineer.

For a multi-component system, where active or energized components are certified by tests, connecting elements, attachments, and supports can be justified by supporting analysis.

1705A.13.3.1 [OSHPD 1 & 4] 1705A.12.4.1 Special seismic certification shall be required for the following systems, equipment, and components:

1. Emergency and standby power systems.
2. Elevator equipment (excluding elevator cabs).
3. Components with hazardous contents.
4. Exhaust and Smoke control fans.
5. Switchgear and Switchboards.
6. Motor control centers.
7. Radiography and fluoroscopy systems in fluoroscopy rooms. Fluoroscopy and x-ray equipment required for radiological/diagnostic imaging service (for service requirements see CBC Section 1224.18.1) and any fluoroscopy and/or radiographic system provided in support of diagnostic assessment of trauma injuries.
8. CT (Computerized Tomography) systems used for diagnostic assessment of trauma injuries.
Exception: CT equipment used for treatment or in hybrid operating rooms, including those used for interventional CT, unless used for diagnostic assessment of trauma injuries.
9. Air conditioning units excluding Variable/Constant Air Volume (VAV/CAV) boxes up to 75 lbs.
10. Air handling units.
11. Chillers, including associated evaporators, and condensers.
12. Cooling Towers.
13. Transformers.
14. Electrical substations.
15. UPS and batteries.
16. Distribution panels Panelboards as defined in the California Electrical Code (CEC) Article 100.
17. Industrial Control panels as defined in the California Electrical Code (CEC) Article 100.
18. Power isolation and correction systems.
19. Motorized surgical lighting systems.
20. Motorized operating table systems
21. Internal communication servers and routers.
22. Medical gas and vacuum systems.
23. Electrical busways as defined in UL 857.
24. Electrical control panels powered by the life safety branch in accordance with the California Electrical Code (CEC) Article 517.32 or the critical branch in accordance with the California Electrical Code (CEC) Article 517.33.

Exceptions:

1. Equipment and components weighing not more than ~~20~~ 50 lbs. supported directly on structures ~~(and not on surface mounted on other equipment or components)~~ that are not required to have special seismic certification by this section. ~~with supports and attachments in accordance with this code.~~

2. Movable (mobile) and temporary equipment/components, which are not anchored to structure or permanently attached to the building utility services such as electricity, gas, or water. For the purposes of this requirement, "permanently attached" shall include all electrical connections except plugs for duplex receptacles.
3. Pipes, ducts, conduits, and cable trays, excluding in-line equipment and components.
4. Underground tanks.
5. Electric motors, and pumps, and compressors up to 20 hp. not more than 10 hp. rigidly supported directly on structures (and not mounted on other equipment or components) with supports and attachments in accordance with this code.
6. Electrical Controllers, Switches, Transformers, Circuit Breakers, and fuses up to 10 lbs. or 10 amperes.
7. Components where importance factor, I_p , is permitted to be 1.0 by this code.
8. Emergency generators up to 25 kilowatts.
9. Equipment and Components used for clinical trials only.

1705A.13.4 Seismic isolation and damping systems. Seismic isolation and damping systems in seismically isolated structures assigned to Seismic Design Category B, C, D, E or F shall be tested in accordance with Section 17.8 and 18.9 of ASCE 7.

Prototype and production testing and associated acceptance criteria for isolator units and damping devices shall be subject to preapproval by the building official. Testing exemption for similar units shall require approval by the building official.

...

1705A.19 1705A.18 Shotcrete. All shotcrete work shall be continuously inspected during placing by an approved agency inspector specially approved for that purpose by the enforcement agency. The special shotcrete inspector shall check the materials, placing equipment, details of construction and construction procedure. The inspector an approved agency shall furnish a verified report that of his or her own personal knowledge the work covered by the report has been performed and materials used and installed in every material respect in compliance with the duly approved plans and specifications.

1705A.19.1 1705A.18.1 Visual examination for structural soundness of in-place shotcrete. Completed shotcrete work shall be checked visually for reinforcing bar embedment, voids, rock pockets, sand streaks and similar deficiencies by examining a minimum of three 3-inch (76 mm) cores taken from three areas chosen by the design engineer which represent the worst congestion of reinforcing bars occurring in the project. Extra reinforcing bars may be added to noncongested areas and cores may be taken from these areas. The cores shall be examined by the special inspector and a report submitted to the enforcement agency prior to final approval of the shotcrete.

Exception: Shotcrete work fully supported on earth, minor repairs, and when, in the opinion of the enforcement agency, no special hazard exists.

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~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

CHAPTER 18 SOILS AND FOUNDATIONS

SECTION 1801 GENERAL

1801.1 Scope. The provisions of this chapter shall apply to building and foundation systems.

...

SECTION 1803 GEOTECHNICAL INVESTIGATIONS

1803.1 General. Geotechnical investigations shall be conducted in accordance with Section 1803.2 and reported in accordance with Section 1803.6. Where required by the *building official* or where geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a *registered design professional*.

1803.2 Investigations required. Geotechnical investigations shall be conducted in accordance with Sections 1803.3 through 1803.5.

Exception: The *building official* shall be permitted to waive the requirement for a geotechnical investigation where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary for any of the conditions in Sections 1803.5.1 through 1803.5.6 and Sections 1803.5.10 and 1803.5.11.

[OSHPD 2] Geotechnical reports are not required for one-story, wood-frame and light-steel-frame buildings of Type V construction and 4,000 square feet (371 m²) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS). Allowable foundation and lateral soil pressure values may be determined from Table 1806.2.

...

1803.6 Reporting.

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11. *[OSHPD 2] The report shall consider the effects of seismic hazard in accordance with Section 1803.7.*

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1803.7 Geohazard reports. *[OSHPD 2]*

Geohazard reports shall be required for all proposed construction.

Exceptions:

1. *Reports are not required for one-story, wood-frame and light-steel-frame buildings of Type V construction and 4,000 square feet (371 m²) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS); nonstructural, associated structural or voluntary structural alterations and incidental structural additions or alterations, and structural repairs for other than earthquake damage.*

2. *A previous report for a specific site may be resubmitted, provided that a reevaluation is made and the report is found to be currently appropriate.*

The purpose of the geohazard report shall be to identify geologic and seismic conditions that may require project mitigations. The reports shall contain data which provide an assessment of the nature of the site and potential for earthquake damage based on appropriate investigations of the regional and site geology, project foundation conditions and the potential seismic shaking at the site. The report shall be prepared by a California-certified engineering geologist in consultation with a California-registered geotechnical engineer.

The preparation of the geohazard report shall consider the most recent CGS Note 48; Checklist for the Review of Engineering Geology and Seismology Reports for California Public School, Hospitals, and Essential Services Buildings. In addition, the most recent version of CGS Special Publication 42, Fault Rupture Hazard Zones in California, shall be considered for project sites proposed within an Alquist-Priolo Earthquake Fault Zone. The most recent version of CGS Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, shall be considered for project sites proposed within a Seismic Hazard Zone. All conclusions shall be fully supported by satisfactory data and analysis.

In addition to requirements in Sections 1803.5.11 and 1803.5.12, the report shall include, but shall not be limited to, the following:

1. Site Geology.
2. Evaluation of the known active and potentially active faults, both regional and local.
3. Ground-motion parameters, as required by Section 1613 and ASCE 7.

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1810.3.1.5 Helical piles. Helical piles shall be designed and manufactured in accordance with accepted engineering practice to resist all stresses induced by installation into the ground and service loads.

1810.3.1.5.1 Helical piles seismic requirements. [OSHPD 2] For structures assigned to Seismic Design Category D, E or F, capacities of helical piles shall be determined in accordance with Section 1810.3.3 by at least two project specific pre-production tests for each soil profile, size and depth of helical pile. At least two percent of all production piles shall be proof tested to design ultimate strength determined by using load combinations in Section 1605.2.1.

Helical piles shall satisfy corrosion resistance requirements of ICC-ES AC 308. In addition, all helical pile materials that are subject to corrosion shall include at least 1/16" corrosion allowance.

Helical piles shall not be considered as carrying any horizontal loads.

...

1810.3.10.4 Seismic reinforcement. For structures assigned to Seismic Design Category C, a permanent steel casing shall be provided from the top of the micropile down to the point of zero curvature. For structures assigned to Seismic Design Category D, E or F, the micropile shall be considered as an alternative system in accordance with Section 104.11. The alternative system design, supporting documentation and test data shall be submitted to the building official for review and approval.

1810.3.10.4.1 Seismic requirements. [OSHPD 2] For structures assigned to Seismic Design Category D, E or F, a permanent steel casing having a minimum thickness of 3/8" shall be provided from the top of the micropile down to a minimum of 120 percent of the point of zero curvature. Capacity of micropiles shall be determined in accordance with Section 1810.3.3 by at least two project specific pre-production tests for each soil profile, size and depth of micropile. At least two percent of all production piles shall be proof tested to design ultimate strength determined by using load combinations in Section 1605.2.1.

Steel casing length in soil shall be considered as unbonded and shall not be considered as contributing to friction. Casing shall provide confinement at least equivalent to hoop reinforcing required by ACI 318 Section 18.13.4, 21.12.4.

Reinforcement shall have Class 1 corrosion protection in accordance with PTI Recommendations for Prestressed Rock and Soil Anchors. Steel casing design shall include at least 1/16" corrosion allowance.

Micropiles shall not be considered as carrying any horizontal loads.

...

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275 and 129850

CHAPTER 18A SOILS AND FOUNDATIONS

SECTION 1801A GENERAL

1801A.1 Scope. The provisions of this chapter shall apply to building and foundation systems. ~~Refer to Appendix J: Grading, for requirements governing grading, excavation and earthwork construction, including fills and embankments.~~

1801A.1.1 Application. The scope of application of Chapter 18A is as follows:

1. ~~Reserved for DSA~~
2. Applications listed in Section 1.10.1, and 1.10.4 regulated by the Office of Statewide Health Planning and Development (OSHPD). These applications include hospitals, skilled nursing facilities, intermediate care facilities, and correctional treatment centers.

Exception: [OSHPD 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light-steel-frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 18 and any applicable amendments therein.

1801A.1.2 Amendments in this chapter. OSHPD adopt this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. ~~Reserved for DSA~~
2. Office of Statewide Health Planning and Development:

[OSHPD 1] - For applications listed in Section 1.10.1.

[OSHPD 4] - For applications listed in Section 1.10.4.

...

SECTION 1803A GEOTECHNICAL INVESTIGATIONS

1803A.1 General. Geotechnical investigations shall be conducted in accordance with Section 1803A.2 and reported in accordance with Section 1803.6 1803A.7. ~~Where required by the building official or where geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a registered design professional. The classification and investigation of the soil shall be made under the responsible charge of a California registered geotechnical engineer. All recommendations contained in geotechnical and geohazard reports shall be subject to the approval of the enforcement agency. All reports shall be prepared and signed by a~~

registered geotechnical engineer, certified engineering geologist, and a registered geophysicist, where applicable.

1803A.2 Investigations required. Geotechnical investigations shall be conducted in accordance with Sections 1803A.3 through 1803A.5 1803A.6.

Exceptions: ~~The building official shall be permitted to waive the requirement for a geotechnical investigation where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary for any of the conditions in Sections 1803.5.1 through 1803.5.6 and Sections 1803.5.10 and 1803.5.11.~~

1. *Geotechnical reports are not required for one-story, wood-frame and light-steel-frame buildings of Type II or Type V construction and 4,000 square feet (371 m²) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS) or in seismic hazard zones as defined in the Safety Element of the local General Plan. Allowable foundation and lateral soil pressure values may be determined from Table 1806A.2.*
2. *A previous report for a specific site may be resubmitted, provided that a reevaluation is made and the report is found to be currently appropriate.*

...

1803A.3 Basis of investigation. Soil classification shall be based on observation and any necessary tests of the materials disclosed by borings, test pits or other subsurface exploration made in appropriate locations. Additional studies shall be made as necessary to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on soil-bearing capacity, compressibility, liquefaction and expansiveness.

1803A.3.1 Scope of investigation. The scope of the geotechnical investigation including the number and types of borings or soundings, the equipment used to drill or sample, the in-situ testing equipment and the laboratory testing program shall be determined by a *registered design professional*.

There shall not be less than one boring or exploration shaft for each 5,000 square feet (465 m²) of building area at the foundation level with a minimum of two provided for any one building. A boring may be considered to reflect subsurface conditions relevant to more than one building, subject to the approval of the enforcement agency.

Borings shall be of sufficient size to permit visual examination of the soil in place or, in lieu thereof, cores shall be taken.

Borings shall be of sufficient depth and size to adequately characterize sub-surface conditions.

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1803A.5.4 Ground-water table. A subsurface soil investigation shall be performed to determine whether the existing ground-water table is above or within 5 feet (1524 mm) below the elevation of the lowest floor level where such floor is located below the finished ground level adjacent to the foundation.

Exception: ~~A subsurface soil investigation to determine the location of the ground-water table shall not be required where waterproofing is provided in accordance with Section 1805.~~

...

1803A.6. Geohazard Reports. Geohazard reports shall be required for all proposed construction.

Exceptions:

1. Reports are not required for one-story, wood-frame and light-steel-frame buildings of Type II or Type V construction and 4,000 square feet (371m²) or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS) or in seismic hazard zones as defined in the Safety Element of the local General Plan; nonstructural, associated structural or voluntary structural alterations, and incidental structural additions or alterations, and structural repairs for other than earthquake damage.
2. A previous report for a specific site may be resubmitted, provided that a reevaluation is made and the report is found to be currently appropriate.

The purpose of the geohazard report shall be to identify geologic and seismic conditions that may require project mitigations. The reports shall contain data which provide an assessment of the nature of the site and potential for earthquake damage based on appropriate investigations of the regional and site geology, project foundation conditions and the potential seismic shaking at the site. The report shall be prepared by a California-certified engineering geologist in consultation with a California-registered geotechnical engineer.

The preparation of the geohazard report shall consider the most recent CGS Note 48: Checklist for the Review of Engineering Geology and Seismology Reports for California Public School, Hospitals, and Essential Services Buildings. In addition, the most recent version of CGS Special Publication 42, Fault Rupture Hazard Zones in California, shall be considered for project sites proposed within an Alquist-Priolo Earthquake Fault Zone. The most recent version of CGS Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, shall be considered for project sites proposed within a Seismic Hazard Zone. All conclusions shall be supported by satisfactory data and analysis.

In addition to requirements in Sections 1803A.5.11 and 1803A.5.12, the report shall include, but shall not be limited to, the following:

1. Site Geology.
2. Evaluation of the known active and potentially active faults, both regional and local.
3. Ground-motion parameters, as required by Sections 1613A, 1616A & ASCE

The three Next Generation Attenuation (NGA) relations used for the 2008 USGS seismic hazards maps for Western United States (WUS) shall be utilized to determine the site-specific ground motion. When supported by data and analysis, other NGA (NGA West 1) relations, that were not used for the 2008 USGS maps, shall be permitted as additions or substitutions. No fewer than three NGA relations shall be utilized.

1803A.7 Geotechnical Reporting. Where geotechnical investigations are required, a written report of the investigations shall be submitted to the building official by the permit applicant at the time of permit application. The geotechnical report shall provide completed evaluations of the foundation conditions of the site and the potential geologic/seismic hazards affecting the site. The geotechnical report shall include, but shall not be limited to, site-specific evaluations of design criteria related to the nature and extent of foundation materials, groundwater conditions, liquefaction potential, settlement potential and slope stability. The report shall contain the results of the analyses of problem areas identified in the geohazard report. The geotechnical report shall incorporate estimates of the characteristics of site ground motion provided in the geohazard report. This geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the soil investigations.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.

4. Elevation of the water table, if encountered. *Historic high ground water elevations shall be addressed in the report to adequately evaluate liquefaction and settlement potential.*
5. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement and varying soil strength; and the effects of adjacent loads.
6. Expected total and differential settlement.
7. Deep foundation information in accordance with Section 1803A.5.5.
8. Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
9. Compacted fill material properties and testing in accordance with Section 1803A.5.8.
10. Controlled low-strength material properties and testing in accordance with Section 1803A.5.9.
11. *The report shall consider the effects of stepped footings addressed in Section 1809A.3.*
12. *The report shall consider the effects of seismic hazards in accordance with Section 1803A.6 and shall incorporate the findings of the associated geohazard report.*

...

SECTION 1805A DAMPPROOFING AND WATERPROOFING

1805A.1 General. Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall be waterproofed and damp proofed in accordance with this section, with the exception of those spaces containing groups other than residential and institutional where such omission is not detrimental to the building or occupancy.

Ventilation for crawl spaces shall comply with Section 1203.4.

...

1805A.2 Dampproofing. Where hydrostatic pressure will not occur as determined by Section 1803A.5.4, floors and walls ~~for other than wood foundation systems~~ shall be dampproofed in accordance with this section. ~~Wood foundation systems shall be constructed in accordance with AWC PWF.~~

...

SECTION 1807A FOUNDATION WALLS, RETAINING WALLS AND EMBEDDED POSTS AND POLES

1807A.1 Foundation walls. Foundation walls shall be designed and constructed in accordance with Sections 1807A.1.1 through 1807A.1.6. Foundation walls shall be supported by foundations designed in accordance with Section 1808A.

1807A.1.1 Design lateral soil loads. Foundation walls shall be designed for the lateral soil loads ~~set forth in Section 1610A.~~ *determined by a geotechnical investigation in accordance with Section 1803A.*

1807A.1.2 Unbalanced backfill height. Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where an interior concrete slab on grade is provided and is in contact with the interior surface of the foundation wall, the unbalanced backfill height shall be permitted to be measured from the exterior finish ground level to the top of the interior concrete slab.

1807A.1.3 Rubble stone foundation walls. *Not permitted by OSHPD.* Foundation walls of rough or random rubble stone shall not be less than 16 inches (406 mm) thick. Rubble stone shall not be used for foundation walls of structures assigned to *Seismic Design Category C, D, E or F.*

1807A.1.4 Permanent wood foundation systems. *Not permitted by OSHPD.* Permanent wood foundation systems shall be designed and installed in accordance with AWC PWF. Lumber and plywood shall be treated in accordance with AWWA U1 (Commodity Specification A, Use Category 4B and Section 5.2) and shall be identified in accordance with Section 2303A.1.9.1.

1807A.1.5 Concrete and masonry foundation walls. Concrete and masonry foundation walls shall be designed in accordance with Chapter 19A or 21A, as applicable.

Exception: Concrete and masonry foundation walls shall be permitted to be designed and constructed in accordance with Section 1807.1.6.

1807.1.6 Prescriptive design of concrete and masonry foundation walls. Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section.

1807.1.6.1 Foundation wall thickness. The thickness of prescriptively designed foundation walls shall not be less than the thickness of the wall supported, except that foundation walls of at least 8-inch (203 mm) nominal width shall be permitted to support brick-veneered frame walls and 10-inch-wide (254 mm) cavity walls provided the requirements of Section 1807.1.6.2 or 1807.1.6.3 are met.

1807.1.6.2 Concrete foundation walls. Concrete foundation walls shall comply with the following:

1. The thickness shall comply with the requirements of Table 1807.1.6.2.
2. The size and spacing of vertical reinforcement shown in Table 1807.1.6.2 are based on the use of reinforcement with a minimum yield strength of 60,000 psi (414 Mpa). Vertical reinforcement with a minimum yield strength of 40,000 psi (276 Mpa) or 50,000 psi (345 Mpa) shall be permitted, provided the same size bar is used and the spacing shown in the table is reduced by multiplying the spacing by 0.67 or 0.83, respectively.

TABLE 1807.1.6.2
CONCRETE FOUNDATION WALLS^{b, c}

(Deleted Table not shown for clarity)

3. Vertical reinforcement, when required, shall be placed nearest the inside face of the wall a distance, d , from the outside face (soil face) of the wall. The distance, d , is equal to the wall thickness, t , minus 1.25 inches (32 mm) plus one half the bar diameter, db , [$d = t - (1.25 + db / 2)$]. The reinforcement shall be placed within a tolerance of $\pm 3/8$ inch (9.5 mm) where d is less than or equal to 8 inches (203 mm) or $\pm 1/2$ inch (12.7 mm) where d is greater than 8 inches (203 mm).
4. In lieu of the reinforcement shown in Table 1807.1.6.2, smaller reinforcing bar sizes with closer spacings that provide an equivalent cross-sectional area of reinforcement per unit length shall be permitted.
5. Concrete cover for reinforcement measured from the inside face of the wall shall not be less than $3/4$ inch (19.1 mm). Concrete cover for reinforcement measured from the outside face of the wall shall not be less than 1 1/2 inches (38 mm) for No. 5 bars and smaller, and not less than 2 inches (51 mm) for larger bars.
6. Concrete shall have a specified compressive strength, f_c' , of not less than 2,500 psi (17.2 MPa).
7. The unfactored axial load per linear foot of wall shall not exceed $1.2 t f_c'$ where t is the specified wall thickness in inches.

1807.1.6.2.1 Seismic requirements. Based on the *seismic design category* assigned to the structure in accordance with Section 1613, concrete foundation walls designed using Table 1905.1.7 shall be subject to the following limitations:

1. ~~Seismic Design Categories A and B. No additional seismic requirements, except provide reinforcement around openings in accordance with Section 1909.6.3.~~
2. ~~Seismic Design Categories C, D, E and F. Tables shall not be used except as allowed for plain concrete members in Section 1908.1.8.~~

1807.1.6.3 Masonry foundation walls. Masonry foundation walls shall comply with the following:

1. The thickness shall comply with the requirements of Table 1807.1.6.3(1) for plain masonry walls or Table 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4) for masonry walls with reinforcement.
2. Vertical reinforcement shall have a minimum yield strength of 60,000 psi (414 Mpa).
3. The specified location of the reinforcement shall equal or exceed the effective depth distance, d , noted in Tables 1807.1.6.3(2), 1807.1.6.3(3) and 1807.1.6.3(4) and shall be measured from the face of the exterior (soil) side of the wall to the center of the vertical reinforcement. The reinforcement shall be placed within the tolerances specified in TMS 602/ACI 530.1/ASCE 6, Article 3.3.B.11 of the specified location.

TABLE 1807.1.6.3(1)
PLAIN MASONRY FOUNDATION WALLS^{a,b,c}

(Deleted Table not shown for clarity)

4. Grout shall comply with Section 2103.12.
5. Concrete masonry units shall comply with ASTM C 90.
6. Clay masonry units shall comply with ASTM C 652 for hollow brick, except compliance with ASTM C 62 or ASTM C 216 shall be permitted where solid masonry units are installed in accordance with Table 1807.1.6.3(1) for plain masonry.
7. Masonry units shall be laid in running bond and installed with Type M or S mortar in accordance with Section 2103.2.1.
8. The unfactored axial load per linear foot of wall shall not exceed $1.2 t F_m$, where t is the specified wall thickness in inches and F_m is the specified compressive strength of masonry in pounds per square inch.
9. At least 4 inches (102 mm) of solid masonry shall be provided at girder supports at the top of hollow masonry unit foundation walls.
10. Corbeling of masonry shall be in accordance with Section 2104.2. Where an 8-inch (203 mm) wall is corbelled, the top corbel shall not extend

TABLE 1807.1.6.3(2)
8-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE $d \geq 5$ INCHES^{a,b,c}

(Deleted Table not shown for clarity)

higher than the bottom of the floor framing and shall be a full course of headers at least 6 inches (152 mm) in length or the top course bed joint shall be tied to the vertical wall projection. The tie shall be W2.8 (4.8 mm) and spaced at a maximum horizontal distance of 36 inches (914 mm). The hollow space behind the corbelled masonry shall be filled with mortar or grout.

1807.1.6.3.1 Alternative foundation wall reinforcement. In lieu of the reinforcement provisions for masonry foundation walls in Table 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4), alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per linear foot (mm) of wall shall be permitted to be used,

provided the spacing of reinforcement does not exceed 72 inches (1829 mm) and reinforcing bar sizes do not exceed No. 11.

1807.1.6.3.2 Seismic requirements. Based on the seismic design category assigned to the structure in accordance with Section 1613, masonry foundation walls designed using Tables 1807.1.6.3(1) through 1807.1.6.3(4) shall be subject to the following limitations:

1. *Seismic Design Categories A and B.* No additional seismic requirements.
2. *Seismic Design Category C.* A design using Tables 1807.1.6.3(1) through 1807.1.6.3(4) is

TABLE 1807.1.6.3(3)

10-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE $d \leq 6.75$ INCHES^{a, b, c}

(Deleted Table not shown for clarity)

- subject to the seismic requirements of Section 7.4.3 of TMS 402/ACI 530/ASCE 5.
3. *Seismic Design Category D.* A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.4 of TMS 402/ACI 530/ASCE 5.
 4. *Seismic Design Categories E and F.* A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.5 of TMS 402/ACI 530/ASCE 5.

TABLE 1807.1.6.3(4)

12-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE $d \leq 8.75$ INCHES^{a, b, c}

(Deleted Table not shown for clarity)

1807A.2 Retaining walls. Retaining walls shall be designed in accordance with Sections 1807A.2.1 through 1807A.2.3. *Freestanding cantilever walls shall be design in accordance with Section 1807A.2.4.*

1807A.2.1 General. Retaining walls shall be designed to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, lateral soil pressures on both sides of the keyway shall be considered in the sliding analysis.

1807A.2.2 Design lateral soil loads. Retaining walls shall be designed for the lateral soil loads set forth in Section 1610. *determined by a geotechnical investigation in accordance with Section 1803A and shall not be less than eighty percent of the lateral soil loads determined in accordance with Section 1610A. For use with the load combinations, lateral soil loads due to gravity loads surcharge shall be considered gravity loads and seismic earth pressure increases due to earthquake shall be considered as seismic loads.*

...

1807A.2.4 Freestanding Cantilever Walls. A stability check against the possibility of overturning shall be performed for isolated spread footings which support freestanding cantilever walls. The stability check shall be made by dividing R_p used for the wall by 2.0. The allowable soil pressure may be doubled for this evaluation.

Exception: For overturning about the principal axis of rectangular footings with symmetrical vertical loading and the design lateral force applied, a triangular or trapezoidal soil pressure distribution which covers the full width of the footing will meet the stability requirement.

...

SECTION 1808A FOUNDATIONS

1808A.1 General. Foundations shall be designed and constructed in accordance with Sections 1808A.2 through 1808A.9. Shallow foundations shall also satisfy the requirements of Section 1809A. Deep foundations shall also satisfy the requirements of Section 1810A.

1808A.2 Design for capacity and settlement. Foundations shall be so designed that the allowable bearing capacity of the soil is not exceeded, and that differential settlement is minimized. Foundations in areas with expansive soils shall be designed in accordance with the provisions of Section 1808A.6.

The enforcing agency may require an analysis of foundation elements to determine subgrade deformations in order to evaluate their effect on the superstructure, including story drift.

...

1808A.8 Concrete foundations. The design, materials and construction of concrete foundations shall comply with Sections 1808A.8.1 through 1808A.8.6 and the provisions of Chapter 19A.

~~Exception: Where concrete footings supporting walls of light frame construction are designed in accordance with Table 1809.7, a specific design in accordance with Chapter 19 is not required.~~

...

**TABLE 1808A.8.1
MINIMUM SPECIFIED COMPRESSIVE STRENGTH f'_c OF CONCRETE OR GROUT**

FOUNDATION ELEMENT OR CONDITION	SPECIFIED COMPRESSIVE STRENGTH, f'_c
1. Foundations for structures assigned to Seismic Design Category A, B or C	2,500 psi
2a. Foundations for Group R or U occupancies of light frame construction, two stories or less in height, assigned to Seismic Design Category D, E or F	2,500 psi
2b-1. Foundations for other structures assigned to Seismic Design Category D, E or F	3,000 psi
3 2. Precast nonprestressed driven piles	4,000 psi
4 3. Socketed drilled shafts	4,000 psi
5 4. Micropiles	4,000 psi
6 5. Precast prestressed driven piles	5,000 psi

For SI: 1 pound per square inch = 0.00689MPa.

...

1808A.8.6 Seismic requirements. See Section 1905A for additional requirements for foundations of structures assigned to *Seismic Design Category C, D, E or F*.

For structures assigned to *Seismic Design Category D, E or F*, provisions of Sections 18.13 of ACI 318 shall apply where not in conflict with the provisions of Sections 1808A through 1810A.

Exceptions:

1. ~~Detached one- and two-family dwellings of light frame construction and two stories or less above grade plane are not required to comply with the provisions of Section 18.13 of ACI 318.~~
2. ~~Section 18.13.4.3(a) of ACI 318 shall not apply.~~

...

**SECTION 1809A
SHALLOW FOUNDATIONS**

1809A.1 General. Shallow foundations shall be designed and constructed in accordance with Sections 1809A.2 through 1809A.13.

1809A.2 Supporting soils. Shallow foundations shall be built on undisturbed soil, compacted fill material or controlled low-strength material (CLSM). Compacted fill material shall be placed in accordance with Section 1804A.5. CLSM shall be placed in accordance with Section 1804A.6.

1809A.3 Stepped footings. The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a slope not exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 units horizontal (10-percent slope).

Individual steps in continuous footings shall not exceed 18 inches (457 mm) in height and the slope of a series of such steps shall not exceed 1 unit vertical to 2 units horizontal (50% slope) unless otherwise recommended by a geotechnical report. The steps shall be detailed on the drawings. The local effects due to the discontinuity of the steps shall be considered in the design of the foundation.

...

1809A.7 Prescriptive footings for light-frame construction. ~~Not permitted by OSHPD. Where a specific design is not provided, concrete or masonry unit footings supporting walls of light frame construction shall be permitted to be designed in accordance with Table 1809.7.~~

**TABLE 1809.7
PRESCRIPTIVE FOOTINGS SUPPORTING WALLS OF LIGHT FRAME CONSTRUCTION_{a,b,c,d,e}**

(Table not shown for clarity)

1809A.8 Plain concrete footings. ~~Not permitted by OSHPD. The edge thickness of plain concrete footings supporting walls of other than light frame construction shall not be less than 8 inches (203 mm) where placed on soil or rock.~~

Exception: ~~For plain concrete footings supporting Group R-3 occupancies, the edge thickness is permitted to be 6 inches (152 mm), provided that the footing does not extend beyond a distance greater than the thickness of the footing on either side of the supported wall.~~

1809A.9 Masonry-unit footings. ~~Not permitted by OSHPD. The design, materials and construction of masonry unit footings shall comply with Sections 1809.9.1 and 1809.9.2, and the provisions of Chapter 21.~~

Exception: ~~Where a specific design is not provided, masonry unit footings supporting walls of light frame construction shall be permitted to be designed in accordance with Table 1809.7.~~

1809.9.1 Dimensions. ~~Masonry unit footings shall be laid in Type M or S mortar complying with Section 2403.8 and the depth shall not be less than twice the projection beyond the wall, pier or~~

column. The width shall not be less than 8 inches (203 mm) wider than the wall supported thereon.

1809.9.2 Offsets. The maximum offset of each course in brick foundation walls stepped up from the footings shall be 1 1/2 inches (38 mm) where laid in single courses, and 3 inches (76 mm) where laid in double courses.

1809A.10 Reserved. Pier and curtain wall foundations. Except in *Seismic Design Categories D, E and F*, pier and curtain wall foundations shall be permitted to be used to support light-frame construction not more than two stories above grade plane, provided the following requirements are met:

1. All load-bearing walls shall be placed on continuous concrete footings bonded integrally with the exterior wall footings.
2. The minimum actual thickness of a load-bearing masonry wall shall not be less than 4 inches (102 mm) nominal or 3 5/8 inches (92 mm) actual thickness, and shall be bonded integrally with piers spaced 6 feet (1829 mm) on center (o.c.).
3. Piers shall be constructed in accordance with Chapter 21 and the following:
 - 3.1. The unsupported height of the masonry piers shall not exceed 10 times their least dimension.
 - 3.2. Where structural clay tile or hollow concrete masonry units are used for piers supporting beams and girders, the cellular spaces shall be filled solidly with concrete or Type M or S mortar.

Exception: Unfilled hollow piers shall be permitted where the unsupported height of the pier is not more than four times its least dimension.

- 3.3. Hollow piers shall be capped with 4 inches (102 mm) of solid masonry or concrete or the cavities of the top course shall be filled with concrete or grout.
4. The maximum height of a 4-inch (102 mm) load-bearing masonry foundation wall supporting wood frame walls and floors shall not be more than 4 feet (1219 mm) in height.
5. The unbalanced fill for 4-inch (102 mm) foundation walls shall not exceed 24 inches (610 mm) for solid masonry, nor 12 inches (305 mm) for hollow masonry.

...

1809A.12 Timber footings. Not permitted by OSHPD. Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the building official. Such footings shall be treated in accordance with AWPA U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footings supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the AF&PA NDS.

...

1809A.14 Pipes and Trenches. Unless otherwise recommended by the soils report, open or backfilled trenches parallel with a footing shall not be below a plane having a downward slope of 1 unit vertical to 2 units horizontal (50% slope) from a line 9 inches (229 mm) above the bottom edge of the footing, and not closer than 18 inches (457 mm) from the face of such footing.

Where pipes cross under footings, the footings shall be specially designed. Pipe sleeves shall be provided where pipes cross through footings or footing walls and sleeve clearances shall provide for possible footing settlement, but not less than 1 inch (25 mm) all around pipe.

Exception: Alternate trench locations and pipe clearances shall be permitted when approved by registered design professional in responsible charge and the enforcement agent.

...

SECTION 1810A DEEP FOUNDATIONS

1810A.1 General. Deep foundations shall be analyzed, designed, detailed and installed in accordance with Sections 1810A.1 through 1810A.4.

...

1810A.3.1.5 Helical piles. Helical piles shall be designed and manufactured in accordance with accepted engineering practice to resist all stresses induced by installation into the ground and service loads.

1810A.3.1.5.1 Helical Piles Seismic Requirements. *For structures assigned to Seismic Design Category D, E or F, capacities of helical piles shall be determined in accordance with Section 1810A.3.3 by at least two project specific pre-production tests for each soil profile, size and depth of helical pile. At least two percent of all production piles shall be proof tested to the load determined in accordance with Section 1616A.1.16.*

Helical piles shall satisfy corrosion resistance requirements of ICC-ES AC 308. In addition, all helical pile materials that are subject to corrosion shall include at least 1/16" corrosion allowance.

Helical piles shall not be considered as carrying any horizontal loads.

...

1810A.3.2 Materials. The materials used in deep foundation elements shall satisfy the requirements of Sections 1810A.3.2.1 through 1810A.3.2.8, as applicable.

...

~~**1810.3.2.1.2 ACI 318 Equation (25.7.3.3).** Where this chapter requires detailing of concrete deep foundation elements in accordance with Section 18.7.5.4 of ACI 318, compliance with Equation (25.7.3.3) of ACI 318 shall not be required.~~

...

1810A.3.2.4 Timber. ~~Not permitted by OSHPD. Timber deep foundation elements shall be designed as piles or poles in accordance with AF&PA NDS. Round timber elements shall conform to ASTM D 25. Sawn timber elements shall conform to DOC PS 20.~~

~~**1810.3.2.4.1 Preservative treatment.** Timber deep foundation elements used to support permanent structures shall be treated in accordance with this section unless it is established that the tops of the untreated timber elements will be below the lowest ground water level assumed to exist during the life of the structure. Preservative and minimum final retention shall be in accordance with AWWA U1 (Commodity Specification E, Use Category 4C) for round timber elements and AWWA U1 (Commodity Specification A, Use Category 4B) for sawn timber elements. Preservative-treated timber elements shall be subject to a quality control program administered by an approved agency. Element cutoffs shall be treated in accordance with AWWA M4.~~

...

1810A.3.3.1.2 Load tests. Where design compressive loads are greater than those determined using the allowable stresses specified in Section 1810A.3.2.6, where the design load for any deep foundation element is in doubt, where driven deep foundation elements are installed by means other than a pile hammer, or where cast-in-place deep foundation elements have an enlarged base formed either by compacting concrete or by driving a precast base, control test elements shall be tested in accordance with ASTM D 1143 including Procedure G: Cyclic Loading Test or ASTM D 4945. At least one element shall be load tested in each area of uniform subsoil conditions. Where required by the building official, additional elements shall be load tested where necessary to establish the

safe design capacity. The resulting allowable loads shall not be more than one-half of the ultimate axial load capacity of the test element as assessed by one of the published methods listed in Section 1810A.3.3.1.3 with consideration for the test type, duration and subsoil. The ultimate axial load capacity shall be determined by a registered design professional with consideration given to tolerable total and differential settlements at design load in accordance with Section 1810A.2.3. In subsequent installation of the balance of deep foundation elements, all elements shall be deemed to have a supporting capacity equal to that of the control element where such elements are of the same type, size and relative length as the test element; are installed using the same or comparable methods and equipment as the test element; are installed in similar subsoil conditions as the test element; and, for driven elements, where the rate of penetration (e.g., net displacement per blow) of such elements is equal to or less than that of the test element driven with the same hammer through a comparable driving distance, or where the downward pressure and torque on such elements is greater than or equal to that applied to the test element that determined the ultimate axial load capacity at a comparable driving distance.

...

1810A.3.3.1.5 Uplift capacity of a single deep foundation element. Where required by the design, the uplift capacity of a single deep foundation element shall be determined by an approved method of analysis based on a minimum factor of safety of three or by load tests conducted in accordance with ASTM D 3689. The maximum allowable uplift load shall not exceed the ultimate load capacity as determined in Section 1810A.3.3.1.2, using the results of load tests conducted in accordance with ASTM D3689 *including the Cyclic Loading Procedure*, divided by a factor of safety of two.

Exception: Where uplift is due to wind or seismic loading, the minimum factor of safety shall be two where capacity is determined by an analysis and one and a half where capacity is determined by load tests.

...

1810A.3.3.2 Allowable lateral load. Where required by the design, the lateral load capacity of a single deep foundation element or a group thereof shall be determined by an *approved* method of analysis or by lateral load tests *in accordance with ASTM D3966, including the Cyclic Loading Procedure*, to at least twice the proposed design working load. The resulting allowable load shall not be more than one-half of the load that produces a gross lateral movement of 1 inch (25 mm) at the lower of the top of foundation element and the ground surface, unless it can be shown that the predicted lateral movement shall cause neither harmful distortion of, nor instability in, the structure, nor cause any element to be loaded beyond its capacity.

...

1810A.3.5.3.3 Structural Steel Sheet Piling. Individual sections of structural steel sheet piling shall conform to the profile indicated by the manufacturer, and shall conform to general requirements specified by ASTM A6.

Installation of sheet piling shall satisfy inspection, monitoring, and observation requirements in Sections 1812A.6 and 1812A.7.

...

1810A.3.8.3 Precast prestressed piles. Precast prestressed concrete piles shall comply with the requirements of Sections 1810A.3.8.3.1 through 1810A.3.8.3.3.

...

1810A.3.8.3.2 Seismic reinforcement in Seismic Design Category C. *Not permitted by OSHPD.* For structures assigned to *Seismic Design Category C* in accordance with Section 1613, precast prestressed piles shall have transverse reinforcement in

accordance with this section. The volumetric ratio of spiral reinforcement shall not be less than the amount required by the following formula for the upper 20 feet (6096 mm) of the pile.

$$\rho_s = 0.12 f'_c / f_{yh} \text{ (Equation 18-5)}$$

where:

f'_c = Specified compressive strength of concrete, psi (MPa);

f_{yh} = Yield strength of spiral reinforcement $\leq 85,000$ psi (586 MPa);

ρ_s = Spiral reinforcement index (vol. spiral/vol. core).

At least one-half the volumetric ratio required by Equation 18-5 shall be provided below the upper 20 feet (6096 mm) of the pile.

1810A.3.8.3.3 Seismic reinforcement in Seismic Design Categories D through F. For structures assigned to *Seismic Design Category D, E or F*, ~~in accordance with Section 1613A,~~ precast prestressed piles shall have transverse reinforcement in accordance with the following:

...

This required amount of spiral reinforcement is permitted to be obtained by providing an inner and outer spiral.

...

1810A.3.9.4.2.1 Site Classes A through D. For Site Class A, B, C or D sites, transverse confinement reinforcement shall be provided in the element in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 within three times the least element dimension ~~at~~ of the bottom of the pile cap. A transverse spiral reinforcement ratio of not less than one-half of that required in Section 18.7.5.4 (a) of ACI 318 shall be permitted ~~for concrete deep foundation elements~~.

1810A.3.9.4.2.2 Site Classes E and F. For Site Class E or F sites, transverse confinement reinforcement shall be provided in the element in accordance with Sections 18.7.5.2, 18.7.5.3 and 18.7.5.4 of ACI 318 within seven times the least element dimension ~~at~~ of the *bottom of the* pile cap and within seven times the least element dimension ~~at~~ of the interfaces of strata that are hard or stiff and strata that are liquefiable or are composed of soft- to medium-stiff clay.

...

1810A.3.10 Micropiles. Micropiles shall be designed and detailed in accordance with Sections 1810A.3.10.1 through 1810A.3.10.4.

...

~~**1810A.3.10.4 Seismic reinforcement.** For structures assigned to *Seismic Design Category C*, a permanent steel casing shall be provided from the top of the micropile down to the point of zero curvature. For structures assigned to *Seismic Design Category D, E or F*, the micropile shall be considered as an alternative system in accordance with Section 104.11. The alternative system design, supporting documentation and test data shall be submitted to the building official for review and approval.~~

1810A.3.10.4 Seismic requirements. For structures assigned to *Seismic Design Category D, E, or F*, a permanent steel casing having a minimum thickness of 3/8" shall be provided from the top of the micropile down to a minimum of 120 percent of the point of zero curvature. Capacity of micropiles shall be determined in accordance with Section 1810A.3.3 by at least two project specific pre-production tests for each soil profile, size and depth of micropile. At least two percent of all production piles shall be proof tested to the load determined in accordance with Section 1616A.1.16 ~~1615A.1.10~~.

Steel casing length in soil shall be considered as unbonded and shall not be considered as contributing to friction. Casing shall provide confinement at least equivalent to hoop reinforcing required by ACI 318 Section 18.13.4. 21.12.4

Reinforcement shall have Class 1 corrosion protection in accordance with PTI

Recommendations for Prestressed Rock and Soil Anchors. Steel casing design shall include at least 1/16" corrosion allowance.

Micropiles shall not be considered as carrying any horizontal loads.

...

1810A.4 Installation. Deep foundations shall be installed in accordance with Section 1810A.4. Where a single deep foundation element comprises two or more sections of different materials or different types spliced together, each section shall satisfy the applicable conditions of installation.

1810A.4.1 Structural integrity. Deep foundation elements shall be installed in such a manner and sequence as to prevent distortion or damage that may adversely affect the structural integrity of adjacent structures or of foundation elements being installed or already in place and as to avoid compacting the surrounding soil to the extent that other foundation elements cannot be installed properly.

...

1810A.4.1.5 Defective timber piles. ~~Not permitted by OSHPD. Any substantial sudden increase in rate of penetration of a timber pile shall be investigated for possible damage. If the sudden increase in rate of penetration cannot be correlated to soil strata, the pile shall be removed for inspection or rejected.~~

...

SECTION 1811A PRESTRESSED ROCK AND SOIL FOUNDATION ANCHORS

1811A.1 General. The requirements of this section address the use of vertical rock and soil anchors in resisting seismic or wind overturning forces resulting in tension on shallow foundations.

1811A.2 Adoption. Except for the modifications as set forth in Sections 1811A.3 and 1811A.4, all Prestressed Rock and Soil Foundation Anchors shall comply with ~~be designed in accordance with~~ PTI Recommendations for Prestressed Rock and Soil Anchors.

1811A.3 Geotechnical Requirements. Geotechnical report for the Prestressed Rock & Soil Foundation Anchors shall address the following:

1. Minimum diameter and minimum spacing for the anchors including consideration of group effects.
2. Maximum unbonded length and minimum bonded length of the tendon.
3. Maximum recommended anchor tension capacity based upon the soil or rock strength / grout bond and anchor depth / spacing.
4. Allowable bond stress at the ground / grout interface and applicable factor of safety for ultimate bond stress.
5. Anchor axial tension stiffness recommendations at the anticipated anchor axial tension displacements, when required for structural analysis.
6. Minimum grout pressure for installation and post-grout pressure.
7. Class I Corrosion Protection is required for all permanent anchors. Geotechnical report shall specify the corrosion protection recommendations for temporary anchors.
8. Performance test shall be at a minimum of 1.6 times the design loads. There shall be a minimum of two preproduction test anchors. Preproduction test anchors shall be tested to ultimate load or 0.80 times the specified minimum tensile strength of

the tendon. A Creep test is required for all prestressed anchors with greater than 10 kips of lock-off prestressing load.

9. Lock-off prestressing load requirements.
10. Acceptable Drilling methods.
11. Geotechnical observation and monitoring requirements.

1811A.4 Structural Requirements.

1. Tendons shall be thread-bar anchors conforming to ASTM A722.
2. The anchors shall be placed vertical.
3. Design Loads shall be based upon the load combinations in Section 1605A.3.1 and shall not exceed 60 percent of the specified minimum tensile strength of the tendons.
4. Ultimate Load shall be based upon Section 1616A.1.16 ~~1615A.1.10~~ and shall not exceed 80 percent of the specified minimum tensile strength of the tendons.
5. The anchor shall be designed to fail in grout bond to the soil or rock before pullout of the soil wedge by group effect.
6. Foundation design shall incorporate the effect of lock-off loads.
7. Design shall account for as-built locations of soil anchors considering all the acceptable construction tolerances.
8. Design shall account for both short and long term deformation.
9. Enforcement agency may require consideration of anchor deformation in evaluating deformation compatibility or building drift where it may be significant.

SECTION 1812A **EARTH RETAINING SHORING**

~~Relocated from Section 1106.2~~ **J106.2 Earth retaining shoring. [OSHPD 1 & 4]**

1812A.1 J106.2.1 General. The requirements of this section shall apply to temporary and permanent earth retaining shoring using soldier piles and lagging with or without tie-back anchors in soil or rock, only when existing or new OSHPD 1 or 4 facilities are affected. Shoring used as construction means and methods only, which does not affect existing or new OSHPD 1 or 4 facilities, are not regulated by this section OSHPD and shall satisfy the requirements of the authorities having jurisdiction.

Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections 1812A.2 J106.2.2 through J106.2.8 1812A.8.

1812A.2 J106.2.2 Duration. Shoring shall be considered temporary when elements of the shoring will be exposed to site conditions for a period of less than one (1) year, and shall be considered permanent otherwise. Permanent shoring shall account for the increase in lateral soil pressure due to earthquake. At the end of the construction period, the existing and new structures shall not rely on the temporary shoring for support in anyway. Wood components shall not be used for permanent shoring lasting more than two (2) years. Wood components of the temporary shoring that may affect the performance of permanent structure shall be removed after the shoring is no longer required.

All components of the shoring shall have corrosion protection or preservative treatment for their expected duration. Wood components of the temporary shoring that will not be removed shall be treated in accordance with AWP A U1 (Commodity Specification A, Use Category 4B and Section 5.2), and shall be identified in accordance with Section 2303.1.9.1 2303.1.8.1.

1812A.3 J106.2.3 Surcharge. Surcharge pressure due to footings, traffic, or other sources shall be considered in design. If the footing surcharge is located within the semi-circular distribution or bulb of earth pressure (when shoring is located close to a footings), lagging shall be designed for lateral earth pressure due to footing surcharge. Soil arching effects may be considered in the design of lagging. Underpinning of the footing may be used in lieu of designing the shoring and lagging for surcharge pressure. Alternatively, continuously contacting drilled pier shafts near the

footings shall be permitted. The lateral surcharge design pressure shall be derived using Boussinesq equations modified for the distribution of stresses in an elastic medium due to a uniform, concentrated or line surface load as appropriate and soil arching effects.

1812A.4 J406.2.4 Design and testing. Except for the modifications as set forth in Sections 1812A.4.1 J406.2.4.1 and J406.2.4.2 through 1812A.4.3 below, all Prestressed Rock and Soil Tie-back Anchors shall be designed and tested in accordance comply with PTI Recommendations for Prestressed Rock and Soil Anchors (PTI-2004).

1812A.4.1 J406.2.4.1 Geotechnical requirements. The geotechnical report for the earth retaining shoring shall address the following:

1. Minimum diameter and minimum spacing for the anchors including consideration of group effects.
2. Maximum unbonded length and minimum bonded length of the tie-back anchors.
3. Maximum recommended anchor tension capacity based upon the soil or rock strength / grout bond and anchor depth / spacing.
4. Allowable bond stress at the ground / grout interface and applicable factor of safety for ultimate bond stress for the anchor. For permanent anchors, a minimum factor of safety of 2.0 shall be applied to ground soil interface as required by PTI-2004 Section 6.6.
5. Minimum grout pressure for installation and post-grout pressure for the anchor. The presumptive post grout pressure of 300 psi may be used for all soil type.
6. Class I Corrosion Protection is required for all permanent anchors. The geotechnical report shall specify the corrosion protection recommendations for temporary anchors.
7. Performance test for the anchors shall be at a minimum of two (2) times the design loads and shall not exceed 80% of the specified minimum tensile strength of the anchor rod. A creep test is required for all prestressed anchors that are performance tested. All production anchors shall be tested at 150% of design loads and shall not be greater than 70% of the specified minimum tensile strength of the anchor rod.
8. Earth pressure, surcharge pressure, and the seismic increment of earth pressure loading, when applicable.
9. Maximum recommended lateral deformation at the top of the soldier pile, at the tie-back anchor locations, and the drilled pier concrete shafts at the lowest grade level.
10. Allowable vertical soil bearing pressure, friction resistance, and lateral passive soil resistance for the drilled pier concrete shafts and associated factors of safety for these allowable capacities.
11. Soil-pier shaft / pile interaction assumptions and lateral soil stiffness to be used in design for drilled pier concrete shaft or pile lateral loads.
12. Acceptable drilling methods.
13. Geotechnical observation and monitoring recommendations.

1812A.4.2 J406.2.4.2 Structural requirements:

1. Tendons shall be thread-bar anchors conforming to ASTM A 722.
2. Anchor design loads shall be based upon the load combinations in Section 1605A.3.1 and shall not exceed 60 percent of the specified minimum tensile strength of the tendons.
3. The anchor shall be designed to fail in grout bond to the soil or rock before pullout of the soil wedge.
4. Design of shoring system shall account for as-built locations of soil anchors considering all specified construction tolerances in Section 1812A.8 J406.2.8.
5. Design of shoring system shall account for both short and long term deformation.

1812A.4.3 J406.2.4.3 Testing of tie-back anchors:

1. The geotechnical engineer shall keep a record at job site of all test loads, total anchor movement, and report their accuracy.
2. If a tie-back anchor initially fails the testing requirements, the anchor shall be permitted to be re-grouted and retested. If anchor continues to fail, the followings steps shall be taken:
 - a. The contractor shall determine the cause of failure – variations of the soil conditions, installation methods, materials, etc.
 - b. Contractor shall propose a solution to remedy the problem. The proposed solution will need to be reviewed and approved by geotechnical engineer, shoring design engineer, and the building official.
3. After a satisfactory test, each anchor shall be locked-off in accordance with Section 8.4 of PTI 2004.
4. The shoring design engineer shall specify design loads for each anchor.

1812A.5 J406.2.5 Construction: The construction procedure shall address the following:

1. Holes drilled for piles / tie-back anchors shall be done without detrimental loss of ground, sloughing or caving of materials and without endangering previously installed shoring members or existing foundations.
2. Drilling of earth anchor shafts for tie-backs shall occur when the drill bench reaches two to three feet below the level of the tie-back pockets.
3. Casing or other methods shall be used where necessary to prevent loss of ground and collapse of the hole.
4. The drill cuttings from earth anchor shaft shall be removed prior to anchor installation.
5. Unless tremie methods are used, all water and loose materials shall be removed from the holes prior to installing piles / tie-backs.
6. Tie-back anchor rods with attached centralizing devices shall be installed into the shaft or through the drill casing. Centralizing device shall not restrict movement of the grout.
7. After lagging installation, voids between lagging and soil shall be backfilled immediately to the full height of lagging.
8. The soldier piles shall be placed within specified tolerances in the drilled hole and braced against displacement during grouting. Fill shafts with concrete up to top of footing elevation, rest of the shaft can generally be filled with lean concrete. Excavation for lagging shall not be started until concrete has achieved sufficient strength for all anticipated loads as determined by the shoring design engineer.
9. Where boulders and / or cobbles have been identified in the geotechnical reports, contractor shall be prepared to address boulders and / or cobbles that may be encountered during the drilling of soldier piles and Tie-back anchors.
10. The grouting equipment shall produce grout free of lumps and indispensed cement. The grouting equipment shall be sized to enable the grout to be pumped in continuous operation. The mixer shall be capable of continuously agitating the grout.
11. The quantity of grout and grout pressure shall be recorded. The grout pressure shall be controlled to prevent excessive heave in soils or fracturing rock formations.
12. If post-grouting is required, post grouting operation shall be performed after initial grout has set for 24-hours in the bond length only. Tie-backs shall be grouted over a sufficient length (anchor bond length) to transfer the maximum anchor force to the anchor grout.
13. Testing of anchors may be performed after post-grouting operations provided grout has reached strength of 3,000 psi as required by PTI-2004 Section 6.11.
14. Anchor rods shall be tensioned straight and true. Excavation directly below the anchors shall not continue before those anchors are tested.

1812A.6 J406.2.6 Inspection, survey monitoring, and observation

1. The shoring design engineer or his designee shall make periodic inspections of the job site for the purpose of observing the installation of shoring system, testing of tie-back anchors, and

- monitoring of survey.
2. Testing, inspection, and observation shall be in accordance with testing, inspection and observation requirements approved by the building official. The following activities and materials shall be tested, inspected, or observed by the special inspector and geotechnical engineer:
 - a. Sampling and testing of concrete in soldier pile and tie-back anchor shafts.
 - b. Fabrication of tie-back anchor pockets on soldier beams
 - c. Installation and testing of tie-back anchors.
 - d. Survey monitoring of soldier pile and tie-back load cells.
 - e. Survey Monitoring of existing buildings.
 3. A complete and accurate record of all soldier pile locations, depths, concrete strengths, tie-back locations and lengths, tie-back grout strength, quantity of concrete per pile, quantity of grout per tie-back and applied tie-back loads shall be maintained by the special inspector and geotechnical engineer. The shoring design engineer shall be notified of any unusual conditions encountered during installation.
 4. Calibration data for each test jack, pressure gauge, and master pressure gauge shall be verified by the special inspector and geotechnical engineer. The calibration tests shall be performed by an independent testing laboratory and within 120 calendar days of the data submitted.
 5. Monitoring points shall be established at the top and at the anchor heads of selected soldier piles and at intermediate intervals as considered appropriate by the geotechnical engineer.
 6. Control points shall be established outside the area of influence of the shoring system to ensure the accuracy of the monitoring readings.
 7. The periodic basis of shoring monitoring, as a minimum, shall be as follows:
 - a. Initial monitoring shall be performed prior to any excavation.
 - b. Once excavation has begun, the periodic readings shall be taken weekly until excavation reaches the estimated subgrade elevation and the permanent foundation is complete.
 - c. If performance of the shoring is within established guidelines, shoring design engineer may permit the periodic readings to be bi-weekly. Once initiated, bi-weekly readings shall continue until the building slab at ground floor level is completed and capable of transmitting lateral loads to the permanent structure. Thereafter, readings can be monthly.
 - d. Where the building has been designed to resist lateral earth pressures, the periodic monitoring of the soldier piles and adjacent structure can be discontinued once the ground floor diaphragm and subterranean portion of the structure is capable of resisting lateral soil loads and approved by the shoring design engineer, geotechnical engineer, and the building official.
 - e. Additional readings shall be taken when requested by special inspector, shoring design engineer, geotechnical engineer, or the building official.
 8. Monitoring reading shall be submitted to shoring design engineer, engineer in responsible charge, and the building official within 3 working days after they are conducted. Monitoring readings shall be accurate to within 0.01 feet. Results are to be submitted in tabular form showing at least the initial date of monitoring and reading, current monitoring date and reading and difference between the two readings.
 9. If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches $\frac{1}{2}$ " or soldier piles reaches 1" all excavation activities shall be suspended. The geotechnical and shoring design engineer shall determine the cause of movement, if any, and recommend corrective measures, if necessary, before excavation continues.
 10. If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches $\frac{3}{4}$ " or soldier piles reaches $1\frac{1}{2}$ " all excavation activities shall be suspended until the causes, if any, can be determined. Supplemental shoring shall be devised to eliminate further movement and the building official shall review and approve the supplemental shoring before excavation continues.
 11. Monitoring of Tie-back Anchor Loads:

- a. Load cells shall be installed at the tie-back heads adjacent to buildings at maximum interval of 50', with a minimum of one load cells per wall.
- b. Load cell readings shall be taken once a day during excavation and once a week during the remainder of construction.
- c. Load cell readings shall be submitted to the geotechnical engineer, shoring design engineer, engineer in responsible charge, and the building official.
- d. Load cell readings can be terminated once the temporary shoring no longer provides support for the buildings.

1812A.7 J406.2.7 Monitoring of existing OSHPD 1 and 4 structures

1. The contractor shall complete a written and photographic log of all existing OSHPD 1 & 4 structures within 100 ft or three times depth of shoring, prior to construction. A licensed surveyor shall document all existing substantial cracks in adjacent existing structures.
2. Contractor shall document existing condition of wall cracks adjacent to shoring walls prior to start of construction.
3. Contractor shall monitor existing walls for movement or cracking that may result from adjacent shoring.
4. If excessive movement or visible cracking occurs, contractor shall stop work and shore / reinforce excavation and contact shoring design engineer and the building official.
5. Monitoring of the existing structure shall be at reasonable intervals as required by the registered design professional subject to approval of the building official. Monitoring shall be performed by a licensed surveyor and shall consist of vertical and lateral movement of the existing structures. Prior to starting shoring installation a pre-construction meeting shall take place between the contractor, shoring design engineer, surveyor, geotechnical engineer, and the building official to identify monitoring locations on existing buildings.
6. If in the opinion of the building official or shoring design engineer, monitoring data indicate excessive movement or other distress, all excavation shall cease until the geotechnical engineer and shoring design engineer investigates the situation and makes recommendations for remediation or continuing.
7. All reading and measurements shall be submitted to the building official and shoring design engineer.

1812A.8 J406.2.8 Tolerances. Following tolerances shall be specified on the construction documents.

1. Soldier Piles:
 - i. Horizontal and vertical construction tolerances for the soldier pile locations.
 - ii. Soldier pile plumbness requirements (angle with vertical line).
2. Tie-back Anchors:
 - i. Allowable deviation of anchor projected angle from specified vertical and horizontal design projected angle.
 - ii. Anchor clearance to the existing/new utilities and structures.

Relocated from Section J112

Section 1813A J412

Vibro Stone Columns for Ground Improvement

1813A.1 J412.1 General. **[OSHPD 1, 2, & 4]** This section shall apply to Vibro Stone Columns (VSCs) for ground improvement using unbounded aggregate materials. Vibro stone column provisions in this section are intended to increase bearing capacity, reduce settlements, and mitigate liquefaction for shallow foundations. These requirements shall not be used for grouted or bonded stone columns, ground improvement for deep foundation elements, or changing site class. VSCs shall not be considered as a deep foundation element.

Ground improvement shall be installed under the entire building/structure footprint and not under isolated foundation elements only.

Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections 1813A.2 J412.2 through J412.5 1813A.5.

1813A.2 J412.2 Geotechnical Report. The geotechnical report shall specify vibro stone column requirements to ensure uniformity in total and differential immediate settlement, long term settlement, and earthquake induced settlement.

1. Soil compaction shall be sufficient to mitigate potential for liquefaction as described in California Geological Survey (CGS) Special Publication 117A (SP-117A): Guidelines for Evaluating and Mitigating Seismic Hazard in California.
2. Area replacement ratio for the compaction elements and the basis of its determination shall be explained. Minimum factor of safety for soil compaction shall be in accordance with SP-117A.
3. Depth of soil compaction elements and extent beyond the footprint of structures/foundation shall be defined. Extent beyond the foundation shall be half the depth of the VSCs with a minimum of 10' or an approved alternative.
4. Minimum diameter and maximum spacing of soil compaction elements shall be specified. VSC's shall not be less than 2 feet in diameter and center to center spacing shall not exceed 8 feet.
5. The modulus of subgrade reactions for shallow foundations shall account for the presence of compaction elements.
6. The modulus of subgrade reactions, long-term settlement, and post-earthquake settlement shall be specified along with expected total and differential settlements for design.
7. The acceptance criteria for Friction Cone and Piezocone Penetration Testing Cone Penetration Test (CPT) in accordance with ASTM D 5778 3441 complemented by Standard Penetration Test (SPT) in accordance with ASTM D 1586, if necessary, to verify soil improvement shall be specified
8. The requirements for special inspection and observation by the Geotechnical engineer shall be specified.
9. A Final Verified Report (FVR) documenting the installation of the ground improvement system and confirming that the ground improvement acceptance criteria have been met shall be prepared by the Geotechnical Engineer and submitted to the enforcement agency for review and approval.

1813A.3 J412.3 Shallow Foundations. VSCs under the shallow foundation shall be located symmetrically around the centroid of the footing or load.

1. There shall be a minimum of four stone columns under each isolated or continuous/combined footing or approved equivalent.
2. The VSCs or deep foundation elements shall not be used to resist tension or overturning uplift from the shallow foundations.
3. The foundation design for the shallow foundation shall consider the increased vertical stiffness of the VSCs as point supports for analysis, unless it is substantiated that the installation of the VSCs result in improvement of the surrounding soils such that the modulus of subgrade reaction, long term settlement, and post-earthquake settlement can be considered uniform throughout.

1813A.4 J412.4 Installation. VSCs shall be installed with vibratory probes. Vertical columns of compacted unbounded aggregate shall be formed through the soils to be improved by adding gravel near the tip of the vibrator and progressively raising and re-penetrating the vibrator which will results in the gravel being pushed into the surrounding soil.

Gravel aggregate for VSCs shall be well graded with a maximum size of 6" and not more than 10% smaller than 3/8" after compaction.

1813A.5 J412.5 Construction Documents. Construction documents for VSCs, as a minimum, shall include the following:

1. Size, depth, and location of VSCs.
2. Extent of soil improvements along with building/structure foundation outlines.
3. Field verification requirements and acceptance criteria using CPT/SPT.
4. The locations where CPT/SPT shall be performed.
5. The Testing, Inspection and Observation (TIO) program shall indicate the inspection and observation required for the VSCs.

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

CHAPTER 19 CONCRETE

SECTION 1901 GENERAL

1901.1 Scope. The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used in structures.

...

1901.3 Anchorage to concrete. Anchorage to concrete shall be in accordance with ACI 318 as amended in Section 1905, and applies to cast-in (headed bolts, headed studs and hooked J- or L-bolts, post installed expansion (torque controlled and displacement-controlled), undercut and adhesive anchors.

1901.3.1 1908.1.1 Power Actuated Fasteners. [OSHPD 2] Power actuated fasteners qualified in accordance with ICC-ES AC 70 shall be deemed to satisfy the requirements of ASCE 7 Section 13.4.5, this section.

Power actuated fasteners shall be permitted in seismic shear for components exempt from construction documents review by ASCE 7 Section 13.1.4 and for interior non-bearing non-shear wall partitions only. Power actuated fastener shall not be used to anchor seismic bracing, exterior cladding or curtain wall systems.

Exception: Power actuated fasteners in steel to steel connections prequalified for seismic application by cyclic tests in accordance with ICC-ES AC 70 shall be permitted for seismic design.

1901.3.2 1909.1.1 Mechanical Anchors and Specialty Inserts. [OSHPD 2] Mechanical anchors qualified in accordance with ICC-ES AC 193 shall be deemed to satisfy the requirements of this section.

Specialty inserts, including cast-in-place specialty inserts, tested in accordance with ICC-ES -AG

~~493~~ AC 232 or AC 446 shall be deemed to satisfy the requirements of this section.

1901.3.3 ~~1909.1.2~~ Post-Installed Adhesive Anchors. [OSHPD 2] Adhesive anchors qualified in accordance with ICC-ES AC 308 shall be deemed to satisfy the requirements of this section.

1901.3.4 ~~1909.2~~ Tests for Post-Installed Anchors in Concrete. [OSHPD 2] When post-installed anchors are used in lieu of cast-in place bolts, the installation verification test loads, frequency, and acceptance criteria shall be in accordance with this section.

1901.3.4.1 ~~1909.2.1~~ General. Test loads or torques and acceptance criteria shall be shown on the construction documents.

If any anchor fails testing, all anchors of the same type shall be tested, which are installed by the same trade, not previously tested until twenty (20) consecutive anchors pass, then resume the initial test frequency.

1901.3.4.2 ~~1909.2.5~~ Testing Procedure. The test procedure shall be as permitted by an approved test report using criteria adopted in this code. All ~~other~~ post-installed anchors shall be tension tested.

Exception: Torque controlled post installed anchors shall be permitted to be tested using torque based on an approved test report using criteria adopted in this code.

Alternatively, ~~A~~ manufacturer's recommendation for testing may be approved by the enforcement agency based on an approved test report using criteria adopted in this code.

1901.3.4.3 ~~1909.2.3~~ Test Frequency. When post-installed anchors are used for sill plate bolting applications, 10 percent of the anchors shall be tested.

When post-installed anchors are used for other structural applications, all such anchors shall be ~~tension~~ tested.

When post-installed anchors are used for nonstructural applications such as equipment anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tested.

The testing of the post-installed anchors shall be done in the presence of the special inspector and a report of the test results shall be submitted to the enforcement agency.

Exceptions:

1. Undercut anchors that allow visual confirmation of full set shall not require testing.
2. Where the factored design tension on anchors is less than 100 lbs. and those anchors are clearly noted on the approved construction documents, only 10 percent of those anchors shall be tested.
3. Where adhesive anchor systems are used to install reinforcing dowel bars in hardened concrete, only 25% of the dowels shall be tested if all of the following conditions are met:
 - a. The dowels are used exclusively to transmit shear forces across joints between existing and new concrete.
 - b. The number of dowels in any one member equals or exceeds twelve (12).
 - c. The dowels are uniformly distributed across seismic force resisting members (such as shear walls, collectors, and diaphragms).

Anchors to be tested shall be selected at random by the special inspector/Inspector Of Record (IOR).

4. Testing of shear dowels across cold joints in slabs on grade, where the slab is not part of the lateral force-resisting system shall not be required.
5. Testing is not required for power actuated fasteners used to attach tracks of interior non-shear wall partitions for shear only, where there are at least three fasteners per segment of track.

1901.3.4.4 1909.2.2 Test Loads. Required test loads shall be determined by one of the following methods:

1. Twice the maximum allowable tension load or one and a quarter (1- 1/4) times the maximum design strength of anchors as provided in approved test report using criteria adopted in this code or determined in accordance with Chapter 17 Appendix D of ACI 318.

Tension test load need not exceed 80% of the nominal yield strength of the anchor element ($= 0.8 A_{se} f_{ya}$).

2. The manufacturer's recommended installation torque based on approved test report using criteria adopted in this code.

1901.3.4.5 1909.2.4 Test Acceptance Criteria. Acceptance criteria for post-installed anchors shall be based on approved test report using criteria adopted in this code. Field test shall satisfy following minimum requirements.

1. Hydraulic Ram Method:

Anchors tested with a hydraulic jack or spring loaded devices shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.

For adhesive anchors, where other than bond is being tested, the testing device shall not restrict the concrete shear cone type failure mechanism from occurring.

2. Torque Wrench Method:

Torque controlled post installed A anchors tested with a calibrated torque wrench shall must attain the specified torque within 1/2 turn of the nut; or one-quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.

Exceptions:—

- a. ~~Wedge or Sleeve type:~~—

~~One quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.~~

- b. ~~Threaded Type:~~

~~One quarter (1/4) turn of the screw after initial seating of the screw head.~~

...

SECTION 1908
ANCHORAGE TO CONCRETE

ALLOWABLE STRESS DESIGN

1908.1.1 Power Actuated Fasteners. [OSHPD 2] Power actuated fasteners qualified in accordance with ICC-ES AC 70 shall be deemed to satisfy the requirements of this section.

Power actuated fasteners shall be permitted in seismic shear for components exempt from construction documents review by ASCE 7 Section 13.1.4 and for interior non-bearing non-shear wall partitions. Power actuated fastener shall not be used to anchor exterior cladding or curtain wall systems.

...

~~Relocated to Section 1901~~ SECTION 1909 ANCHORAGE TO CONCRETE— STRENGTH DESIGN

...

1909.1.1 Mechanical Anchors and Specialty Inserts. [OSHPD 2] Mechanical anchors qualified in accordance with ICC-ES AC 193 shall be deemed to satisfy the requirements of this section.

Specialty inserts, including cast-in-place specialty inserts, tested in accordance with ICC-ES AC 193 shall be deemed to satisfy the requirements of this section.

1909.1.2 Post-Installed Adhesive Anchors. [OSHPD 2] Adhesive anchors qualified in accordance with ICC-ES AC 308 shall be deemed to satisfy the requirements of this section.

1909.2 Tests for Post-Installed Anchors in Concrete. [OSHPD 2] When post-installed anchors are used in lieu of cast-in-place bolts, the installation verification test loads, frequency, and acceptance criteria shall be in accordance with this section.

1909.2.1 General. Test loads or torques and acceptance criteria shall be shown on the construction documents.

If any anchor fails testing, all anchors of the same type shall be tested, which are installed by the same trade, not previously tested until twenty (20) consecutive anchors pass, then resume the initial test frequency.

1909.2.2 Test Loads. Required test loads shall be determined by one of the following methods:

1. Twice the maximum allowable tension load or one and a quarter (1 1/4) times the maximum design strength of anchors as provided in approved test report using criteria adopted in this code or determined in accordance with Appendix D of ACI 318.

Tension test load need not exceed 80% of the nominal yield strength of the anchor element ($= 0.8 A_{se} f_{ye}$).

2. The manufacturer's recommended installation torque based on approved test report using criteria adopted in this code.

1909.2.3 Test Frequency. When post-installed anchors are used for sill plate bolting applications, 10 percent of the anchors shall be tested.

When post-installed anchors are used for other structural applications, all such anchors shall be tension tested.

When post-installed anchors are used for nonstructural applications such as equipment anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tested.

~~The testing of the post-installed anchors shall be done in the presence of the special inspector and a report of the test results shall be submitted to the enforcement agency.~~

~~Exceptions:~~

- ~~1. Undercut anchors that allow visual confirmation of full set shall not require testing.~~
- ~~2. Where the factored design tension on anchors is less than 100 lbs. and those anchors are clearly noted on the approved construction documents, only 10 percent of those anchors shall be tested.~~
- ~~3. Where adhesive anchor systems are used to install reinforcing dowel bars in hardened concrete, only 25% of the dowels shall be tested if all of the following conditions are met:~~
 - ~~a. The dowels are used exclusively to transmit shear forces across joints between existing and new concrete.~~
 - ~~b. The number of dowels in any one member equals or exceeds twelve (12).~~
 - ~~c. The dowels are uniformly distributed across seismic force resisting members (such as shear walls, collectors, and diaphragms).~~

~~Anchors to be tested shall be selected at random by the special inspector/Inspector Of Record (IOR).~~

- ~~4. Testing of shear dowels across cold joints in slabs on grade, where the slab is not part of the lateral force-resisting system shall not be required.~~
- ~~5. Testing is not required for power actuated fasteners used to attach tracks of interior non-shear wall partitions for shear only, where there are at least three fasteners per segment of track.~~

~~1909.2.4 Test Acceptance Criteria.~~ ~~Acceptance criteria for post-installed anchors shall be based on approved test report using criteria adopted in this code. Field test shall satisfy following minimum requirements.~~

~~2. Hydraulic Ram Method:~~

~~Anchors tested with a hydraulic jack or spring loaded devices shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.~~

~~For adhesive anchors, where other than bond is being tested, the testing device shall not restrict the concrete shear cone type failure mechanism from occurring.~~

~~2. Torque Wrench Method:~~

~~Anchors tested with a calibrated torque wrench must attain the specified torque within ½ turn of the nut~~

~~Exceptions:~~

- ~~a. Wedge or Sleeve type:
One quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.~~

- ~~b. Threaded Type:
One quarter (1/4) turn of the screw after initial seating of the screw head.~~

1909.2.5 Testing Procedure. *Test procedure shall be as permitted by approved test report using criteria adopted in this code. Torque controlled post installed anchors shall be permitted to be tested using torque based on approved test report using criteria adopted in this code. All other post installed anchors shall be tension tested. Manufacturer's recommendation for testing may be approved by the enforcement agency based on approved test report using criteria adopted in this code.*

All existing amendments that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275 and 129850

CHAPTER 19A CONCRETE

Italics are used for text within Sections 1903A through 1905A of this code to indicate provisions that differ from ACI 318. State of California amendments in these sections are shown in italics and underlined.

...

SECTION 1901A GENERAL

1901A.1 Scope. The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used in structures.

1901A.1.1 Application. *The scope of application of Chapter 19A is as follows:*

1. *[REDACTED]*
2. *Applications listed in Sections 1.10.1, and 1.10.4, regulated by the Office of Statewide Health Planning and Development (OSHPD). These applications include hospitals, skilled nursing facilities, intermediate care facilities, and correctional treatment centers.*

Exception: *[OSHPD 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light-steel-frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 19 and any applicable amendments therein.*

1901A.1.2 Amendments in this chapter. *OSHPD adopt this chapter and all amendments.*

Exception: *Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:*

1. *[REDACTED]*
2. *Office of Statewide Health Planning and Development.*
[OSHPD 1] - For applications listed in Section 1.10.1.
[OSHPD 4] - For applications listed in Section 1.10.4.

...

1901A.5 Construction documents. *The construction documents for structural concrete construction shall include:*

1. *The specified compressive strength of concrete at the stated ages or stages of construction for which each concrete element is designed.*
2. *The specified strength or grade of reinforcement.*
3. *The size and location of structural elements, reinforcement and anchors.*
4. *Provision for dimensional changes resulting from creep, shrinkage and temperature.*

5. The magnitude and location of prestressing forces.
6. Anchorage length of reinforcement and location and length of lap splices.
7. Type and location of mechanical and welded splices of reinforcement.
8. Details and location of contraction or isolation joints specified for plain concrete.
9. Minimum concrete compressive strength at time of posttensioning.
10. Stressing sequence for post-tensioning tendons.
11. For structures assigned to *Seismic Design Category D, E or F*, a statement if slab on grade is designed as a structural diaphragm.
12. *Openings larger than 12 inches (305 mm) in any dimension shall be detailed on the structural drawings.*

...

1901.6 Special inspections and tests. Special inspections and tests of concrete elements of buildings and structures and concreting operations shall be as required by Chapter 17A and Section 1910A.

...

SECTION 1903A SPECIFICATIONS FOR TESTS AND MATERIALS

1903A.1 General. Materials used to produce concrete, concrete itself and testing thereof shall comply with the applicable standards listed in ACI 318.

...

1903A.2 Special Inspections. *Where required, special inspections and tests shall be in accordance with Chapter 17A and Section 1910A.1913A.*

...

1903A.4 Flat wall insulating concrete form (ICF) systems. *Insulating concrete form material used for forming flat concrete walls shall conform to ASTM E 2634. **[OSHDP 1 & 4] Not Permitted by OSHPD.***

1903A.4 Reporting Requirements — *Modify ACI 318 Section 3.2.1 by adding the following:*

Each component (a) through (g), when present, as a percentage of total cementitious materials shall be reported for each mix design.

1903A.5 1903A.6 Aggregates - *Modify ACI 318 Section 3.3.2 26.4.1.2.1(a).(1) as follows: by adding the following:*

Aggregate size limitations waiver shall be approved by the enforcement agency.

Evidence that the aggregate used is not reactive in the presence of alkalis may be required by the enforcement agency. If new aggregate sources are to be used or if past experience indicates problems with existing aggregate sources, test the aggregate for potential alkali-silica reactivity in accordance with to ASTM C 1260 or C 1293 to determine the potential alkali-silica reactivity of the aggregate. If the results indicate an expansion greater than 0.10 percent at 16 days age with ASTM C 1260, or an expansion greater than 0.04 percent at 12 months age with ASTM C 1293, provide mitigation with one of the cementitious material systems noted below such that an expansion of less than 0.10 percent at 16 days age is obtained with ASTM C 1567:

1. Low alkali portland cement containing not more than 0.6 percent total alkali when calculated as sodium oxide, as determined by the method given in ASTM C 114.

2. Blended hydraulic cement, Type IS or IP, conforming to ASTM C 595, except that Type IS cement shall not contain less than 40 percent slag cement.

3. Replacement of not less than 15 percent by weight of the portland cement with a pozzolan conforming to ASTM C 618 for Class N or F materials (Class C is not permitted).
4. Replacement of not less than 40 percent by weight of the portland cement with slag cement conforming to ASTM C 989.
5. Replacement of not less than 5 percent nor more than 10 percent by weight of Portland cement with silica fume conforming to ASTM C 1240.
6. Replacement of portland cement with a ternary blend of portland cement, slag cement and pozzolan such that the resulting blend contains not more than 70 percent portland cement.

ASTM C 1567 test shall be performed separately on the fine and coarse aggregate with one requiring the higher percentage of supplementary cementitious materials dictating the required replacement.

ASTM C 1260, ASTM C 1293 and ASTM C 1567 tests must have been performed within the past three years.

- (1) **Normal weight aggregate:** Aggregate shall be non-reactive as determined by one of the methods in ASTM C33 Appendix X1: Methods for Evaluating Potential for Deleterious Expansion Due to Alkali Reactivity of an Aggregate. Aggregates deemed to be deleterious or potentially deleterious may be used with the addition of a material that has been shown to prevent harmful expansion in accordance with Appendix X1 of ASTM C 33, when approved by the building official.

1903A.6 1903A.5 Fly Ash [OSHPD 1 & 4] Limits on Cementitious Materials. Add- Modify ACI 318 Section 26.4.2.2(b) and Table 26.4.2.2(b) 3-2.3 as follows:

Fly ash or other pozzolan can be used as a partial substitute for ASTM C 150 portland cement, as follows:

1. Fly ash or other pozzolan shall conform to ASTM C 618 for Class N or Class F materials (Class C is not permitted), and
2. More than 15 percent by weight of fly ash or other pozzolans shall be permitted to be substituted for ASTM C 150 portland cement if the mix design is proportioned per ACI 318 Section 5.3. See Section 1904A for durability requirements.
3. More than 40 percent by weight of ground granulated blast furnace slag conforming to ASTM C 989 shall be permitted to be substituted for ASTM C 150 portland cement if the mix design is proportioned per ACI 318 Section 5.3. See Section 1904A for durability requirements.

The maximum percentage of pozzolans, including fly ash and silica fume, and slag cement in concrete assigned to all exposure categories shall be in accordance with Table 26.4.2.2(b) and (1) and (2).

Where pozzolans are used as cementitious materials, duration for minimum specified compressive strength of concrete (f'_c) that exceeds 28-days shall be considered an alternative system.

1903A.7 1903A.7 Discontinuous Steel Fibers fiber reinforcement - Not permitted. —Modify ACI 318 Section 3.5.1 by adding the following:

Discontinuous steel fibers are not permitted.

1903A.8 1903A.8 Welding of reinforcing bars - Modify ACI 318 Section 3.5.2 26.6.4.1(b) by adding the following:

If mill test reports are not available, chemical analysis shall be made of bars representative of the bars to be welded. Bars with a carbon equivalent (C.E.) above 0.75 shall not be welded. Welding shall not be done on or within two bar diameters of any bent portion of a bar that has been bent cold. Welding of crossing bars shall not be permitted for assembly of reinforcement unless authorized by the structural engineer and approved by the enforcement agency per approved procedures.

Shop fusion welded stirrup/tie cage (or spiral assemblies) consisting of low-alloy steel reinforcing stirrups/ties conforming to ASTM A706 and longitudinal holding wires, conforming to ASTM A1064 shall be permitted. The fusion welds shall be made by machines using electric resistance welds. Tack welding of primary reinforcing bars together or to stirrups/ties is not permitted. Fusion welding of holding wires is not permitted on any portion of a reinforcing bar that is or will be bent in accordance with ACI 318 Section 25.3.

...

SECTION 1904A DURABILITY REQUIREMENTS

...

1904A.1 Structural concrete. Structural concrete shall conform to the durability requirements of ACI 318.

Exception: For Group R-2 and R-3 occupancies not more than three stories above grade plane, the specified compressive strength, f'_c , for concrete in basement walls, foundation walls, exterior walls and other vertical surfaces exposed to the weather shall be not less than 3,000 psi (20.7 MPa).

...

SECTION 1905A MODIFICATIONS TO ACI 318

1905A.1 General. The text of ACI 318 shall be modified as indicated in Sections 1905A.1.1 through 1905.1.24 1905A.1.16.

1905.1.1 ACI 318, Section 2.3. Modify existing definitions and add the following definitions to ACI 318, Section 2.3.

DESIGN DISPLACEMENT. Total lateral displacement expected for the design basis earthquake, as specified by Section 12.8.6 of ASCE 7.

DETAILED PLAIN CONCRETE STRUCTURAL WALL. A wall complying with the requirements of Chapter 14, including 14.6.2.

ORDINARY PRECAST STRUCTURAL WALL. A precast wall complying with the requirements of Chapters 1 through 13, 15, 16 and 19 through 26.

ORDINARY REINFORCED CONCRETE STRUCTURAL WALL. A cast-in-place wall complying with the requirements of Chapter 14, excluding 14.6.2.

ORDINARY STRUCTURAL PLAIN CONCRETE WALL. A wall complying with the requirements of Chapter 22, excluding 22.6.7.

SPECIAL STRUCTURAL WALL. A cast-in-place or precast wall complying with the requirements of 18.2.4 through 18.2.8, 18.10 and 18.11, as applicable, in addition to the requirements for ordinary reinforced concrete structural walls or ordinary precast structural walls, as applicable. Where ASCE 7 refers to a "special reinforced concrete structural wall," it shall be deemed to mean a "special structural wall."

1905A.1.1 1905A.1.14 ACI 318 Section 4.12.2.2 48.2.4. Modify ACI 318 Section 4.12.2.2 48.2.4 by adding the following:

Where prestressed concrete elements are restrained from movement, an analysis of the stresses in the prestressed elements and loads in the adjoining structural system induced by the above-described effects shall be made in accordance with PCI Design Handbook, 7th Edition.

1905A.1.2 1905A.1.13 ACI 318, Section 4.12.2.3 48.2.3. Modify ACI 318 Section 4.12.2.3 48.2.3 by adding the following:

For prestressed concrete members with recessed or dapped ends, an analysis of the connections shall be made in accordance with procedures given in PCI Design Handbook, 7th Edition.

1905A.1.3 1905A.1.6 ACI 318, Section 9.6.1.3, 40.5.3. Modify ACI 318 Section 9.6.1.3, 40.5.3 by adding the following:

This section shall not be used for members that resist seismic loads, except that reinforcement provided for foundation elements for one-story wood-frame or one-story light steel buildings need not be more than one-third greater than that required by analysis for all loading conditions.

1905A.1.4 1905A.1.8 ACI 318, Section 11.2.4.1 44.2.6. Replace ACI 318 Section 11.2.4.1 44.2.6 as follows:

11.2.4.1 44.2.6 - Walls shall be anchored to intersecting elements such as floors or roofs; or to columns, pilasters, buttresses, or intersecting walls; and footings with reinforcement at least equivalent to No. 4 bars at 12 inches (305 mm) on center for each layer of reinforcement.

1905A.1.5 1905A.1.11 ACI 318 Section 11.7.6 46.11.7. Add Section 11.7.6 46.11 to ACI 318 as follows:

11.7.6 46.11 - Reinforcement. Perimeters of precast walls shall be reinforced continuously with a minimum of one No. 5 bar extending the full height and width of the wall panel. Bars shall be continuous around corners. Where wall panels do not connect to abut columns or other wall panels to develop at least 75 percent of the horizontal wall steel as noted below, vertical perimeter bars shall be retained by hooked wall bars. Edges of openings in precast walls shall be reinforced with a minimum of one No. 5 bar continuous past corners sufficient to develop the bar.

A continuous tie or bond beam shall be provided at the roof line either as a part of the roof structure or part of the wall panels as described in the next paragraph below. This tie may be designed as the edge member of the roof diaphragm but, in any case, shall not be less than equivalent to two No. 6 bars continuous. A continuous tie equivalent to two No. 5 bars minimum shall also be provided either in the footing or with an enlarged section of the floor slab.

Wall panels of shear wall buildings shall be connected to columns or to each other in such a manner as to develop at least 75 percent of the horizontal wall steel. No more than H half of this continuous horizontal reinforcing shall may be concentrated in bond or tie beams at the top and bottom of the walls and at points of intermediate lateral support. If possible, cast in-place joints with reinforcing bars extending from the panels into the joint a sufficient distance to meet the splice requirements of ACI 318 Section 25.5.2 42.15 for Class A shall be used. The reinforcing bars or welded tie details shall not be spaced over eight times the wall thickness vertically nor fewer than four used in the wall panel height. Where wall panels are designed for their respective overturning forces, the panel connections need not comply with the requirements of this paragraph.

Where splicing of reinforcement must be made at points of maximum stress or at closer spacing than permitted by ACI 318 Section 7.6, welding may be used when the entire procedure is suitable for the particular quality of steel used and the ambient conditions. Unless the welds develop 125 percent of the specified yield strength of the steel used, reinforcement in the form of continuous bars or fully anchored dowels shall be added to provide 25 percent excess steel area and the welds shall develop not less than the specified yield strength of the steel.

Exception: Nonbearing, nonshear panels such as nonstructural architectural cladding panels or column covers are not required to meet the provisions of this Section.

1905A.1.6 1905A.1.10 ACI 318, Section 11.9. 14.9. Modify ACI 318 by adding Section 11.9 14.9 as follows:

11.9 14.9 - Foundation Walls. Horizontal reinforcing of concrete foundation walls for wood-frame or light-steel buildings shall consist of the equivalent of not less than one No. 5 bar located at the top and bottom of the wall. Where such walls exceed 3 feet (914 mm) in height, intermediate horizontal reinforcing shall be provided at spacing not to exceed 2 feet (610 mm) on center. Minimum vertical reinforcing shall consist of No. 3 bars at 24 inches (610 mm) on center.

Where concrete foundation walls or curbs extend above the floor line and support wood-frame or light-steel exterior, bearing or shear walls, they shall be doweled to the foundation wall below with a minimum of No. 3 bars at 24 inches (610 mm) on center. Where the height of the wall above the floor line exceeds 18 inches (457 mm), the wall above and below the floor line shall meet the requirements of ACI 318 Section 11.6 and 11.7. 14.3.

1905A.1.7 ACI 318, Section 12.7.3. Add Section 12.7.3.4 to ACI 318 as follows:

1905A.1.20 ACI 318, Section 21.11.7. Modify ACI 318 Section 21.11.7 by adding Section 21.11.7.7 as follows:

21.11.7.7 — Where boundary members are not required by ACI 318 Section 21.11.7.5, minimum reinforcement parallel to the edges of all diaphragms and the boundaries of all openings shall consist of twice the cross-sectional area of the minimum shear reinforcement required per linear foot of diaphragm.

12.7.3.4 – At least two No. 5 bars in diaphragms having two layers of reinforcement in both directions and one No. 5 bar in diaphragms having a single layer of reinforcement in both directions shall be provided around openings larger than 12 inches in any dimension in addition to the minimum reinforcement required by Section 12.6.

1905A.1.8 1905A.1.24 (Chapter 19, Section 1905.1.8) ACI 318, Section 17.2.3. Modify ACI 318 Sections 17.2.3.4.2, 17.2.3.4.3(d) and 17.2.3.5.2 to read as follows:

17.2.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with 17.2.3.4.3. The anchor design tensile strength shall be determined in accordance with 17.2.3.4.4.

Exception: Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 and Section 1604A.8.2 of this code shall be deemed to satisfy Section 17.2.3.4.3(d).

17.2.3.4.3(d) - The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include **E**, with **E** increased by Ω_0 . The anchor design tensile strength shall be calculated from 17.2.3.4.4.

17.2.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with 17.2.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with 17.5.

Exceptions:

1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with 17.5.2 and 17.5.3 need not be computed and 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:

1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AWC NDS Table 11E for lateral design values parallel to grain.

1.2. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).

1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).

1.4. Anchor bolts are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.

1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.

1.6. The sill plate is 2-inch or 3-inch nominal thickness.

2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with 17.5.2 and 17.5.3 need not be computed and 17.2.3.5.3 shall be deemed to be satisfied provided all of the following are met:

2.1. The maximum anchor nominal diameter is $\frac{5}{8}$ inches (16 mm).

2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).

2.3. Anchors are located a minimum of $1\frac{3}{4}$ inches (45 mm) from the edge of the concrete parallel to the length of the track.

2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.

2.5. The track is 33 to 68 mil designation thickness.

Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.

3. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to $\frac{5}{8}$ 1" inch [16mm] in diameter attaching sill plate or track to foundation

or foundation stem wall need not satisfy 17.2.3.5.3(a) through (c) when the design strength of the anchors is determined in accordance with 17.5.2.1(c).

1905A.1.9 1905A.1.4 ACI 318, Table 19.2.1.1 Section 5.1.1. Modify ACI 318 Table 19.2.1.1 Section 5.1.1 as follows.

For concrete designed and constructed in accordance with this chapter, f'_c shall not be less than 3,000 psi (20.7 MPa). Reinforced normal weight concrete with specified compressive strength higher than 8,000 psi (55 MPa) shall require prior approval of structural design method and acceptance criteria by the enforcement agency.

1905A.1.3 ACI 318, Section 8.13.5. Replace ACI 318 Section 8.13.5 as follows:

8.13.5 Permanent burned clay or concrete tile fillers shall be considered only as forms and shall not be included in the calculations involving shear or bending moments.

The thickness of the concrete slab on the permanent fillers shall be designed as described in ACI 318 Section 8.13.6 as modified in Section 1905A.1.4.

1905A.1.4 ACI 318, Section 8.13.6. Replace ACI 318 Section 8.13.6 as follows:

8.13.6 Where removable forms or fillers are used, the thickness of the concrete slab shall not be less than 1/12 of the clear distance between joists and in no case less than 2 1/2 inches (64 mm). Such slab shall be reinforced at right angles to the joists with at least the amount of reinforcement required for flexure, considering load concentrations, if any, but in no case shall the reinforcement be less than that required by ACI 318 Section 7.12.

1905A.1.5 ACI 318, Section 8.13. Add Section 8.13.9 to ACI 318 as follows:

8.13.9 Concrete bridging. Concrete bridging shall be provided as follows: one near the center of spans for 20 to 30 feet (6096 mm to 9144 mm) spans and two near the third points of spans over 30 feet (9144 mm). Such bridging shall be either:

- (a) A continuous concrete web having a depth equal to the joist and a width not less than 3 1/2 inches (89 mm) reinforced with a minimum of one No. 4 bar in the top and bottom; or
- (b) Any other concrete element capable of transferring a concentrated load of 1,000 pounds (4.5 kN) from any joist to the two adjacent joists.

Such bridging shall not be required in roof framing if an individual member is capable of carrying dead load plus a concentrated load of 1,500 pounds (6.7 kN) at any point.

1905A.1.7 ACI 318, Section 12.14.3. Add Section 12.14.3.6 to ACI 318 as follows:

12.14.3.6 Welded splices and mechanical connections shall maintain the clearance and coverage requirements of ACI Sections 7.6 and 7.7.

1905A.1.9 ACI 318, Section 14.5 - Empirical design method. Not permitted by OSHPD.

1905A.1.12 ACI 318, Section 17.5.1. Modify ACI 318 Section 17.5.1 by adding Sections 17.5.1.1 and 17.5.1.2 as follows:

17.5.1.1 Full transfer of horizontal shear forces may be assumed when all of the following are satisfied:

1. Contact surfaces are clean, free of laitance, and intentionally roughened to full amplitude of approximately 1/4 inch (6.4 mm).

2. Minimum ties are provided in accordance with ACI 318 Section 17.6.

3. Web members are designed to resist total vertical shear, and

4. All shear reinforcement is fully anchored into all interconnected elements.

17.5.1.2 — If any of the requirements of ACI 318 Section 17.5.1.1 is not satisfied, horizontal shear shall be investigated in accordance with ACI 318 Section 17.5.3 or 17.5.4.

1905.1.2 ACI 318, Section 18.2.1. Modify ACI 318 Sections 18.2.1.2 and 18.2.1.6 to read as follows:

~~18.2.1.2 — Structures assigned to Seismic Design Category A shall satisfy requirements of Chapters 1 through 17 and 19 through 26; Chapter 18 does not apply. Structures assigned to Seismic Design Category B, C, D, E or F also shall satisfy 18.2.1.3 through 18.2.1.7, as applicable. Except for structural elements of plain concrete complying with Section 1905.1.7 of the International Building Code, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F.~~

~~18.2.1.6 — Structural systems designated as part of the seismic force-resisting system shall be restricted to those permitted by ASCE 7. Except for Seismic Design Category A, for which Chapter 18 does not apply, the following provisions shall be satisfied for each structural system designated as part of the seismic force-resisting system, regardless of the Seismic Design Category:~~

- ~~(a) Ordinary moment frames shall satisfy 18.3.~~
- ~~(b) Ordinary reinforced concrete structural walls and ordinary precast structural walls need not satisfy any provisions in Chapter 18.~~
- ~~(c) Intermediate moment frames shall satisfy 18.4.~~
- ~~(d) Intermediate precast structural walls shall satisfy 18.5.~~
- ~~(e) Special moment frames shall satisfy 18.6 through 18.9.~~
- ~~(f) Special structural walls shall satisfy 18.10.~~
- ~~((g) Special structural walls constructed using precast concrete shall satisfy 18.11.~~

~~All special moment frames and special structural walls shall also satisfy 18.2.4 through 18.2.8.~~

1905A.1.18 ACI 318, Section 21.9.4. Modify ACI 318 by adding Section 21.9.4.6 as follows:

21.9.4.6 — Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.13.

1905A.1.10 (Chapter 19, Section 1905.1.3) ~~Reserved for PSA~~ **1905.1.3 ACI 318, Section 18.5.** Modify ACI 318, Section 18.5, by adding new Section 18.5.2.2 and renumbering existing Sections 18.5.2.2 and 18.5.2.3 to become 18.5.2.3 and 18.5.2.4, respectively:

~~18.5.2.2 — Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at deformation induced by the design displacement or shall use type 2 mechanical splices.~~

~~18.5.2.3 — Elements of the connection that are not designed to yield shall develop at least 1.5 S_y .~~

~~18.5.2.4 — In structures assigned to SDC D, E or F, Wall piers shall be designed in accordance with 18.10.8 or 18.14 in ACI 318.~~

1905A.1.11 1905A.1.17 ACI 318, Section 18.10.6.5 21.9.2.2. Modify ACI 318, Section 18.10.6.5 21.9.2.2 by adding the following:

(c) Where boundary members are not required by ACI 318 Section 18.10.6.2 or 18.10.6.3, -21.9.6, minimum reinforcement parallel to the edges of all structural walls and the boundaries of all openings shall consist of twice the cross-sectional area of the minimum shear reinforcement required per lineal foot of wall. Horizontal extent of boundary element shall be per in accordance with ACI 318 Section 18.10.6.4 (a), (b) and (c). 21.9.6.4 (a) & (b).

1908.1.4 ACI 318, Section 18.11. Modify ACI 318, Section 18.11.2.1, to read as follows:

18.11.2.1 — Special structural walls constructed using precast concrete shall satisfy all the requirements of 18.10 for cast-in-place special structural walls in addition to Section 18.5.2.

1905A.1.12 1905A.1.19 ACI 318, Section 18.12.6 21.11.4. Add Section 18.12.6.2 to ACI 318 as follows: Modify ACI 318 Section 21.11.4 by adding the following:

18.12.6.2 Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or $6 d_b$ thick, where d_b is the diameter of the largest reinforcement in the topping slab.

1905A.1.13 (Chapter 19, Section 1905.1.5) 1905.1.5 ACI 318, Section 18.13.1.1. Modify ACI 318, Section 18.13.1.1, to read as follows:

18.13.1.1 — Foundations resisting earthquake-induced forces or transferring earthquake-induced forces between a structure and ground shall comply with the requirements of Section 18.13 and other applicable provisions of ACI 318 unless modified by Chapter 18A of the California Building Code.

1905.1.6 ACI 318, Section 14.6. Modify ACI 318, Section 14.6, by adding new Section 14.6.2 to read as follows:

14.6.2.1 — Detailed plain concrete structural walls.

14.6.2.1 — Detailed plain concrete structural walls are walls conforming to the requirements of ordinary structural plain concrete walls and 14.6.2.2.

14.6.2.2 — Reinforcement shall be provided as follows:

(a) Vertical reinforcement of at least 0.20 square inch (129 mm²) in cross-sectional area shall be provided continuously from support to support at each corner, at each side of each opening and at the ends of walls. The continuous vertical bar required beside an opening is permitted to substitute for one of the two No. 5 bars required by 14.6.1.

(b) Horizontal reinforcement at least 0.20 square inch (129 mm²) in cross-sectional area shall be provided:

1. Continuously at structurally connected roof and floor levels and at the top of walls;
2. At the bottom of load-bearing walls or in the top of foundations where doweled to the wall; and
3. At a maximum spacing of 120 inches (3048 mm).

Reinforcement at the top and bottom of openings, where used in determining the maximum spacing specified in Item 3 above, shall be continuous in the wall.

1905.1.7 ACI 318, Section 14.1.4. Delete ACI 318, Section 14.1.4, and replace with the following:

14.1.4 — Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

14.1.4.1 — Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

(a) Structural plain concrete basement, foundation or other walls below the base are permitted in detached one and two family dwellings three stories or less in height constructed with stud-

bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 7 1/2 inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 14.6.1.

(b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

Exception: In detached one- and two-family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.

(c) Plain concrete footings supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. For footings that exceed 8 inches (203 mm) in thickness, a minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

Exceptions:

1. In Seismic Design Category A, B, and C, detached one- and two-family dwellings three stories or less in height and constructed with stud-bearing walls, plain concrete footings without longitudinal reinforcement supporting walls are permitted.
2. For foundation systems consisting of a plain concrete footing and a plain concrete stemwall, a minimum of one bar shall be provided at the top of the stemwall and at the bottom of the footing.
3. Where a slab on ground is cast monolithically with the footing, one No. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.

1905A.1.14 ACI 318, Table 21.2.2. Replace Table 21.2.2 as follows:

Table 21.2.2 – Strength reduction factor ϕ for moment, axial force, or combined moment and axial force

Net tensile strain ϵ_t	Classification	ϕ			
		Type of transverse reinforcement			
		Spirals conforming to 25.7.3		Other	
$\epsilon_t \leq \epsilon_{ty}$	Compression-controlled	0.75	(a)	0.65	(b)
$\epsilon_{ty} < \epsilon_t < 0.005$	Transition ^{[1][2]}	$0.75 + 0.15 \frac{\epsilon_t - \epsilon_{ty}}{\epsilon_t - \epsilon_{ty}}$	(c)	$0.65 + 0.25 \frac{\epsilon_t - \epsilon_{ty}}{\epsilon_t - \epsilon_{ty}}$	(d)
$\epsilon_t \geq 0.005$	Tension-controlled ^[3]	0.9	(e)	0.9	(f)

^[1] For sections classified as Transition, it shall be permitted to use ϕ corresponding to compression-controlled sections.

^[2] ϵ_t is the greater of net tensile strain calculated for $P_n = 0.1A_g f'_c$ and 0.005.

^[3] For sections with factored axial compression force $P_u \geq 0.1A_g f'_c$, ϕ shall be calculated using equation (c) or (d) for sections classified as Transition, as applicable.

1905A.1.15 1905A.1.15 ACI 318, Section 24.2.1 48.2. Add Section 24.2.1.1 48.2.7 to ACI 318 as follows:

24.2.1.1 - Span to Depth Ratio. Prestressed Beam and Slab Span to Depth ratios for continuous prestressed concrete members shall not exceed the following, except when calculations of deflections and vibration effects prove that greater values may be used without adverse effects:

<u>Beams</u>	<u>30</u>
<u>One-way Slabs</u>	<u>40</u>
<u>Two-way Floor Slabs.....</u>	<u>40</u>
<u>Two-way Roof Slabs</u>	<u>44</u>

These ratios should be decreased for special conditions such as heavy loads and simple spans.

Maximum deflection criteria shall be in accordance with ACI 318 Section 24.2.2.9.5.

1905A.1.16 1905A.1.2 ACI 318, Section 5.6.2.1 26.12.2.1(a). Replace ACI 318 Section 5.6.2.1 26.12.2.1(a) by the following.

26.12.2.1(a) 5.6.2.1 Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, or not less than once for each 50 cubic yards (345m³) of concrete, or not less than once for each 2,000 square feet (186 m²) of surface area for slabs or walls. Additional samples for seven-day compressive strength tests shall be taken for each class of concrete at the beginning of the concrete work or whenever the mix or aggregate is changed.

SECTION 1906A STRUCTURAL PLAIN CONCRETE

Not permitted by OSHPD.

1906.1 Scope. The design and construction of structural plain concrete, both cast-in-place and precast, shall comply with the minimum requirements of ACI 318, as modified in Section 1905.

Exception: For Group R-3 occupancies and buildings of other occupancies less than two stories above grade plane of light frame construction, the required footing thickness of ACI 318 is permitted to be reduced to 6 inches (152 mm), provided that the footing does not extend more than 4 inches (102 mm) on either side of the supported wall.

...

SECTION 1908A SHOTCRETE

1908A.1 General. Shotcrete is mortar or concrete that is pneumatically projected at high velocity onto a surface. Except as specified in this section, shotcrete shall conform to the requirements of this chapter for plain or reinforced concrete and the provisions of ACI 506. The specified compressive strength of shotcrete shall not be less than 3,000 psi (20.69 MPa).

Concrete or masonry to receive shotcrete shall have the entire surface thoroughly cleaned and roughened by sand blasting, and just prior to receiving shotcrete, shall be thoroughly cleaned of all debris, dirt and dust. Concrete and masonry shall be wetted before shotcrete is deposited, but not so wet as to overcome suction. Sand for sand blasting shall be clean, sharp and uniform in size, with no particles that will pass a 50-mesh screen.

...

1908A.3 Aggregate. Coarse aggregate, if used, shall not exceed ³/₄ inch (19.1 mm).

For shear walls, when total rebar in any direction is more than 0.31 in² / ft. or rebar size is larger than # 5, shotcrete shall conform to course aggregate grading No. 2 per Table 1.1 of ACI 506.

...

1908A.5 Preconstruction tests. Where preconstruction test are required by Section 1908.4, a test panel shall be shot, cured, cored or sawn, examined and tested prior to commencement of the project. The sample panel shall be representative of the project and simulate job conditions as closely as

possible. The panel thickness and reinforcing shall reproduce the thickest and most congested area specified in the structural design. It shall be shot at the same angle, using the same nozzleman and with the same concrete mix design that will be used on the project. The equipment used in preconstruction testing shall be the same equipment used in the work requiring such testing, unless substitute equipment is *approved* by the *building official*. Reports of preconstruction tests shall be submitted to the *building official* as specified in Section 1704A.5.

...

1908A.7 Joints. Except where permitted herein, unfinished work shall not be allowed to stand for more than 30 minutes unless edges are sloped to a thin edge. For structural elements that will be under compression and for construction joints shown on the approved construction documents, square joints are permitted. Before placing additional material adjacent to previously applied work, sloping and square edges shall be cleaned and wetted.

The film of laitance which forms on the surface of the shotcrete shall be removed within approximately two hours after application by brushing with a stiff broom. If this film is not removed within two hours, it shall be removed by thorough wire brushing or sand blasting. Construction joints over eight hours old shall be thoroughly cleaned with air and water prior to receiving shotcrete.

...

1908A.10 Strength tests. Strength tests for shotcrete shall be made *in accordance with ASTM C1604 standards* by an approved agency on specimens that are representative of the work and which have been water soaked for at least 24 hours prior to testing. When the maximum-size aggregate is larger than $\frac{3}{8}$ inch (9.5 mm), specimens shall consist of not less than three 3-inch-diameter (76 mm) cores or 3-inch (76 mm) cubes. When the maximum-size aggregate is $\frac{3}{8}$ inch (9.5 mm) or smaller, specimens shall consist of not less than 2-inch-diameter (51 mm) cores or 2-inch (51 mm) cubes.

1908A.10.1 Sampling. Specimens shall be taken from the in-place work or from test panels, and shall be taken at least once each shift, but not less than one for each 50 cubic yards (38.2 m³) of shotcrete.

1908A.10.2 Panel criteria. When the maximum-size aggregate is larger than $\frac{3}{8}$ inch (9.5 mm), the test panels shall have minimum dimensions of 18 inches by 18 inches (457 mm by 457 mm). When the maximum-size aggregate is $\frac{3}{8}$ inch (9.5 mm) or smaller, the test panels shall have minimum dimensions of 12 inches by 12 inches (305 mm by 305 mm). Panels shall be shot in the same position as the work, during the course of the work and by the nozzle men doing the work. The conditions under which the panels are cured shall be the same as the work. *Approval from the enforcement agency shall be obtained prior to performing the test panel method.*

...

1908A.11 ~~1910A.11~~ Forms and Ground Wires for Shotcrete. Forms for shotcrete shall be substantial and rigid. Forms shall be built and placed so as to permit the escape of air and rebound.

Adequate ground wires, which are to be used as screeds, shall be placed to establish the thickness, surface planes and form of the shotcrete work. All surfaces shall be rodded to these wires.

1908A.12 ~~1910A.12~~ Placing. Shotcrete shall be placed in accordance with ACI 506.

~~Relocated to Section 2014~~ SECTION 1911A REINFORCED GYPSUM CONCRETE

1911A.1 General. Reinforced gypsum concrete shall comply with the requirements of ASTM C 317 and ASTM C 956. *Reinforced gypsum concrete shall be considered as an alternative system.*

...

~~Amendments in the CBC 2013 Sections 1908A and 1909A are deleted except those relocated as noted below, since model code deleted those sections.~~

~~Relocated to Section 1910A.1.20~~ **1908A.1.1 Power actuated fasteners.** Power actuated fasteners qualified in accordance with ICC-ES AC 70 shall be deemed to satisfy the requirements of this section.

~~Power actuated fasteners shall be permitted in seismic shear for components exempt from permit requirements by Section 1616A.1.18 of this code and for interior nonbearing non-shear wall partitions. Power actuated fastener shall not be used to anchor exterior cladding or curtain wall systems.~~

...

~~Relocated to Section 1910A.1.19~~ **1909A.1.1 Specialty inserts.** Specialty inserts, including cast-in-place specialty inserts, tested in accordance with ICC-ES AC 193 shall be deemed to satisfy the requirements of this section.

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SECTION 1909A **RESERVED**

SECTION 1910A 1913A **CONCRETE, REINFORCEMENT AND ANCHOR TESTING**

1910A.1 1913A.1 Cementitious material. The concrete supplier shall furnish to the enforcement agency certification that the cement proposed for use on the project has been manufactured and tested in compliance with the requirements of ASTM C 150 for portland cement and ASTM C 595 or ASTM C 1157 for blended hydraulic cement, whichever is applicable. When a mineral admixture or ground granulated blast-furnace slag is proposed for use, the concrete supplier shall furnish to the enforcement agency certification that they have been manufactured and tested in compliance with ASTM C 618 or ASTM C 989, whichever is applicable. The concrete producer shall provide copies of the cementitious material supplier's Certificate of Compliance that represents the materials used by date of shipment for concrete. Cementitious materials without Certification of Compliance shall not be used.

1910A.2 1913A.2 Tests of reinforcing bars. ~~Where following-s~~ Samples are shall be taken from bundles as delivered from the mill, with the bundles identified as to heat number and ~~provided the accompanying mill certificate, analyses accompany the report, a~~ One tensile test and one bend test shall be made from a sample specimen from each 10 tons (9080 kg) or fraction thereof of each size of reinforcing steel.

Where positive identification of the heat number cannot be made or where random samples are to be taken, one series of tests shall be made from each 2 1/2 tons (2270 kg) or fraction thereof of each size of reinforcing steel.

Tests of reinforcing bars may be waived by the structural engineer with the approval of the Building Official for one-story buildings or non-building structures provided they are identified in the construction documents and certified mill test reports are provided to the inspector of record for each shipment of such reinforcement.

1910A.3 1913A.3 Tests for prestressing steel and anchorage. All wires or bars of each size from each mill heat and all strands from each manufactured reel to be shipped to the site shall be assigned an individual lot number and shall be tagged in such a manner that each lot can be accurately identified at the jobsite. Each lot of tendon and anchorage assemblies and bar couplers to be installed shall be likewise identified.

The following samples of materials and tendons selected by the engineer or the designated testing laboratory from the prestressing steel at the plant or jobsite shall be furnished by the contractor and tested by an approved independent testing agency:

1. For wire, strand or bars, 7-foot-long (2134 mm) samples shall be taken of the coil of wire or strand reel or rods. A minimum of one random sample per 5,000 pounds (2270 kg) of each heat or lot used on the job shall be selected.
2. For prefabricated prestressing tendons other than bars, one completely fabricated tendon 10 feet (3048 mm) in length between grips with anchorage assembly at one end shall be furnished for each size and type of tendon and anchorage assembly.

Variations of the bearing plate size need not be considered.

The anchorages of unbonded tendons shall develop at least 95 percent of the minimum specified ultimate strength of the pre-stressing steel. The total elongation of the tendon under ultimate load shall not be less than 2 percent measured in a minimum gage length of 10 feet (3048 mm).

Anchorages of bonded tendons shall develop at least 90 percent of the minimum specified strength of the prestressing steel tested in an unbonded state. All couplings shall develop at least 95 percent of the minimum specified strength of the prestressing steel and shall not reduce the elongation at rupture below the requirements of the tendon itself.

3. If the prestressing tendon is a bar, one 7-foot (2134 mm) length complete with one end anchorage shall be furnished and, in addition, if couplers are to be used with the bar, two 4-foot (1219 mm) lengths of bar fabricated to fit and equipped with one coupler shall be furnished.
4. Mill tests of materials used for end anchorages shall be furnished. In addition, at least one Brinnell hardness test shall be made of each thickness of bearing plate.

1910A.4 1913A.4 Composite construction cores. Cores of the completed composite concrete construction shall be taken to demonstrate the shear strength along the contact surfaces. The cores shall be tested when the cast-in-place concrete is approximately 28 days old and shall be tested by a shear loading parallel to the joint between the precast concrete and the cast-in-place concrete. The minimum unit shear strength of the contact surface area of the core shall not be less than 100 psi (689 kPa).

At least one core shall be taken from each building for each 5,000 square feet (465m²) of area of composite concrete construction and not less than three cores shall be taken from each project. The architect or structural engineer in responsible charge of the project or his or her representative shall designate the location for sampling.

~~**1913A.5 Tests of shotcrete.** Testing of shotcrete shall follow the provisions of Section 1910A and the general requirements of ACI 318 Section 5.6.~~

~~**1913A.6 Gypsum field tests.** Field tests shall be made during construction to verify gypsum strength. One sample consisting of three specimens shall be made for each 5,000 square feet (465 m²) or fraction thereof of all gypsum poured, but not less than one sample shall be taken from each half day's pour.~~

~~**1910A.5 1913A.7 Tests for Post-Installed Anchors in Concrete.** When post-installed anchors are used in lieu of cast-in place bolts, the installation verification test loads, frequency, and acceptance criteria shall be in accordance with this section.~~

~~**1910A.5.1 1913A.7.1 General.** Test loads or torques and acceptance criteria shall be shown on the construction documents.~~

If any anchor fails testing, all anchors of the same type shall be tested, which are installed by the same trade, not previously tested until twenty (20) consecutive anchors pass, then resume the initial test frequency.

1910A.5.2 1913A.7.5 Testing Procedure. The test procedure shall be as permitted by an approved test evaluation report using criteria adopted in this code. All other post-installed anchors shall be tension tested.

Exception: [OSHPD 1 & 4] Torque controlled post installed anchors shall be permitted to be tested using torque based on an approved test report using criteria adopted in this code.

Alternatively, A manufacturer's recommendation for testing may be approved by the enforcement agency based on an approved test report using criteria adopted in this code.

1910A.5.3 1913A.7.3 Test Frequency. When post-installed anchors are used for sill plate bolting applications, 10 percent of the anchors shall be tested.

When post-installed anchors are used for other structural applications, all such anchors shall be tested.

When post-installed anchors are used for nonstructural applications such as equipment anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tested.

The testing of the post-installed anchors shall be done in the presence of the special inspector and a report of the test results shall be submitted to the enforcement agency.

Exceptions:

1. Undercut anchors that allow visual confirmation of full set shall not require testing.
2. Where the factored design tension on anchors is less than 100 lbs. and those anchors are clearly noted on the approved construction documents, only 10 percent of those anchors shall be tested.
3. Where adhesive anchor systems are used to install reinforcing dowel bars in hardened concrete, only 25% of the dowels shall be tested if all of the following conditions are met:
 - a. The dowels are used exclusively to transmit shear forces across joints between existing and new concrete.
 - b. The number of dowels in any one member equals or exceeds 12.
 - c. The dowels are uniformly distributed across seismic force resisting members (such as shear walls, collectors and diaphragms).

Anchors to be tested shall be selected at random by the special inspector/Inspector Of Record (IOR).

4. Testing of shear dowels across cold joints in slabs on grade, where the slab is not part of the lateral force-resisting system shall not be required.
5. Testing is not required for power actuated fasteners used to attach tracks of interior non-shear wall partitions for shear only, where there are at least three fasteners per segment of track.

1910A.5.4 1913A.7.2 Test Loads. Required test loads shall be determined by one of the following methods:

1. Twice the maximum allowable tension load or one and a quarter (1- 1/4) times the maximum design strength of anchors as provided in an approved test report using criteria adopted in this code or determined in accordance with Chapter 17 Appendix D of ACI 318.

Tension test load need not exceed 80% of the nominal yield strength of the anchor element ($= 0.8 A_{se} f_{ya}$).

2. The manufacturer's recommended installation torque based on an approved test report using criteria adopted in this code.

1910A.5.5 1913A.7.4 Test Acceptance Criteria. Acceptance criteria for post-installed anchors shall be based on an approved test report using criteria adopted in this code. Field tests shall satisfy the following minimum requirements.

1. Hydraulic Ram Method:

Anchors tested with a hydraulic jack or spring loaded ~~devices~~ apparatus shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.

For adhesive anchors, where other than bond is being tested, the testing apparatus support device shall not be located within 1.5 times the anchor's embedment depth to avoid restricting the concrete shear cone type failure mechanism from occurring.

2. Torque Wrench Method:

Torque controlled post installed A anchors tested with a calibrated torque wrench shall must attain the specified torque within ½ turn of the nut; or one-quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.

Exceptions:

a. ~~Wedge or Sleeve type:~~

~~One quarter (1/4) turn of the nut for a 3/8 in. sleeve anchor only.~~

b. ~~Threaded Type:~~

~~One quarter (1/4) turn of the screw after initial seating of the screw head.~~

SECTION 1911A 1914A EXISTING CONCRETE STRUCTURES

1911A.1 1914A.1 Existing Concrete Structures.

The structural use of existing concrete with a core strength less than 1,500 psi (10.3MPa) is not permitted in rehabilitation work.

For existing concrete structures, sufficient cores shall be taken at representative locations throughout the structure, as designated by the architect or structural engineer, so that knowledge will be had of the in-place strength of the concrete. At least three cores shall be taken from each building for each 4,000 square feet (372 m²) of floor area, or fraction thereof. Cores shall be at least 4 inches (102 mm) in diameter. Cores as small as 2.75 inches (70 mm) in diameter may be allowed by the enforcement agency when reinforcement is closely spaced and the coarse aggregate does not exceed 3/4 inch (19 mm).

1911A.2 1914A.2 Crack Repair by Epoxy Injection. Crack Repair of concrete and masonry member by epoxy injection shall conform to all requirements of ACI 503.7.

1911A.3 1914A.3 Concrete Strengthening by Externally Bonded Fiber Reinforced Polymer (FRP). Design and construction of externally bonded FRP systems for strengthening concrete structures shall be in accordance with ACI 440.2R.

Exceptions: 1) Near-Surface Mounted (NSM) FRP bars shall not be permitted.
2) Strengthening of shear walls and diaphragms (including chords and collectors) shall be considered as an alternative system.

Design capacities, reliability, serviceability of FRP materials shall be permitted to be established in accordance with ICC-ES AC 125. Minimum inspection requirements of FRP composite systems shall be in accordance with ICC-ES AC 178.

All existing amendments that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

**CHAPTER 20
ALUMINUM**

**SECTION 2001
GENERAL**

2001.1 Scope. This chapter shall govern the quality, design, fabrication and erection of aluminum.

**SECTION 2002
MATERIALS**

2002.1 General. Aluminum used for structural purposes in buildings and structures shall comply with AA ASM 35 and AA ADM 1. The nominal loads shall be the minimum design loads required by Chapter 16.

SECTION 2003 - INSPECTION

2003.1 Inspection. [OSH PD 1 & 4] Inspection of Aluminum shall be required in accordance with the requirements for steel in Chapter 17A.

All existing amendments are continued without any change.

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

**CHAPTER 21
MASONRY**

All existing amendments that are not revised shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275 and 129850

CHAPTER 21A MASONRY

...

SECTION 2101A GENERAL

2101A.1 Scope. This chapter shall govern the materials, design, construction and quality of masonry.

2101A.1.1 Application. The scope of application of Chapter 21A is as follows:

1. ~~Reserved for DSA~~
2. Applications listed in Section 1.10.1, and 1.10.4 regulated by the Office of Statewide Health Planning and Development (OSHDP). These applications include hospitals, skilled nursing facilities, intermediate care facilities and correctional treatment centers.

Exception: [OSHDP 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light-steel-frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 21 and any applicable amendments therein.

2101A.1.2 Amendments in this chapter. OSHDP adopt this chapter and all amendments.

Exception: Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:

1. ~~Reserved for DSA~~
2. Office of Statewide Health Planning and Development:
[OSHDP 1] - For applications listed in Section 1.10.1.
[OSHDP 4] - For applications listed in Section 1.10.4.

2101A.1.3 Prohibition: The following design methods, systems, and materials are not permitted by OSHDP:

1. Unreinforced Masonry.
2. Autoclaved Aerated Concrete (AAC) Masonry.
3. Empirical Design of Masonry.
4. Adobe Construction.
5. Ordinary Reinforced Masonry Shear Walls.
6. Intermediate Reinforced Masonry Shear Walls.
7. Prestressed Masonry Shear Walls.
8. Direct Design of Masonry.

...

2101A.2 Design methods. Masonry shall comply with the provisions of TMS402/ACI 530/ASCE 5 or TMS 403 as well as applicable requirements of this chapter.

...

SECTION 2102A DEFINITIONS AND NOTATIONS

2102A.1 General. The following terms are defined in Chapter 2, except those defined below which shall, for the purposes of this chapter, have the meanings shown herein:

...

WALL. ...

Hollow-unit Masonry Wall. Type of construction made with hollow masonry units in which the units are laid and set in mortar, reinforced, and grouted, ~~solid, except as provided in Section 2114A.~~

...

SECTION 2103A MASONRY CONSTRUCTION MATERIALS

2103A.1 Masonry units. Concrete masonry units, clay or shale masonry units, stone masonry units and glass unit masonry and AAC masonry units shall comply with Article 2.3 of TMS 602/ACI 530.1/ASCE 6. Architectural cast stone shall conform to ASTM C 1364.

...

2103A.3 Grout. Grout shall comply with Article 2.2 of TMS 602/ACI 530.1/ASCE 6.

~~**2103A.13.1 Water.** Water content shall be adjusted to provide proper workability and to enable proper placement under existing field conditions, without segregation~~

~~**2103A.13.2 Selecting Proportions.** Proportions of ingredients and any additives shall be based on laboratory or field experience with the grout ingredients and the masonry units to be used. Coarse grout proportioned by weight shall contain not less than 564 pounds of cementitious material per cubic yard (335 kg / m³).~~

~~**2103A.3.1 2103A.13.3 Aggregate.** Coarse grout shall be used in grout spaces between wythes 2 inches (51 mm) or more in width as determined in accordance with TMS 602 Table 7, footnote 3, and in all filled-cell grouted cells of hollow unit masonry construction.~~

...

~~**2103A.15 Additives and Admixtures.**~~

~~**2103A 15.1 General.** Additives and admixtures to mortar or grout shall not be used unless approved by the enforcement agency.~~

~~**2103A.15.2 Antifreeze compounds.** Antifreeze liquids, chloride salts or other such substances shall not be used in mortar or grout.~~

~~**2103A.5 2103A.15.3 Air entrainment.** Air-entraining substances shall not be used in mortar or grout unless tests are conducted to determine compliance with the requirements of this code.~~

SECTION 2104A CONSTRUCTION

2104A.1 Masonry construction. Masonry construction shall comply with the requirements of Sections 2104A.1.1 and ~~2104A.1.2~~ through 2104A.1.3 and with TMS 602/ACI 530.1/ASCE 6.

...

~~**2104A.1.3 2104A.5 Grouted Masonry.**~~

~~**2104A.1.3.1 2104A.5.1 General conditions.** Grouted masonry shall be constructed in such a manner that all elements of the masonry act together as a structural element. At the time of laying, all masonry units shall be free of dust and dirt. Prior to grouting, the grout space shall be clean so that all spaces to be filled with grout do not contain mortar projections greater than 1/4 inch (6.4 mm), mortar droppings and other foreign material. Grout shall be placed so that all spaces to be grouted do not contain voids.~~

Grout materials and water content shall be controlled to provide adequate fluidity for placement without segregation of the constituents, and shall be mixed thoroughly. Segregation of the grout materials and damage to the masonry shall be avoided during the grouting process.

Reinforcement and embedded items shall be clean, properly positioned and securely anchored against movement prior to grouting. Bolts shall be accurately set with templates or by approved equivalent means and held in place to prevent dislocation during grouting. Reinforcement, embedded items and bolts shall be solidly embedded in grout. Anchor bolts in the face shells of hollow masonry units shall be positioned to maintain a minimum of ½ in. of grout between the bolt and the face shell.

The grouting of any section of wall shall be completed in one day with no interruptions greater than one hour.

Grout pours greater than 12 inches (300 mm) in height shall be consolidated by mechanical vibration during placement before loss of plasticity in a manner to fill the grout space, and reconsolidated by mechanical vibration to minimize voids due to water loss. Grout pours less than 12 inches in height may be puddled.

Between grout pours or where grouting has been stopped more than an hour, a horizontal construction joint shall be formed by stopping all wythes at the same elevation and with the grout stopping a minimum of 1 1/2 inches (38 mm) below a mortar joint, except at the top of the wall. Where bond beams occur, the grout pour shall be stopped a minimum of 1/2 inch (12.7 mm) below the top of the masonry.

Grout shall not be handled nor pumped utilizing aluminum equipment unless it can be demonstrated with the materials and equipment to be used that there will be no deleterious effect on the strength of the grout.

2104A.1.3.1.1 2104A.5.1.1.1 Reinforced grouted masonry.

2104A.1.3.1.1.1 2104A.5.1.1.1.1 General. Reinforced grouted masonry is that form of construction made with clay or shale brick or made with solid concrete building brick in which interior joints of masonry are filled by pouring grout around reinforcement therein as the work progresses.

2104A.1.3.1.1.1.1 2104A.5.1.1.1.1.1 Low-lift grouted construction. Requirements for construction shall be as follows:

1. All units in the two outer wythes shall be laid with full-shoved head joint and bed mortar joints. Masonry headers shall not project into the grout space.
2. The minimum grout space for low-lift grout masonry shall be 2 1/2 inches (64 mm). All reinforcement and wire ties shall be embedded in the grout. The thickness of the grout between masonry units and reinforcement shall be a minimum of one bar diameter.
3. One tier of a grouted reinforced masonry wall may be carried up 12 inches (305 mm) before grouting, but the other tier shall be laid up and grouted in lifts not to exceed one masonry unit in height. All grout shall be puddled with a mechanical vibrator or wood stick immediately after placing so as to completely fill all voids and to consolidate the grout. All vertical and horizontal steel shall be held firmly in place by a frame or suitable devices.
4. Toothing of masonry walls is prohibited. Racking is to be held to a minimum.

2104A.1.3.1.1.2 2104A.5.1.1.1.2 High-lift grouted construction. Where high-lift grouting is used, the method shall be subject to the approval of the enforcement agency. Requirements for construction shall be as follows:

1. All units in the two wythes shall be laid with full head and bed mortar joints.
2. The two wythes shall be bonded together with wall ties. Ties shall not be less than No. 9 wire in the form of rectangles 4 inches (102 mm) wide and 2 inches (51 mm) in length less than the overall wall thickness. Kinks, water drips, or deformations shall not be permitted in the ties. One tier of the wall shall be built up not more than 16 inches (406 mm) ahead of the other tier. Ties shall be laid not to exceed 24 inches (610 mm) on center horizontally and 16 inches (406 mm) on center vertically for running bond, and not more than 24 inches (610 mm) on center horizontally and 12 inches (305 mm) on center vertically for stack bond.
3. Cleanouts shall be provided for each pour by leaving out every other unit in the bottom tier of the section being poured or by cleanout openings in the foundation. The foundation or other horizontal construction joints shall be cleaned of all loose material and mortar droppings before each pour. The cleanouts shall be sealed after inspection and before grouting.
4. The grout space in high-lift grouted masonry shall be a minimum of 3 1/2 inches (89 mm). All reinforcement and wire ties shall be embedded in the grout. The thickness of the grout between masonry units and reinforcement shall be a minimum of one bar diameter.
5. Vertical grout barriers or dams of solid masonry shall be built across the grout space the entire height of the wall to control the flow of the grout horizontally. Grout barriers shall not more than 30 feet (9144 mm) apart.
6. An approved admixture of a type that reduces early water loss and produces an expansive action shall be used in high-lift grout.
7. Grouting shall be done in a continuous pour in lifts not exceeding 4 feet (1219 mm). Grout shall be consolidated by mechanical vibration only, and shall be reconsolidated after excess moisture has been absorbed, but before plasticity is lost. The grouting of any section of a wall between control barriers shall be completed in one day, with no interruptions greater than one hour.

2104A.1.3.1.2 2104A.5.1.2 Reinforced hollow-unit masonry.

2104A.1.3.1.2.1 2104A.5.1.2.1 General. Reinforced hollow-unit masonry is that type of construction made with hollow-masonry units in which cells are continuously filled with grout, and in which reinforcement is embedded. All cells shall be solidly filled with grout in reinforced hollow-unit masonry, ~~except as provided in Section 2114A.1.~~

Exception: ~~Repealed from 2013 CBC 2114A.1~~ Reinforced hollow-unit masonry laid in running bond used for freestanding site walls fences and or interior nonbearing non-shear wall partitions may be of hollow-unit masonry construction grouted only in cells containing vertical and horizontal reinforcement.

Construction shall be one of the two following methods: The low-lift method where the maximum height of construction laid before grouting is 4 feet (1220 mm), or the high-lift method where the full height of construction between horizontal cold joints is grouted in one operation. General requirements for construction shall be as follows:

1. Bond shall be provided by lapping units in successive vertical courses. Where stack bond is used in reinforced hollow-unit masonry, the open-end type of unit shall be used with vertical reinforcement spaced a maximum of 16 inches (406 mm) on center.
2. Vertical cells to be filled shall have vertical alignment sufficient to maintain a clear grout space dimension of unobstructed, continuous vertical cell measuring not less than 2 inches by 3 inches (51 mm by 76 mm), except the minimum cell dimension for high-lift grout shall be 3 inches (76 mm), as determined in accordance with TMS 602 Table 7, footnote 3.
3. Grout shall be a workable mix suitable for placing without segregation and shall be thoroughly mixed. Grout shall be placed by pumping or an approved alternate method and shall be placed before initial set or hardening occurs. Grout shall be consolidated by mechanical vibration during placing and reconsolidated after excess moisture has been absorbed, but before workability is lost.
4. All reinforcement and wire ties shall be embedded in the grout. The space between masonry unit surfaces and reinforcement shall be a minimum of one bar diameter.
5. Horizontal reinforcement shall be placed in bond beam units with a minimum grout cover of 1 inch (25 mm) above steel for each grout pour. The depth of the bond beam channel below the top of the unit shall be a minimum of 1 1/2 inches (38 mm) and the width shall be 3 inches (76 mm) minimum.

2104A.1.3.1.2.2 2104A.5.1.2.2 Low-lift grouted construction. Units shall be laid a maximum of 4 feet (1220 mm) before grouting. Grouting shall follow each 4 feet (1220 mm) of construction laid and shall be consolidated so as to completely fill all voids and embed all reinforcing steel. Horizontal reinforcement shall be fully embedded in grout in an uninterrupted pour.

2104A.1.3.1.2.3 2104A.5.1.2.3 High-lift grouted construction. Where high-lift grouting is used, the method shall be approved by the enforcement agency. Cleanout openings shall be provided in every cell at the bottom of each pour of grout. Alternatively, if the course at the bottom of the pour is constructed entirely of inverted double open-end bond beam units, cleanout openings need only be provided for access to ~~in~~ every reinforced cell at the bottom of each pour of grout. The cleanouts shall be sealed before grouting. An approved admixture that reduces early water loss and produces an expansive action shall be used in the grout.

SECTION 2105A QUALITY ASSURANCE

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2105A.2 Compressive Strength, f'_m . The specified compressive strength, f'_m , assumed in design shall be 2000 psi (13.79 MPa) 4,500 psi (10.34 MPa) for all masonry construction using materials and details of construction required herein. Testing of the constructed masonry shall be provided in accordance with Section 2105A.4. **[OSHPD 1 & 4].**

EXCEPTION: [OSHPD 1 & 4] Subject to the approval of the enforcement agency, higher values of f'_m may be used in the design of reinforced grouted masonry and reinforced hollow-unit masonry. The approval shall be based on prism test results submitted by the architect or engineer which demonstrate the ability of the proposed construction to meet prescribed performance criteria for strength and stiffness. The design shall assume that the reinforcement will be placed in a location that will produce the largest stresses within the tolerances allowed

in Section 2104A.4.1 and shall take into account the mortar joint depth. In no case shall the f'_m assumed in design exceed 3,000 psi (20.7MPa).

Where an f'_m greater than 2000 psi (13.79MPa) 4,500 psi (31.03 MPa) is approved, the architect or structural engineer shall establish a method of quality control of the masonry construction acceptable to the enforcement agency which shall be described in the contract specifications. Compliance with the requirements for the specified strength of constructed masonry shall be provided using prism test method in accordance with Sections 2105A.2.2.2, and core shear testing in accordance with Section 2105A.4. Substantiation for the specified compressive strength prior to the start of construction shall be obtained by using prism test method in accordance with Sections 2105A.2.2.2.2 and Section 2105A.3. 2105A.2.2.1.4.

2105A.3 ~~2105A.2.2.1.4~~ Mortar and grout tests. These tests are to establish whether the masonry components meet the specified component strengths.

At the beginning of all masonry work, at least one test sample of the mortar and grout shall be taken on three successive working days and at least at one-week intervals thereafter. Samples of grout shall be taken for each mix design, each day grout is placed, and not less than every 5,000 square feet of masonry wall area. They shall meet the minimum strength requirement given in ASTM C270 Table 1 and ASTM C476/TMS 602 Section 2.2 Sections 2103A.9 and 2103A.13 for mortar and grout respectively. Additional samples shall be taken whenever any change in materials or job conditions occur, as determined by the building official. ~~or whenever in the judgment of the architect, structural engineer or the enforcement agency such tests are necessary to determine the quality of the material.~~ When the prism test method of Section 2105A.2.2.2 is used during construction, the tests in this section are not required.

Test specimens for mortar and grout shall be made as set forth in ASTM C 1586 and ASTM C 1019. **Exception:** For non-bearing non-shear masonry walls not exceeding total wall height of 12' above wall base, mortar test shall be permitted to be limited to those at the beginning of masonry work for each mix design.

2105A.4 Masonry core testing. [OSHPD 1 & 4] Not less than two cores shall be taken from each building for each 5,000 square feet (465 m²) ~~of the greater of the masonry wall area or the floor area or fraction thereof.~~ ~~The architect or structural engineer in responsible charge of the project or his/her representative or the inspector of record shall select the areas for sampling.~~ The inspector of record approved agency shall perform or observe the coring of the masonry walls and sample locations shall be subject to approval of the registered design professional.

Cores ~~samples~~ shall comply with the following:

1. Cored no sooner than 7 days after grouting of the selected area;
2. ~~be~~ Be a minimum of 3-3/4" in nominal diameter; and
3. Sampled shall be taken in such a manner as to exclude any masonry unit webs, mortar joint, or and reinforcing steel. If all cells contain reinforcement, alternate core locations or means to detect void or delamination shall be selected by the registered design professional and approved by the building official.

Visual examination of all cores shall be made by an approved agency ~~a laboratory acceptable to the building official~~ and the condition of the cores reported as required by the California Administrative Code. ~~One half of the number of cores taken shall be tested in a~~ Shear test both joints between the grout core and the outside wythes or face shell of the masonry 28 days after grouting of the sample area using a shear test apparatus acceptable to the enforcement agency. ~~Shear testing apparatus shall be of a design approved by the enforcement agency.~~ Core samples shall not be soaked before testing. Core samples to be tested shall be stored in sealed plastic bags or non-absorbent containers immediately after coring and for at least 5 days prior to testing. The average unit shear value for each pair of cores (4 shear tests) from each 5,000 square feet of wall area (or less) on the cross section of the core shall not be less than $2.5 \sqrt{f'_m}$ psi.

All cores shall be submitted to an approved agency the laboratory, acceptable to the building official, for examination, ~~regardless of whether even where~~ the core specimens failed during the cutting operation. The approved agency laboratory shall report the location where each core was taken, the findings of their visual examination of each core, identify which cores were selected for shear testing, and the results of the shear tests.

Exceptions:

1. Core sampling and testing is not required for non-bearing non-shear masonry walls, not exceeding total wall height of 12' above wall base, built with single-wythe hollow unit concrete masonry that attaches opposite face shells using webs cast as single unit, when designed using an f'_m not exceeding 2000 psi (13.79MPa).
2. An infrared thermographic survey or other nondestructive test procedures, shall be permitted to be approved as an alternative system to detect voids or delamination in grouted masonry in-lieu of core sampling and testing.

**SECTION 2106A
SEISMIC DESIGN**

2106A.1 Seismic design requirements for masonry. Masonry structures and components shall comply with the requirements in Chapter 7 of TMS 402/ACI 530/ASCE 5 depending on the structure's Seismic Design Category.

2106A.1.1 Modifications to TMS 402 / ACI 530 / ASCE 5. Modify TMS 402 / ACI 530 / ASCE 5 Section 7.4.4 4-48 as follows:

1. Minimum reinforcement requirements for Masonry Walls The total area of reinforcement in reinforced masonry walls shall not be less than 0.003 times the sectional area of the wall. Neither the horizontal nor the vertical reinforcement shall be less than one third of the total. Horizontal and vertical reinforcement shall be spaced at not more than 24 inches (610 mm) center to center. The minimum reinforcing shall be No. 4, except that No. 3 bars may be used for ties and stirrups. Vertical wall reinforcement shall have dowels of equal size and equal matched spacing in all footings. Reinforcement shall be continuous around wall corners and through intersections. Only reinforcement which is continuous in the wall shall be considered in computing the minimum area of reinforcement. Reinforcement with splices conforming to TMS 402 / ACI 530 / ASCE 5 ~~as modified by Section 2107A and 2108A~~ shall be considered as continuous reinforcement.

~~Horizontal reinforcing~~ ement bars in bond beams shall be provided in the top of footings, at the top of wall openings, at roof and floor levels, and at the top of parapet walls. For walls 12 inches (nominal) (305 mm) or more in thickness, horizontal and vertical reinforcement shall be equally divided into two layers, except where designed as retaining walls. Where reinforcement is added above the minimum requirements, such additional reinforcement need not be so divided.

In bearing walls of every type of reinforced masonry, there shall be trim reinforcement of not less than one No. 5 bar or two No. 4 bars on all sides of, and adjacent to, every opening which exceeds 16 inches (406 mm) in either direction, and such bars shall extend not less than 48 diameters, but in no case less than 24 inches (610 mm) beyond the corners of the opening. The bars required by this paragraph shall be in addition to the minimum reinforcement elsewhere required.

When the reinforcement in bearing walls is designed, placed and anchored in position as for columns, the allowable stresses shall be as for columns.

~~Joint reinforcement shall not used as principal reinforcement in masonry. designed by the strength-design method.~~

2. Minimum reinforcement for masonry columns. The spacing of column ties shall be as follows: not greater than 8 bar diameters, 24 tie diameters, or one half the least dimension of the column for the full column height. Ties shall be at least 3/8" in diameter and shall be embedded in grout. Top tie shall be within 2 inches (51 mm) of the top of the column or of the bottom of the horizontal bar in the supported beam.

3. Lateral support. Lateral support of masonry may be provided by cross walls, columns, pilasters, counterforts or buttresses where spanning horizontally or by floors, beams, girts or roofs where spanning vertically. Where walls are supported laterally by vertical elements, the stiffness of each vertical element shall exceed that of the tributary area of the wall.

4. Anchor Bolts. Bent bar anchor bolts shall not be allowed. The maximum size anchor shall be 1/2-inch (13 mm) diameter for 6-inch (152 mm) nominal masonry, 3/4-inch (19 mm) diameter for 8-inch (203 mm) nominal masonry, 7/8-inch (22 mm) diameter for 10-inch (254 mm) nominal masonry, and 1-inch (25mm) diameter for 12-inch (304.8 mm) nominal masonry.

SECTION 2107A ALLOWABLE STRESS DESIGN

2107A.1 General. The design of masonry structures using *allowable stress design* shall comply with Section 2106A and the requirements of Chapters 1 through 8 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107A.2 through 2107A.4 2107A.6.

...

2107A.2 TMS 402/ACI 530/ASCE 5, Section 8.1.6.7.1.1, lap splices. As an alternative to Section 8.1.6.7.1.1, it shall be permitted to design lap splices in accordance with Section 2107A.2.1.

2107A.2.1 Lap splices. The minimum length of lap splices for reinforcing bars in tension or compression, l_d , shall be

$$l_d = 0.002d_b f_s \quad \text{(Equation 21A-1)}$$

For SI: $l_d = 0.29d_b f_s$

but not less than 12 inches (305 mm). In no case shall the length of the lapped splice be less than 40 bar diameters, and need not be greater than 72 bar diameters.

where:

...

2107A.5 Modify TMS 402 / ACI 530/ASCE 5 by adding Section 8.1.7 ~~2.1.8~~ as follows:

8.1.7 ~~2.1.8~~ - Walls and Piers.

Thickness of Walls. For thickness limitations of walls as specified in this chapter, nominal thickness shall be used. Stresses shall be determined on the basis of the net thickness of the masonry, with consideration for reduction, such as raked joints.

The thickness of masonry walls shall be designed so that allowable maximum stresses specified in this chapter are not exceeded. Also, no masonry wall shall exceed the height or length-to-thickness ratio or the minimum thickness as specified in this chapter and as set forth in Table 2107A.5, below.

Piers. Every pier or wall section which width is less than three times its thickness shall be designed and constructed as required for columns if such pier is a structural member. Every pier

or wall section which width is between three and five times its thickness or less than one half the height of adjacent openings shall have all horizontal steel in the form of ties except that in walls 12 inches (305 mm) or less in thickness such steel may be in the form of hair-pins.

TABLE 2107A.5 - MINIMUM THICKNESS OF MASONRY WALLS^{1,2}

TYPE OF MASONRY	MAXIMUM RATIO UNSUPPORTED HEIGHT OR LENGTH TO THICKNESS ^{2,3}	NOMINAL MINIMUM THICKNESS (inches)
BEARING OR SHEAR WALLS:		
1. Stone masonry	14	16
2. Reinforced grouted masonry	25	6
3. Reinforced hollow-unit masonry	25	6
NONBEARING WALLS:		
4. Exterior reinforced walls	30	6
5. Interior partitions reinforced	36	4

¹For walls of varying thickness, use the least thickness when determining the height or length to thickness ratio.

²In determining the height or length-to-thickness ratio of a cantilevered wall, the dimension to be used shall be twice the dimension of the end of the wall from the lateral support.

³Cantilevered walls not part of a building and not carrying applied vertical loads need not meet these minimum requirements but their design must comply with stress and overturning requirements.

2107A.6 2107A.8 [OSHPD 1 & 4] Modify TMS402/ACI 530/ASCE 5, Section 8.3.4.4 2-3.4.4 by the following:

All reinforced masonry components that are subjected to in-plane forces shall have a maximum reinforcement ratio, ρ_{max} , not greater than that computed by equation 8-23. ~~2-23.~~

SECTION 2108A STRENGTH DESIGN OF MASONRY

2108A.1 General. The design of masonry structures using strength design shall comply with Section 2106A and the requirements of Chapters 1 through 7 and Chapter 9 of TMS 402/ACI 530/ASCE 5, except as modified by Sections 2108A.2 through 2108A.3.

Exception: AAC masonry shall comply with the requirements of Chapters 1 through 7 and Chapter 11 of TMS 402/ACI 530/ASCE 5.

...

SECTION 2109A EMPIRICAL DESIGN OF MASONRY

Not permitted by OSHPD.

Existing amendment deleting Section 2109 of IBC is retained and deleted Section 2109 is not shown here for clarity.

SECTION 2110A GLASS UNIT MASONRY

2110A.1 General. Glass unit masonry construction shall comply with Chapter 13 of TMS402/ACI 530/ASCE 5 and this section.

Masonry of glass blocks walls or panels shall be designed for seismic forces. ~~permitted in non-load-bearing exterior or interior walls and shall conform to the requirements of Section 2115A. Stresses in glass block shall not be utilized. Glass block may be solid or hollow and may contain inserts.~~

...

SECTION 2114A NONBEARING WALLS

2114A.1 General. ~~All nonbearing masonry walls shall be reinforced as specified in Section 2106A.1.1. Fences and interior nonbearing nonshear walls may be of hollow-unit masonry construction grouted in cells containing vertical and horizontal reinforcement. Nonbearing walls may be used to carry a superimposed load of not more than 200 pounds per linear foot (2.92 kN/m).~~

- 1. Thickness.** ~~Every nonbearing masonry wall shall be so constructed and have a sufficient thickness to withstand all vertical loads and horizontal loads, but in no case shall the thickness of such walls be less than the values set forth in Table 2107A.5. Plaster shall not be considered as contributing to the thickness of a wall in computing the height-to-thickness ratio.~~
- 2. Anchorage.** ~~All nonbearing walls shall be anchored as required by Sections 1604A.8.2 and ASCE 7 Chapter 13. Suspended ceilings or other nonstructural elements shall not be used to provide anchorage for masonry walls.~~

SECTION 2115A MASONRY SCREEN WALLS

2115A.1 General. ~~Masonry units may be used in nonbearing decorative screen walls. Units may be laid up in panels with units on edge with the open pattern of the unit exposed in the completed wall.~~

- 1. Horizontal Forces.** ~~The panels shall be capable of spanning between supports to resist the horizontal forces specified in Chapter 16A. Wind loads shall be based on gross projected area of the block.~~
- 2. Mortar Joints.** ~~Horizontal and vertical joints shall not be less than 1/4 inch (6 mm) thick. All joints shall be completely filled with mortar and shall be "shoved joint" work. The units of a panel shall be so arranged that either the horizontal or the vertical joint containing reinforcing is continuous without offset. This continuous joint shall be reinforced with a minimum of 0.03 square inch (19 mm²) of reinforcing steel and maximum spacing of 16 inches on center. Reinforcement may be embedded in mortar.~~
- 3. Reinforcement.** ~~Joint reinforcement may be composed of two wires made with welded ladder or trussed wire cross ties. In calculating the resisting capacity of the system, compression and tension in the spaced wires may be utilized. Ladder wire reinforcement shall not be spliced and shall be the widest that the mortar joint will accommodate, allowing 1/2 inch (13 mm) of mortar cover.~~
- 4. Size of Panels.** ~~The maximum size of panels shall be 144 square feet (13.4 m²), with the maximum dimension in either direction of 15 feet (4572 mm). The specified thickness of the units for exterior applications shall not be less than 3 7/8 inches.~~
- 5. Panel Support.** ~~Each panel shall be supported on all edges by a structural member of concrete, masonry or steel. Supports at the top and ends of the panel shall be by means of confinement of the masonry by at least 1 inch (25 mm) into and between the flanges of a steel channel. The space between the end of the panel and the web of the channel shall be filled with~~

resilient material. The use of equivalent configuration in other steel section or in masonry or concrete is acceptable.

All existing amendments, except where section is deleted in the model code, that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

CHAPTER 22 STEEL

This chapter is adopted without any amendment.

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275 and 129850

CHAPTER 22A STEEL

...

SECTION 2201A GENERAL

2201A.1 Scope. The provisions of this chapter govern the quality, design, fabrication and erection of steel construction.

2201A.1.1 Application. *The scope of application of Chapter 22A is as follows:*

1. *Reserved for DSA*
2. *Structures regulated by the Office of Statewide Health Planning and Development (OSHDP), which include those applications listed in Section 1.10.2, and 1.10.4. These applications include hospitals, skilled nursing facilities, intermediate care facilities and correctional treatment centers.*

Exception: *[OSHDP 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood-frame or light-steel-frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 22 and any applicable amendments therein.*

2201A.1.2 Identification of amendments. *OSHDP adopt this chapter and all amendments.*

Exception: *Amendments adopted by only one agency appear in this chapter preceded with the appropriate acronym of the adopting agency, as follows:*

1. *Reserved for DSA*
2. *Office of Statewide Health Planning and Development:*
[OSHDP 1] - For applications listed in Section 1.10.1.
[OSHDP 4] - For applications listed in Section 1.10.4.

...

SECTION 2204A CONNECTIONS

2204A.1 Welding. The details of design, workmanship and technique for welding and qualification of welding personnel shall be in accordance with the specifications listed in Sections 2205A, 2206A, 2207A, 2208A, 2210A and 2211A. For *Special inspection* of welding, see Section 1705A.2.

...

~~2204A.4~~ 2204A.2.2 Column base plate. When shear and / or tensile forces are intended to be transferred between column base plates and anchor bolts, provision shall be made in the design to eliminate the effects of oversized holes permitted in base plates by AISC 360 by use of shear lugs and / or welded shear transfer plates or other means acceptable to the enforcement agency, when the oversized holes are larger than the anchor bolt by more than 1/8 inch (3.2 mm). When welded shear transfer plates and shear lugs or other means acceptable to the enforcement agency are not used, the anchor bolts shall be checked for the induced bending stresses in combination with the shear stresses.

SECTION 2205A STRUCTURAL STEEL

2205A.1 General. The design, fabrication and erection of structural steel elements in buildings, structures and portions thereof shall be in accordance with AISC 360.

Exceptions: **OSHPD 1 & 41**

- 1) For members designed on the basis of tension, the slenderness ratio (L/r) shall not exceed 300, except for design of hangers and bracing in accordance with NFPA 13 and for rod hangers in tension.
- 2) For members designed on the basis of compression, the slenderness ratio (KL/r) shall not exceed 200, except for design of hangers and bracing in accordance with NFPA 13.

2205A.2 Seismic Design. Where required, the seismic design, fabrication and erection of buildings, structures and portions thereof shall be in accordance with Section 2205A.2.1 or 2205A.2.2.

2205A.2.1 Structural steel seismic force-resisting system. The design, detailing, fabrication and erection of structural steel seismic force-resisting systems shall be in accordance with the provisions of Section 2205A.2.1.1 or 2205A.2.1.2, as applicable.

2205A.2.1.1 Seismic Design Category B or C. ~~Not permitted by OSHPD. Structures assigned to Seismic Design Category B or C shall be of any construction permitted in Section 2205. Where a response modification coefficient, R , in accordance with ASCE 7, Table 12.2-1 is used for the design of structural steel structures assigned to Seismic Design Category B or C, the structures shall be designed and detailed in accordance with the requirements of AISC 341.~~

Exception: The response modification coefficient, R , designated for "Steel systems not specifically detailed for seismic resistance, excluding cantilever column systems" in ASCE 7, Table 12.2-1 shall be permitted for systems designed and detailed in accordance with AISC 360, and need not be designed and detailed in accordance with AISC 341.

2205A.2.1.2 Seismic Design Category D, E or F. Structures assigned to *Seismic Design Category D, E or F* shall be designed and detailed in accordance with AISC 341, ~~except as permitted in ASCE 7, Table 15.4-1.~~

2205A.2.2 Structural steel elements. The design, detailing, fabrication and erection of structural steel elements in seismic force-resisting system other than those covered in Section 2205A.2.1,

including struts, collectors, chords and foundation elements shall be in accordance with AISC 341, where either of following applies:

1. ~~The structure is assigned to seismic design category D, E or F, except as permitted in ASCE 7, Table 15.4-1.~~
2. ~~A response modification coefficient, R, greater than 3 in accordance with ASCE 7, Table 12.2-1, is used for the design of structure assigned to seismic design category B or C.~~

2205A.3 ~~Reserved for DSA~~

2205A.4 MODIFICATIONS TO AISC 341. [OSHDP 1 & 4]

2205A.4.1 Glossary. Modify Glossary by adding the following:

Inelastic Rotation: The permanent or plastic portion of the rotation angle between a beam and the column, or between a Link and the column of the Test Specimen, measured in radians. The Inelastic Rotation shall be computed based upon an analysis of the Test Specimen deformations. Sources of Inelastic Rotation include yielding of members and connectors, yielding of connection elements and slip between members and connection elements. For beam-to-column moment connections in Special Moment Frames, the inelastic rotation is represented by the plastic chord rotation angle calculated as the plastic deflection of the beam or girder, at the center of its span divided by the distance between the center of the beam span and the centerline of the panel zone of the beam-column connection. For link-to-column connections in Eccentrically Braced Frames, inelastic rotation shall be computed based upon the assumption that inelastic action is concentrated at a single point located at the intersection of the centerline of the link with the face of the column.

2205A.4.2 Section E2. Replace Section E2.6c Item # a by the following:

- (a) Use of IMF connections designed in accordance with ANSI/AISC 358 shall be as modified in Section 2205A.5.2.

2205A.4.3 2205A.4.2 Section E3. Replace Section E3.6b Item 1 by the following:

- (1) The connection shall be capable of sustaining an interstory drift angle of at least 0.04 radians and an inelastic rotation of 0.03 radians.

2205A.4.4 2205A.4.3 Section E3. Replace Section E3.6c Item # a by the following:

- (a) Use of SMF connections designed in accordance with ANSI /AISC 358 shall be as modified in Section 2205A.5.4.

2205A.4.5 2205A.4.4 Section F2. Special Concentrically Braced Frames (SCBF) modifications

5b. Diagonal Braces, Add a new section as follows.

- (4) The use of rectangular or square HSS are not permitted for bracing members, unless filled solid with cement grout having a minimum compressive strength of 3000 psi at 28 days. The effects of composite action in the filled composite brace shall be considered in the sectional properties of the system where it results in the more severe loading condition or detailing.

2205A.4.6 2205A.4.5 Section F3. Modify Section F3.6e Item 2 as follows:

Exception is not permitted.

2205A.4.7 ~~2205A.4.6~~ Section K2. Replace Section K2.3b as follows:

The size of the beam or Link used in the Test Specimen shall be within the following limits:

1. At least one of the test beams or Links shall be no less than 100% of the depth of the prototype beam or Link. For the remaining specimens, the depth of the test beam or Link shall be no less than 90 percent of the depth of the Prototype beam or Link.
2. At least one of the test beams or Links shall be no less than 100% of the weight per foot of the prototype beam or Link. For the remaining specimens, the weight per foot of the test beam or Link shall be no less than 75 percent of the weight per foot of the Prototype beam or Link.

The size of the column used in the test specimen shall properly represent the inelastic action in the column, as per the requirements in Section K2.3a. In addition, the depth of the test column shall be no less than 90% of the depth of the prototype column.

Extrapolation beyond the limitations stated in this section shall be permitted subject to peer review and approval by the enforcement agency.

2205A.4.8 ~~2205A.4.7~~ Section K2. Modify Section K2.8 by the following:

The test specimen must sustain the required interstory drift angle, or link rotation angle, and inelastic rotation for at least two complete loading cycles.

2205A.5 MODIFICATIONS TO AISC 358. [OSHPD 1 & 4]

2205A.5.1-2. Design Requirements, 2.1 Special and Intermediate Moment Frame Connection Types, Table 2-1 Prequalified Moment Connections modifications

The prequalified bolted moment connections are not permitted in buildings.

Exceptions:

1. Erection bolts are permitted.
2. The approved moment connection in accordance with AISC 358 Chapter 10 as permitted by the exception to Section 2206A.2.

2205A.5.2 Moment Connection - Chapter 11. The welded side plate steel moment connection shall be permitted provided:

1. The beams shall consist of either rolled or built-up wide flange sections.
2. The biaxial dual-strong axis and column minor axis configurations of the moment connection shall be considered as an alternative system.
3. For SMF and IMF systems, U-shaped cover plates shall be used and the hinge-to-hinge span to beam depth, L_p/d , shall be greater than or equal to 5.
4. The width-to-thickness ratios for beam flanges shall not be less than 3.
5. The spacing for lateral bracing of wide flange beams, L_b , shall include the length of the side plate at beam ends.

6. The extension of the side plates beyond the face of the column shall be within the range of 0.77d to 1.0d.
7. The gap-to-side plate thickness ratio shall range from 2.1 to 2.3.

SECTION 2206A COMPOSITE STRUCTURAL STEEL AND CONCRETE STRUCTURES

2206A.1 General. Systems of structural steel elements acting compositely with reinforced concrete shall be designed in accordance with AISC 360 and ACI 318, excluding ACI 318 Chapter 14.

2206A.2 Seismic Design. Where required, the seismic design, fabrication and erection of composite steel and concrete systems shall be in accordance with the additional provisions of Section 2206A.2.1.

2206A.2.1 Seismic requirements for composite structural steel and concrete construction.

Where a response modification coefficient, R , in accordance with ASCE 7, Table 12.2-1 is used for the design of systems of structural steel acting compositely with reinforced concrete, the structures shall be designed and detailed in accordance with the requirements of AISC 341 *and shall be considered as an alternative system.*

Exception: Steel and concrete composite special moment frame with the approved moment connections in accordance with AISC 358 Chapter 10 shall be permitted provided:

1. Beams are provided with Reduced Beam Sections (RBS),
2. Columns shall be Hollow Structural Sections (HSS) and completely filled with structural concrete having unit weight not less than 110 pounds per cubic foot (17 kN/m^3). Concrete shall have 28-day compressive strength not less than 4,000 psi (28 MPa).
2. 3-Web extension to beam web two sided fillet weld welds are sized to develop expected strength of the beam web and shall not be less than a $\frac{1}{4}$ inch fillet weld, and
4. ~~The high strength bolt design shall consider interaction between shear and tension as required by AISC 360, and~~
3. 5- The built-up box column wall thickness shall not be less than 1.25" and ~~the~~ the HSS column wall thickness shall not be less than $\frac{1}{2}$ inch.

...

SECTION 2207A STEEL JOISTS

...

2207A.4 Steel joist drawings. Steel joist placement plans shall be provided to show the steel joist products as specified on the *approved construction documents* and are to be utilized for field installation in accordance with specific project requirements as stated in Section 2207A.2. Steel joist placement plans shall include, at a minimum, the following:

...

~~Steel joist placement plans do not require the seal and signature of the joist manufacturer's registered design professional.~~

...

2207A.6 Joist Chord Bracing. *The chords of all joists shall be laterally supported at all points where the chords change direction.*

...

SECTION 2208A STEEL CABLE STRUCTURES

2208A.1 General. The design, fabrication and erection including related connections, and protective coatings of steel cables for buildings shall be in accordance with ASCE 19.

~~**2208.2 Seismic requirements for steel cable.** The design strength of steel cables shall be determined by the provisions of ASCE 19 except as modified by these provisions.~~

~~1. A load factor of 1.1 shall be applied to the prestress force included in T_3 and T_4 as defined in Section 3.12.~~

~~2. In Section 3.2.1, Item (c) shall be replaced with " $1.5 T_3$ " and Item (d) shall be replaced with " $1.5 T_4$."~~

...

SECTION 2210A COLD-FORMED STEEL

2210A.1 General. The design of cold-formed carbon and low alloy steel structural members shall be in accordance with AISI S100. The design of cold-formed stainless-steel structural members shall be in accordance with ASCE 8. Cold formed steel light-frame construction shall also comply with Section 2211A. Where required, the seismic design of cold formed steel structures shall be in accordance with the additional provisions of Section 2210A.2.

2210A.1.1 Steel decks. The design and construction of cold formed steel decks shall be in accordance with this section.

2210A.1.1.1 Noncomposite steel floor decks. Noncomposite steel floor decks shall be permitted to be designed and constructed in accordance with ANSI/SDI-NC1.0.

2210A.1.1.2 Steel roof deck. Steel roof decks shall be permitted to be designed and constructed in accordance with ANSI/SDI-RD1.0. *The base material thickness of steel deck shall not be less than 0.0359 inch (0.9 mm) (20 gage).*

2210A.1.1.3 Composite slabs on steel decks. Composite slabs of concrete and steel deck shall be permitted to be designed and constructed in accordance with ANSI/SDI-C.

2210A.2 Seismic requirements for cold-formed steel structures. Where a response modification coefficient, R , in accordance with ASCE 7, Table 12.2-1 is used for the design of cold-formed steel structures, the structures shall be designed and detailed in accordance with the requirements of AISI S100; and ASCE 8. ~~or, for cold-formed steel special bolted moment frames, AISI S110.~~

SECTION 2211A COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION

2211A.1 General. The design and installation of structural and nonstructural members utilized in cold-formed steel light-frame construction where the specified minimum base steel thickness is not greater than 0.1180 inches (2.997 mm) shall be in accordance with AISI S200 and Sections 2211A.2 through 2211A.7, or AISI S220, as applicable.

...

2211A.3 Truss design. Cold-formed steel trusses shall be designed in accordance with AISI S214, Sections 2211A.3.1 through 2211A.3.4 and accepted engineering practice.

Complete engineering analysis and truss design drawings shall accompany the construction documents submitted to the enforcement agency for approval. When load testing is required, the test report shall be submitted with the truss design drawings and engineering analysis to the enforcement agency.

2211A.3.1 Truss design drawings. The truss design drawings shall conform to the requirements of Section B2.3 of AISI S214 and shall be provided with the shipment of trusses delivered to the job site. The truss design drawings shall include the details of permanent individual truss member restraint/bracing in accordance with Section B 6(a) or B 6(c) of AISI S214 where these methods are utilized to provide restraint/bracing.

2211A.3.2 Deferred submittals. ~~AISI S214 Section B4.2 shall be deleted.~~ Not permitted by OSHPD.

...

2211A.4 Structural wall stud design. Structural wall studs shall be designed in accordance with either AISI S211 or AISI S100.

Cold formed steel stud foundation plates or sills shall be bolted or fastened to the foundation or foundation wall in accordance with Section 2304.3.4, Item 2.

2211A.6 Lateral design. Light-frame shear walls, diagonal strap bracing that is part of a structural wall and diaphragms used to resist wind, seismic and other in-plane lateral loads shall be designed in accordance with AISI S213.

Shear wall assemblies in accordance with ~~per~~ Section C2.2.3 of AISI S213 are not permitted within the seismic force-resisting system of buildings.

2211A.7 Prescriptive framing. ~~Not permitted by OSHPD. Detached one and two family dwellings and townhouses, less than or equal to three stories above grade plane, shall be permitted to be constructed in accordance with AISI S230 subject to the limitations therein.~~

...

SECTION 2213A TESTING AND FIELD VERIFICATION

2213A.1 Tests of High-strength Bolts, Nuts and Washers. High-strength bolts, nuts and washers shall be sampled and tested by an approved independent testing laboratory for conformance with the requirements of applicable ASTM standards.

[OSHPD 1 & 4] A minimum of 3-samples per lot, as defined in the ASTM standards for bolts [& not nuts and washers], shall be tested for tensile properties in accordance with ASTM F606, but need not exceed 3-samples per 400-bolts.

2213A.2 Tests of End-welded Studs. End-welded studs shall be tested in accordance with ~~per~~ the requirements of the AWS D1.1, Sections 7.7 and 7.8.

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

CHAPTER 23 WOOD

SECTION 2301 GENERAL

2301.1 Scope. The provisions of this chapter shall govern the materials, design, construction and quality of wood members and their fasteners.

2301.1.1 Application. [OSHDP 1, 2 & 4] The scope of application of Chapter 23 is as follows:

1. ~~Reserved for DSA.~~
2. Applications listed in Section 1.10, regulated by the Office of Statewide Health Planning and Development (OSHDP). These applications include hospitals, skilled nursing facilities, intermediate care facilities and correctional treatment centers.

Exception: For applications listed in Section 1.10.3 (Licensed Clinics), the provisions of this chapter without OSHDP amendments identified in accordance with Section 2301.1.2 shall apply.

2301.1.2 Identification of amendments. [OSHDP 1, 2 & 4] Office of Statewide Health Planning and Development amendments appear in this chapter preceded with the appropriate acronym, as follows:

1. ~~Reserved for DSA.~~
2. Office of Statewide Health Planning and Development:
[OSHDP 1] - For applications listed in Section 1.10.1.
[OSHDP 2] - For applications listed in Section 1.10.2.
[OSHDP 4] - For applications listed in Section 1.10.4.

2301.1.3 Reference to other chapters.

2301.1.3.1 [OSHDP 1 & 4] Where reference within this chapter is made to sections in Chapters 16, 17, 18, 19, 21, ~~and 22, and 34,~~ the provisions in Chapters 16A, 17A, 18A, 19A, 21A, ~~and 22A, and 34A~~ respectively shall apply instead.

2301.1.3.2 (Reserved for DSA).

2301.1.4 ~~Reserved from Section 2301.1.2~~ Prohibition. [OSHDP 1, 2 & 4] The following design methods, systems, and materials are not permitted by OSHDP:

1. Straight-sheathed horizontal lumber diaphragms. ~~are not permitted.~~
2. Gypsum-based sheathing shear walls and portland cement plaster shear walls, ~~are not permitted.~~
3. Shear wall foundation anchor bolt washers ~~shall be provided in accordance with AF & PA SDPWS Section 4.3.6.4.3. The exception to AF & PA AWC SDPWS Section 4.3.6.4.3, shall not apply.~~
4. Wood structural panel shear walls and diaphragms using staples as fasteners, ~~are not permitted.~~
5. Unblocked shear walls. ~~are not permitted.~~
6. Any wood structural panel sheathing used for diaphragms and shear walls, that are part of the seismic force-resisting system, ~~shall be not applied directly to framing members.~~
7. Single and double diagonally sheathed lumber walls ~~shall not be used to resist seismic forces.~~
8. ~~Reserved from Section 2301.2~~ Log structures in accordance with ICC 400. ~~are not permitted by OSHDP.~~
9. Cross-laminated timber used as part of the seismic force resisting system, unless approved as an alternative system in accordance with Section 104.11.

2301.2 General design requirements. The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, shall be in accordance with one of the following methods:

...

5. The design and construction of log structures shall be in accordance with the provisions of ICC 400.

~~Repealed by Section 2301.1.4. Exception: [OSHPD 1, 2, & 4] Log structures are not permitted by OSHPD.~~

...

SECTION 2302 DEFINITIONS

2302.1 Definitions. The following terms are defined in Chapter 2:

...

NATURALLY DURABLE WOOD.

Decay resistant.

Termite resistant.

...

SECTION 2303 MINIMUM STANDARDS AND QUALITY

2303.1 General. Structural sawn lumber; end-jointed lumber; prefabricated wood I-joists; structural glued-laminated timber; wood structural panels, fiberboard sheathing (when used structurally); hardboard siding (when used structurally); particleboard; preservative-treated wood; structural log members; structural composite lumber; round timber poles and piles; fire-retardant-treated wood; hardwood plywood; wood trusses; joist hangers; nails; and staples shall conform to the applicable provisions of this section.

...

2303.1.3 Structural glued-laminated timber. Glued-laminated timbers shall be manufactured and identified as required in ANSI/APA A190.1 and ASTM D 3737.

2303.1.3.1 Additional requirements. [OSHPD 1, 2 and 4] *The construction documents shall indicate the following:*

1. *Dry or wet service conditions.*
2. *Laminating combinations and stress requirements.*
3. *Species group.*
4. *Preservative material and retention, when preservative treatment is required.*
5. *Provisions for protection during shipping and field handling, such as sealing and wrapping in accordance with AITC 111.*

When mechanical reinforcement such as radial tension reinforcement is required, such reinforcement shall comply with AITC 404 and shall be detailed accordingly in the construction documents. Construction documents shall specify that the moisture content of laminations at the time of manufacture shall not exceed 12% for dry conditions of use.

The design of fasteners and connections shall comply with AITC 117, Section I, Item 6 (Connection Design), and NDS Appendix E.

~~*Refer to Section 1705A.5.4 for special inspection requirements during fabrication of structural glued-laminated timbers.*~~

2303.1.4 Structural glued cross-laminated timber. Cross-laminated timbers shall be manufactured and identified as required in ANSI/APA PRG 320.

2303.1.4.1 Additional requirements. [OSHPD 1, 2 and 4] *Requirements in Section 2303.1.3.1 shall apply to glued cross-laminated timber.*

...

2303.4.1.4.1 Truss design drawings. Where required by the *registered design professional*, the *building official*, or the statutes of the jurisdiction in which the project is to be constructed, each individual truss design drawing shall bear the seal and signature of the truss designer.

Exceptions:

1. Where a cover sheet and truss index sheet are combined into a single sheet and attached to the set of truss design drawings, the single cover/truss index sheet is the only document required to be signed and sealed by the truss designer.
2. When a cover sheet and a truss index sheet are separately provided and attached to the set of truss design drawings, the cover sheet and the truss index sheet are the only documents required to be signed and sealed by the truss designer.
3. **[OSHPD 1, 2, and 4]** *Exceptions 1 and 2 are not permitted by OSHPD.*

2303.4.2 Truss placement diagram. The truss manufacturer shall provide a truss placement diagram that identifies the proposed location for each individually designated truss and references the corresponding truss design drawing. The truss placement diagram shall be provided as part of the truss submittal package, and with the shipment of trusses delivered to the job site. Truss placement diagrams that serve only as a guide for installation and do not deviate from the *permit* submittal drawings shall not be required to bear the seal or signature of the truss designer.

2303.4.3 Truss submittal package. The truss submittal package provided by the truss manufacturer shall consist of each individual truss design drawing, the truss placement diagram, the permanent individual truss member restraint/bracing method and details and any other structural details germane to the trusses; as applicable, the cover/truss index sheet.

2303.4.3.1 Additional Requirements. [OSHPD 1, 2, and 4] *In addition to Sections 2303.4.1 and 2303.4.2, the following requirements apply:*

1. **Construction Documents.** *The construction documents prepared by the registered engineer or licensed architect for the project shall indicate all requirements for the truss design, including:*
 - 1.1 *Deflection criteria.*
 - 1.2 *Connection details to structural and non-structural elements (e.g. non-bearing partitions).*
2. **Requirements for Approval.** *The truss design drawings and engineering analysis shall be provided to the enforcement agency and approved prior to truss fabrication, in accordance with the California Administrative Code. Alterations to the approved truss design drawings or manufactured trusses are subject to the approval of the enforcement agency.*
3. **Special inspection during truss manufacture.** *Refer to Section 1705A.5.5 for special inspection requirements during the manufacture of open web trusses*

2303.4.4 Anchorage. The design for the transfer of loads and anchorage of each truss to the supporting structure is the responsibility of the *registered design professional*.

2303.4.5 Alterations to trusses. Truss members and components shall not be cut, notched, drilled, spliced or otherwise altered in any way without written concurrence and approval of a *registered design professional*. Alterations resulting in the addition of loads to any member (e.g., HVAC equipment, piping, additional roofing or insulation, etc.) shall not be permitted without verification that the truss is capable of supporting such additional loading.

2303.4.6 TPI 1 Specifications. In addition to Sections 2303.4.1 through 2303.4.5, the design, manufacture and quality assurance of metal-plate-connected wood trusses shall be in accordance with TPI 1. Job-site inspections shall be in compliance with Section 110.4, as applicable.

2303.4.7 Truss quality assurance. Trusses not part of a manufacturing process in accordance with either Section 2303.4.6 or a standard listed in Chapter 35, which provides requirements for quality control done under the supervision of a third-party quality control agency, shall be manufactured in compliance with Sections 1704.2 and 1704.6, as applicable.

...

SECTION 2304 GENERAL CONSTRUCTION REQUIREMENTS

2304.1 General. The provisions of this section apply to design methods specified in Section 2301.2.

2304.2 Size of structural members. Computations to determine the required sizes of members shall be based on the net dimensions (actual sizes) and not nominal sizes.

2304.3 Wall framing. The framing of exterior and interior walls shall be in accordance with the provisions specified in Section 2308 unless a specific design is furnished.

2304.3.1 Bottom plates. Studs shall have full bearing on a 2-inch-thick (actual 1½-inch, 38 mm) or larger plate or sill having a width at least equal to the width of the studs.

2304.3.2 Framing over openings. Headers, double joists, trusses or other approved assemblies that are of adequate size to transfer loads to the vertical members shall be provided over window and door openings in load-bearing walls and partitions.

2304.3.3 Shrinkage. Wood walls and bearing partitions shall not support more than two floors and a roof unless an analysis satisfactory to the building official shows that shrinkage of the wood framing will not have adverse effects on the structure or any plumbing, electrical or mechanical systems, or other equipment installed therein due to excessive shrinkage or differential movements caused by shrinkage. The analysis shall also show that the roof drainage system and the foregoing systems or equipment will not be adversely affected or, as an alternate, such systems shall be designed to accommodate the differential shrinkage or movements.

2304.3.4 Additional requirements. [OSHPD 1, 2, and 4] The following additional requirements apply:

1. *Engineering analysis shall be furnished that demonstrates compliance of wall framing elements and connections with Section 2301.2, Item 1 or 2.*
2. *Construction documents shall include detailing of sill plate anchorage to supporting masonry or concrete for all exterior and interior bearing, non-bearing and shear walls. Unless specifically designed in accordance with item 1 above, sills under exterior walls, bearing walls and shear walls shall be bolted to masonry or concrete with 5/8" diameter by 12 inch (16 mm by 305 mm) bolts spaced not more than four (4) feet (1219 mm) on center, with a minimum of two (2) bolts for each piece of sill plate. Anchor bolts shall have a 4 inch minimum and a 12 inch maximum clearance to the end of the sill plate, and 7 inch minimum embedment into concrete or masonry.*

Unless specifically designed in accordance with item 1 above, sill plates under non-bearing interior partitions on concrete floor slabs shall be anchored at not more than four (4) feet (1219 mm) on center to resist a minimum allowable stress shear of 100 pounds per linear foot (1.4 kN/m) acting either parallel or perpendicular to the wall.

3. *Construction documents shall include detailing and limitations for notches and bored holes in wall studs, plates and sills.*

2304.4 Floor and roof framing. The framing of wood-joisted floors and wood framed roofs shall be in accordance with the provisions specified in Section 2308 unless a specific design is furnished.

2304.4.1 Additional requirements. [OSHPD 1, 2, and 4] The following additional requirements apply:

1. Engineering analysis shall be furnished that demonstrates compliance of floor, roof and ceiling framing elements and connections with Section 2301.2, Items 1 or 2.
2. Construction documents shall include detailing and limitations for notches and bored holes in floor and roof framing members.

...

2304.6.1 Wood structural panel sheathing.

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Exception: *[OSHPD 1 & 4] Wind pressure shall be calculated in accordance with Section 1609A.*

...

2304.10 Connections and fasteners.

...

2304.10.1 Fastener requirements. Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2301.2. The number and size of fasteners connecting wood members shall not be less than that set forth in Table 2304.10.1.

2304.10.1.1 2304.9.1.1 Additional requirements. [OSHPD 1, 2 and 4] Fasteners used for the attachment of exterior wall coverings shall be of hot-dipped zinc-coated galvanized steel, mechanically deposited zinc-coated steel, stainless steel, silicon bronze or copper. The coating weights for hot-dipped zinc-coated fasteners shall be in accordance with ASTM A 153. The coating weights for mechanically deposited zinc coated fasteners shall be in accordance with ASTM B 695, Class 55 minimum.

...

2304.12.1.2 Wood supported by exterior foundation walls. Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8 inches (203 mm) from exposed earth shall be of naturally durable or preservative-treated wood.

Exception: *[OSHPD 1, 2 and 4] At exterior walls where the earth is paved with an asphalt or concrete slab at least 18 inches (457 mm) wide and draining away from the building, the bottom of sills are permitted to be 6 inches (152 mm) above the top of such slab. Other equivalent means of termite and decay protection may be accepted by the enforcement agency.*

...

2304.12.1.4 Sleepers and sills. Sleepers and sills on a concrete or masonry slab that is in direct contact with earth shall be of naturally durable or preservative-treated wood.

2304.12.1.4 2304.11.2.4.1 Additional Requirements. [OSHPD 1, 2, and 4] Stud walls or partitions at shower or toilet rooms with more than two fixtures, and stud walls adjacent to unroofed paved areas shall rest on a concrete curb extending at least 6 inches (152 mm) above finished floor or pavement level.

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SECTION 2305

GENERAL DESIGN REQUIREMENTS FOR LATERAL-FORCE-RESISTING SYSTEMS

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2305.1.1 Openings in shear panels. Openings in shear panels that materially affect their strength shall be detailed on the plans, and shall have their edges adequately reinforced to transfer all shearing stresses.

2305.1.2 Additional Requirements. *See Section 2301.1.4 for modifications to AWC SDPWS. (Relocated to Section 2301.1.4). [OSHPD 1, 2 and 4] The following limitations shall apply:*

- ~~1. Straight sheathed horizontal lumber diaphragms are not permitted.~~
- ~~2. Gypsum-based sheathing shear walls and portland cement plaster shear walls are not permitted.~~
- ~~3. Shear wall foundation anchor bolt washers shall be provided in accordance with AF & PA SDPWS Section 4.3.6.4.3. The exception to AF & PA SDPWS Section 4.3.6.4.3 shall not apply.~~
- ~~4. Wood structural panel shear walls and diaphragms using staples as fasteners are not permitted.~~
- ~~5. Unblocked shear walls are not permitted.~~
- ~~6. Any wood structural panel sheathing used for diaphragms and shear walls that are part of the seismic force-resisting system shall be applied directly to framing members.~~
- ~~7. Single and double diagonally sheathed lumber walls shall not be used to resist seismic forces.~~

2305.2 Diaphragm deflection.

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~~Exception: [OSHDP 1, 2 & 4] Section 2305.2 is not permitted by OSHDP.~~

...

2305.3 Shear wall deflection

...

~~Exception: [OSHDP 1, 2 & 4] Section 2305.3 is not permitted by OSHDP.~~

...

SECTION 2306 ALLOWABLE STRESS DESIGN

2306.1 Allowable stress design. The structural analysis and construction of wood elements in structures using *allowable stress design* shall be in accordance with the following applicable standards:

...

2306.2 Wood-frame diaphragms. Wood-frame diaphragms shall be designed and constructed in accordance with AWC SDPWS. Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.2(1) or 2306.2(2) shall be permitted. The allowable shear values in Tables 2306.2(1) and 2306.2(2) are permitted to be increased 40 percent for wind design.

~~Exception: [OSHDP 1, 2 & 4] Wood structural panel diaphragms using staples as fasteners are not permitted by OSHDP.~~

...

2306.3 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with AWC SDPWS. Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.3(1), 2306.3(2) or 2306.3(3) shall be permitted. The allowable shear values in Tables 2306.3(1) and 2306.3(2) are permitted to be increased 40 percent for wind design. Panels complying with ANSI/APA PRP-210 shall be permitted to use design values for Plywood Siding in the AWC SDPWS.

~~Exception: [OSHDP 1, 2 & 4] Wood structural panel shear walls using staples as fasteners are not permitted by OSHDP.~~

...

SECTION 2308 CONVENTIONAL LIGHT-FRAME CONSTRUCTION

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2308.2.7 8- Additional requirements [OSHPD 2] *The use of conventional light-frame construction provisions in this section is permitted, subject to the following conditions:*

- 1. 8-1. The design and construction shall also comply with Section 2304 and Section 2305.*
- 2. 8-2. In conjunction with the use of provisions in Section ~~2308.6~~ 2308-3 (Braced Wall Lines Wall Bracing), engineering analysis shall be furnished that demonstrates compliance of lateral-force-resisting systems with Section 2305.*
- 3. 8-3. In addition to the use of provisions in Section ~~2308.4~~ 2308-8 (Floor framing Joists), engineering analysis shall be furnished that demonstrates compliance of floor framing elements and connections with Section 2301.2, Item 1 or 2.*
- 4. 8-4. In addition to the use of provisions in Section ~~2308.5~~ 2308-9 (Wall construction Framing), engineering analysis shall be furnished that demonstrates compliance of wall framing elements and connections with Section 2301.2, Item 1 or 2.*
- 5. 8-5. In addition to the use of provisions in Section ~~2308.7~~ 2308-10 (Roof and Ceiling Framing), engineering analysis shall be furnished demonstrating compliance of roof and ceiling framing elements and connections with Section 2301.2, Item 1 or 2.*

...

SECTION 2309 WOOD FRAME CONSTRUCTION MANUAL

2309.1 Wood Frame Construction Manual. Structural design in accordance with AWC WFCM shall be permitted for buildings assigned to Risk Category I or II subject to the limitations of Section 1.1.3 of the AWC WFCM and the load assumption contained therein. Structural elements beyond these limitations shall be designed in accordance with accepted engineering practice.

2309.1.1 Additional requirements [OSHPD 2] *The use of the AWC WFCM is permitted provided the design and construction also comply with Sections 2304, 2305, and 2301.2, Item 1 or 2 and engineering analysis is furnished demonstrating compliance.*

...

All existing amendments that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

CHAPTER 24 GLASS AND GLAZING

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SECTION 2401 GENERAL

2401.1 Scope. The provisions of this chapter shall govern the materials, design, construction and quality of glass, light-transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in buildings and structures.

...

SECTION 2403 GENERAL REQUIREMENTS FOR GLASS

2403.1 Identification. Each pane shall bear the manufacturer's mark designating the type and thickness of the glass or glazing material. The identification shall not be omitted unless approved and an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with approved construction documents that comply with the provisions of this chapter. Safety glazing shall

be identified in accordance with Section 2406.2.

...

2403.2 Glass supports. Where one or more sides of any pane of glass are not firmly supported, or are subjected to unusual load conditions, detailed construction documents, detailed shop drawings and analysis or test data ensuring safe performance for the specific installation shall be prepared by a registered design professional.

2403.2.1 Additional Requirements. [OSHPD 1 and 4] In addition to the requirements of Section 2403.2, glass supports shall comply with the following:

1. The construction documents and analysis or test data required per Section 2403.2 shall be submitted to the enforcement agency for approval.
2. Glass firmly supported on all four edges shall be glazed with minimum laps and edge clearances set forth in Table 2403.2.1.

**TABLE 2403.2.1
MINIMUM GLAZING REQUIREMENTS**

Fixed Windows and Openable Windows Other Than Horizontal Siding					
GLASS AREA	UP TO 6 SQ. FT.	6 TO 14 SQ. FT.	14 TO 32 SQ. FT.	32 TO 50 SQ. FT.	OVER 50 SQ. FT.
× 0.0929 for m ² , × 25.4 for mm					
1. Minimum Frame Lap	1/4"	1/4"	5/16"	3/8"	1/2"
2. Minimum Glass Edge Clearance	1/8" ^{1,2}	1/8" ^{1,2}	3/16" ¹	1/4"	1/4" ¹
3. Continuous Glazing Rabbet and Glass Retainer ³	Required				
4. Resilient Setting Material ⁴	Not Required	Required			
Sliding Doors and Horizontal Sliding Windows					
GLASS AREA	UP TO 14 SQ. FT.	14 TO 32 SQ. FT.	32 TO 50 SQ. FT.	OVER 50 SQ. FT.	
× 0.0929 for m ² , × 25.4 for mm					
5. Minimum Glass Frame Lap	1/4"	5/16"	3/8"	1/2"	
6. Minimum Glass Edge Clearance	1/8" ²	3/16"	1/4"	1/4"	
7. Continuous Glazing Rabbet and Glass Retainer ³	Required above third story	Required			
8. Resilient Setting Material ⁴	Not Required			Required	

¹ Glass edge clearance in fixed openings shall not be less than required to provide for wind and earthquake drift.

² Glass edge clearance at all sides of pane shall be a minimum of 3/16 inch (4.8 mm) where height of glass exceeds 3 feet (914 mm).

³ Glass retainers such as metal, wood or vinyl face stops, glazing beads, gaskets, glazing clips and glazing channels shall be of sufficient strength and fixation to serve this purpose.

⁴ Resilient setting material shall include preformed rubber or vinyl plastic gaskets or other materials which are proved to the satisfaction of the building official to remain resilient.

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**SECTION 2410 [OSHPD 1 & 4]
STRUCTURAL SEALANT GLAZING (SSG)**

2410.1 General. The requirements of this section address the use of Structural Sealant Glazing (SSG). These requirements shall not be used for butt joint glazing, point supported glass, and glass fins.

Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections 2410.1.1 through 2410.1.4.

2410.1.1 Design. Design of Structural Sealant Glazing (SSG) shall satisfy the following requirements:

1. SSG shall be weather tight and serviceable, as defined in AAMA 501.4, under design story drifts associated with the Design Earthquake and no glass fallout shall occur at the drifts determined by ASCE 7 Section 13.5.9.
2. The sealant utilized in the insulated glass units used in SSG shall be designed in accordance with ASTM C 1249. The insulated glass unit design shall be in accordance with ASTM C 1249 Section 6.7.2.
3. Allowable stress for SSG shall not exceed 20 psi and shall have a minimum factor of safety of 5 in accordance with ASTM C 1401.
4. Design methodology shall address seismic movement in accordance with ASTM C 1401 Section 30.3.4.
5. SSG systems shall be supported for self-weight and lateral loading at each floor level of the building.
6. Unitized SSG framing shall be anchored to the building floor bearing plate by screws or bolts and shall not rely upon gravity or frictional forces for attachment.
7. Framing shall satisfy the out-of-plane deflection requirements of this code.

2410.1.2 Testing and Inspection. Testing and inspection of Structural Sealant Glazing (SSG) shall satisfy the following requirements:

- a. The seismic drift capability of structural sealant glazing shall be determined by tests in accordance with AAMA 501.6, AAMA 501.4 and ASCE 7 Section 13.5.9.2.
- b. The applicability of the specific AAMA 501.6 and AAMA 501.4 testing shall be subject to approval by the building official.
- c. The panel test specimens used in the AAMA 501.6 and AAMA 501.4 testing shall include all glass types (annealed, heat strengthened, laminated, tempered) and insulated glass units that comprise more than 5% of the total glass curtain wall area used in the building.
- d. AAMA 501.4 test specimen shall include the same materials, sections, connections, and attachment details to the test apparatus as used in the building.
- e. Serviceability tests of SSG test specimen shall be performed in accordance with AAMA 501.4 after seismic displacement tests to the design story drift.
- f. The window wall system using structural sealant by different manufacturer/product category shall be qualified in accordance with AAMA 501.6 and AAMA 501.4 testing for the seismic drift required. Analysis as an alternative to testing is not acceptable for the purposes of satisfying the seismic drift requirements of the SSG system.

- g. Where unitized SSG is used with horizontal stack joints at each floor level and split vertical mullions that can move independently, only a story height single unit need to be tested under AAMA 501.6. Where continuous horizontal bands of SSG are used in the building, either two or four sided, the aspect ratio (height-to-length) of the test specimen shall be less than 1.0, contain not less than two interior vertical joints and all joints (vertical in the case of two sided), including the perimeter of the glass, shall be glazed with SSG.
- h. Where SSG continues around corners, the AAMA 501.4 test specimen shall include one corner panel to verify the kinematics of the corner condition under seismic drift.
- i. Quality assurance and inspection requirements shall include formalized post-installation tests using the Point Load Testing procedure in accordance with ASTM C 1392. The Point Load Tests shall be done after the initial installation. ~~, then once every year for 3 years, not less than one test per elevation each time.~~
- j. Where the SSG is field assembled, hand pull tab tests in accordance with ASTM C1401 Section X2.1, one test every 100 linear feet, but not less than one test for each building elevation view shall be required.

Existing AAMA 501.4 and 501.6 test results satisfying the requirements of this section shall be permitted, in lieu of project specific tests, when approved by the building official.

2410.1.3 Monitoring. Short and Long term periodic performance monitoring shall be provided in accordance with ASTM C 1401, C 1392, and C 1394. Inspection frequencies recommended in ASTM C 1392 Section 5.1 shall be followed.

~~After every significant seismic event, where the ground shaking acceleration at the site exceeds 0.3g, or the acceleration at any monitored building level (if any) exceeds 0.8g, as measured by the seismic monitoring system in the building, the owner shall retain a structural engineer to make an inspection of the SSG system. The inspection shall include viewing the performance of the panel, structural sealant, glass, reviewing the strong motion records, and a visual examination of the overall performance for deterioration, offset or physical damage. A report for each inspection, including conclusions on the continuing adequacy of the SSG system, shall be submitted to the enforcement agency.~~

2410.1.4 Construction Documents. Complete design of the SSG system for gravity, wind, and seismic forces shall be subject to review by the enforcement agency. Construction documents shall show structural details of glass and curtain wall system including:

1. A design narrative explaining how the SSG is supported by the building and the mechanism used to accommodate seismic racking.
2. Type of SSG and whether field or shop built.
3. The means of supporting the glass during structural sealant curing time shall be shown in the construction documents.
4. Typical curtain wall panel elevation, plan view, and sections.
5. Details of building corner joint to verify how the corner vertical mullion will move to accommodate the seismic drift.
6. Joints between panel and floors at top and bottom.
7. Joint between panels – including vertical & horizontal stack joints at intermediate and edge mullion.
8. Member sizes for curtain wall panels.
9. Glass pane sizes, thickness and type of glass.
10. Contact width and thickness of structural sealant and sealant materials for shop and field installation/re-glazing.
11. Glass to aluminum joints (including primers, if any).

12. Maximum roof/floor dead and live load deflection of the roof/floor framing members supporting the exterior curtain wall system.
13. Required seismic separation or gap distance between the structural sealant glazing curtain wall and other adjacent cladding units.
14. Mitigation of galvanic reactions between the roof/floor slab anchors, steel screw connections of aluminum sections and the aluminum anchorage components, if any.

~~All existing amendments that are not revised above shall continue without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

CHAPTER 25 GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER

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SECTION 2501 GENERAL

2501.1 Scope. Provisions of this chapter shall govern the materials, design, construction and quality of gypsum board, gypsum panel products, lath, gypsum plaster, cement plaster and reinforced gypsum concrete.

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2501.1.1 ~~2501.2~~ Additional Requirements. [OSHPD 1 and 4] Details of attachment for wall and ceiling coverings which are not provided for in this code ~~these regulations~~ shall be detailed in the approved construction documents.

...

SECTION 2503 INSPECTION

2503.1 Inspection. Lath, gypsum board and gypsum panel products shall be inspected in accordance with Section 110.3.5.

2503.2 Additional requirements for inspection and testing. [OSHPD 1 and 4]

1. ~~Lath, and gypsum board and gypsum panel products~~ shall be inspected in accordance with Chapter 17A and the California Administrative Code.
2. ~~No lath, gypsum board and gypsum panel products or gypsum wallboard~~ or their attachments shall be covered or finished until it has been inspected and approved by the inspector of record and/or special inspector.
3. The enforcement agency may require tests in accordance with Table 2506.2 to determine compliance with the provisions of this code. ~~these regulations~~.
4. The testing of gypsum board and gypsum panel ~~and gypsum~~ products shall conform with standards listed in Table 2506.2.

...

SECTION 2504 VERTICAL AND HORIZONTAL ASSEMBLIES

2504.1 Scope. The following requirements shall be met where construction involves gypsum board, gypsum panel products or lath and plaster in vertical and horizontal assemblies.

...

2504.2 Additional Requirements. [OSHPD 1 and 4] In addition to the requirements of this section, the horizontal and vertical assemblies of plaster, ~~or gypsum board or gypsum panel products~~ shall be designed to resist the loads specified in this code. ~~For suspended acoustical ceiling systems, see Section 2506. For gypsum construction, see Section 2508.~~

2504.2.1 Wood Furring Strips. Wood furring strips for ceilings fastened to floor or ceiling joist shall be nailed at each bearing with two common wire nails, one of which shall be a slant nail and the other a face nail, or by one nail having spirally grooved or annular grooved shanks approved by the enforcement agency for this purpose. All stripping nails shall penetrate not less than 1 3/4 inches (44.5 mm) into the member receiving the point. Holes in stripping at joints shall be subdrilled to prevent splitting.

Where common wire nails are used to support horizontal wood stripping for plaster ceilings, such stripping shall be wire tied to the joists 4 feet (1219 mm) on center with two strands of No. 18 W&M gage galvanized annealed wire to an 8d common wire nail driven into each side of the joist 2 inches (51 mm) above the bottom of the joist or to each end of a 16d common wire nail driven horizontally through the joist 2 inches (51 mm) above the bottom of the joist, and the ends of the wire secured together with three twists of the wire.

SECTION 2505 SHEAR WALL CONSTRUCTION

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2505.3 [OSHPD 1 and 4] Section 2505.1 and 2505.2 are not permitted. ~~by OSHPD.~~

...

SECTION 2507 LATHING AND PLASTERING

2507.1 General. Lathing and plastering materials and accessories shall be marked by the manufacturer's designation to indicate compliance with the appropriate standards referenced in this section and stored in such a manner to protect them from the weather.

2507.2 Standards. Lathing and plastering materials shall conform to the standards listed in Table 2507.2 and Chapter 35 and, where required for fire protection, shall also conform to the provisions of Chapter 7.

2507.3 Lath attachment to horizontal wood supports. [OSHPD 1 and 4] Where interior or exterior lath is attached to horizontal wood supports, either of the following attachments shall be used in addition to the methods of attachment described in referenced standards listed in Table 2507.2.

1. Secure lath to alternate supports with ties consisting of a double strand of No. 18 W & M gage galvanized annealed wire at one edge of each sheet of lath. Wire ties shall be installed not less than 3 inches (76 mm) back from the edge of each sheet and shall be looped around stripping, or attached to an 8d common wire nail driven into each side of the joist 2 inches (51 mm) above the bottom of the joist or to each end of a 16d common wire nail driven horizontally through the joist 2 inches (51 mm) above the bottom of the joist and the ends of the wire secured together with three twists of the wire.
2. Secure lath to each support with 1/2-inch-wide (12.7 mm), 1 1/2-inch-long (38mm) No. 9 W & M gage, ring shank, hook staple placed around a 10d common nail laid flat under the surface of the lath not more than 3 inches (76 mm) from edge of each sheet. Such staples may be placed

over ribs of 3/8-inch (9.5 mm) rib lath or over back wire of welded wire fabric or other approved lath, omitting the 10d nails.

SECTION 2508 GYPSUM CONSTRUCTION

2508.1 General.

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2508.5.6 Diaphragm ceiling connection to partitions. [OSHPD 1 and 4] Gypsum board shall not be used in diaphragm ceilings to resist lateral forces imposed by partitions. Connection of diaphragm ceiling to the vertical lateral force resisting elements shall be designed and detailed to transfer lateral forces.

...

SECTION 2514 REINFORCED GYPSUM CONCRETE

2514.1 General. Reinforced gypsum concrete shall comply with the requirements of ASTM C 317 and ASTM C 956.

Exception: ~~Reinforced from Section 1911A~~ [OSHPD 1 and 4] Reinforced gypsum concrete shall be considered as an alternative system.

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~~All existing amendments are continued without any change.~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850, and 129790

CHAPTER 34

RESERVED

Action taken during the 2012 Code Development Process removed Chapter 34, Existing Structures, from the IBC. The provisions of this chapter are contained in the International Existing Building Code. See Section 101.4.7.

CHAPTER 34A EXISTING STRUCTURES

SECTION 3401A GENERAL

3401A.1 Scope. The provisions of this chapter shall control the alteration, repair, addition, and change of occupancy of existing structures for applications listed in Sections 1.10.1 [OSHPD 1] and 1.10.4 [OSHPD 4] regulated by the Office of Statewide Health Planning and Development (OSHPD). ~~These applications include hospitals, skilled nursing facilities, intermediate care facilities, and correctional treatment centers. Exception: [OSHPD 2] Single-story Type V skilled nursing or intermediate care facilities utilizing wood frame or light steel frame construction as defined in Health and Safety Code Section 129725, which shall comply with Chapter 34 and any applicable amendments therein.~~

~~For SFM and DSA-AC requirements for existing structures shall be enforced by the Office of Statewide Health Planning and Development (OSHPD), refer to Chapter 34.~~

3401A.1.1 Additions, alterations and repairs. The additions, alterations and repairs shall follow one of the three procedures listed below:

1. Provisions in Sections 3403A, 3404A and 3405A; or
2. Nonconforming buildings provisions in Section 3411A; or
3. Performance based or prescriptive provisions in Section 3412A.

Items 1 through 3 above shall not be applied in combination with each other, except when explicitly permitted.

The services/systems, utilities and means of egress shall satisfy requirements in Sections 3416A and 3417A.

3401A.2 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which they were installed. The owner or the owner's designated agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the building official shall have the authority to require a building or structure to be re-inspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures.

3401A.3 Compliance. Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in the California Fire Code, California Mechanical Code, California Plumbing Code, and California Electrical Code. Where provisions of the other codes conflict with provisions of this chapter, the provisions of this chapter shall take precedence.

3401A.4 Building materials and systems. Building materials, equipment, and systems shall comply with the requirements of this section.

3401A.4.1 Existing materials and equipment. Materials and equipment already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be unsafe per in accordance with Section 116.

3401A.4.2 New and replacement materials and equipment. Except as otherwise required or permitted by this code, materials and equipment permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in building of similar occupancy, purpose, and location.

3401A.4.3 Existing seismic force-resisting systems. Where the existing seismic force-resisting system is a type that can be designated ordinary or is a welded steel moment frame constructed under a permit issued prior to October 25, 1994, values of R , Ω_0 , and C_d for the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system.

3401A.5 Dangerous conditions. The building official shall have the authority to require the elimination of conditions deemed dangerous.

SECTION 3402A DEFINITIONS

3402A.1 Definitions. The following terms are defined in chapter 2.

DANGEROUS.

PRIMARY FUNCTION.

SUBSTANTIAL STRUCTURAL DAMAGE.

TECHNICALLY INFEASIBLE.

3402A.2 Definitions for this Chapter. The following words and terms shall, for the purposes of this chapter and as used elsewhere in the code, have the meanings shown herein. Definition provided in Section 1613A.2, ASCE 7 Section 11.2 and ASCE 41 shall apply when appropriate in addition to terms defined in this section:

CHANGE IN FUNCTION. See Section 1224.3 A change in function is a change in activity, service or licensed service provided, within the project limits, that does not necessarily change the use, specific use, and/or occupancy. Conversion of a space that results in a change in activity such that the space will be required to satisfy the functional space requirements under a different code sub-section than that of the prior use is considered a change in function.

ASSOCIATED STRUCTURAL ALTERATIONS means any change affecting existing structural elements or requiring new structural elements for vertical or lateral support of an otherwise nonstructural alteration.

EXISTING STRUCTURE. A structure that has a valid certificate of occupancy issued by the building official.

GENERAL ACUTE CARE HOSPITAL. See Section 1224.3.

NONSTRUCTURAL ALTERATION is any alteration which neither affects existing structural elements nor requires new structural elements for vertical or lateral support and which does not increase the lateral shear force in any story by more than 5 percent.

PEER REVIEW refers to procedure contained in Section 3414A.

REPAIR as used in this chapter means all the design and construction work affecting existing or requiring new structural elements undertaken to restore or enhance the structural and nonstructural load resisting system participating in vertical or lateral response of a structure primarily intended to correct the effects of deterioration or impending or actual failure, regardless of cause.

SPC SEISMIC SEPARATION. Means a building separation in accordance with the California Administrative Code, Chapter 6 Section 3.4.

Unreinforced Masonry as used in this chapter means masonry construction where reinforcements in any direction is less than minimum reinforcement specified in TMS 402 Section 7.3.2.6.

Unreinforced Concrete as used in this chapter means plain concrete as defined in ACI 318 Section 2.3.

VOLUNTARY STRUCTURAL ALTERATION is any alteration of existing structural element or addition of new structural elements which is not necessary for vertical or lateral support of other work and is initiated by the applicant primarily for the purpose of increasing the vertical or lateral load-carrying strength or stiffness of an existing building.

SECTION 3403A ADDITIONS

3403A.1 General. Additions to any building or structure shall comply with the requirements of this code for new construction. Alterations to the existing building or structure shall be made to ensure that the existing building or structure together with the addition are no less conforming with the provisions of this code than the existing building or structure was prior to the addition. An existing building together with its additions shall comply with the height and area provisions of Chapter 5.

3403A.2 Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612A.3, any addition that constitutes substantial improvement of the existing structure, as defined in Section 202 1612A.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612A.3, any additions that do not constitute substantial improvement of the existing structure, as defined in Section 202 1612A.2, are not required to comply with the flood design requirements for new construction.

3403A.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an addition and its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased shall be considered an altered element subject to the requirements of Section 3404A.3. Any existing element that will form part of the lateral load path for any part of the addition shall be considered an existing lateral load-carrying structural element subject to the requirements of Section 3403A.4.

3403A.3.1 Design live load. Where the addition does not result in increased design live load, existing gravity load carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the addition. If the approved live load is less than that

required by Section 1607A, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the addition does result in increased design live load, the live load required by Section 1607A shall be used.

3403A.4 Existing structural elements carrying lateral load. Where the addition is structurally independent of the existing structure, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of Sections 1609A and 1613A.

Exceptions: For incidental and minor additions:

- 1) Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10 percent greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609A and 1613A. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
- 2) ~~For incidental additions,~~ Drift limits based on original design code shall be permitted to be used in lieu of the drift limits required by ASCE 7.

SECTION 3404A ALTERATIONS

3404A.1 General. Except as provided by this section, alterations to any building or structure shall comply with the requirements of this code for new construction. Alterations shall be such that the existing building or structure is no less conforming with the provisions of this code than the existing building or structure was prior to the alteration.

Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1011 where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 shall not be required to comply with the requirements of Section 1014.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

3404A.2 Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612A.3, any alteration that constitutes substantial improvement of the existing structure, as defined in Section ~~202 1612A.2~~, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612A.3, any alterations that do not constitute substantial improvement of the existing structure, as defined in Section ~~202 1612A.2~~, are not required to comply with the flood design requirements for new construction.

3404A.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an alteration causes an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the alteration shall be

shown to have the capacity to resist the applicable design gravity loads required by this code for new structures.

3404A.3.1 Design live load. Where the alteration does not result in increased design live load, existing gravity load carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the alteration. If the approved live load is less than that required by Section 1607A, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the alteration does result in increased design live load, the live load required by Section 1607A shall be used.

3404A.4 Existing structural elements carrying lateral load. Except as permitted by Section 3404A.5, where the alteration increases design lateral loads in accordance with Section 1609A or 1613A, or where the alteration results in a prohibited structural irregularity as defined in this code ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609A and 1613A.

Exceptions: For incidental and minor alterations:

- 1) Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is no more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609A and 1613A. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of additions and alterations since original construction.
- 2) ~~For incidental alterations,~~ Drift limits based on original design code shall be permitted to be used in lieu of the drift limits required by ASCE 7.

3404A.5 Voluntary seismic improvements. Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an existing structure or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure, and the altered structural and nonstructural elements are no less conforming with the provisions of this code with respect to earthquake design than they were prior to the alteration.
2. New structural elements are designed, detailed and connected to the existing structural elements as required by Chapter 16A. Alterations of existing structural elements shall be based on design demand required by Chapter 16A, but Demands for new or altered existing structural elements need not exceed the maximum load effect that can be transferred to the elements by the system.

Exception: ~~Seismic design in accordance with Sections 3411A and 3412A shall be permitted.~~

3. New, relocated or altered nonstructural elements are designed, detailed and connected to existing or new structural elements as required by Chapter 16A.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

SECTION 3405A REPAIRS

3405A.1 General. Buildings and structures, and parts thereof, shall be repaired in conformance with Section 3401A.2. Work on non-damaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 3401A.2, ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

3405A.2 Substantial structural damage to vertical elements of the lateral-force-resisting system. A building that has sustained substantial structural damage to the vertical elements of its lateral-force-resisting system shall be evaluated and repaired in accordance with the applicable provisions of Sections 3404A.2.1 through 3404A.2.3.

3405A.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the building official. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads. Wind loads for this evaluation shall be those prescribed in Section 1609A. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613A.

3405A.2.2 Extent of repair for compliant buildings. If the evaluation establishes compliance of the pre-damage building in accordance with Section 3405A.2.1, then repairs shall be permitted that restore the building to its pre-damage state. ~~—based on material properties and design strengths applicable at the time of original construction.~~

3405A.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the pre-damage building in accordance with Section 3405A.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations, including wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by this code. Earthquake loads for this rehabilitation design shall be those required for the design of the pre-damage building, but not less than ninety percent of those prescribed in Section 1613A. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405A.3 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained substantial structural damage shall be rehabilitated to comply with the applicable provisions of this code for dead and live loads. Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects. Existing gravity load-carrying structural elements shall be permitted to be designed for live loads approved prior to the damage. If the approved live load is less than that required by Section 1607A, the area designed for the nonconforming live load shall be posted with placards of approved design, indicating the approved live load. Non-damaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405A.3.1 Lateral force-resisting elements. Regardless of the level of damage to vertical elements of the lateral force-resisting system, if substantial structural damage to gravity load-carrying components was caused primarily by wind or earthquake effects, then the building shall be evaluated in accordance with Section 3404A.2.1 and, if noncompliant, rehabilitated in accordance with Section 3404A.2.3.

3405A.4 Less than substantial structural damage. For damage less than substantial structural damage, repairs shall be allowed that restore the building to its pre-damage state. ~~based on material properties and design strengths applicable at the time of original construction.~~ New structural members and connections used for this repair shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405.5 Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612A.3, any repair that constitutes substantial improvement of the existing structure, as defined in Section ~~202~~ 4612A-2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612A.3, any repairs that do not constitute substantial improvement or repair of substantial damage of the existing structure, as defined in Section ~~202~~ 4612A-2, are not required to comply with the flood design requirements for new construction.

SECTION 3406A

Reserved

SECTION 3407A

GLASS REPLACEMENT

3407A.1 Conformance. The installation or replacement of glass shall be as required for new installations.

SECTION 3408A

CHANGE OF OCCUPANCY OR FUNCTION

3408A.1 Conformance. No change shall be made in the use or occupancy of any building, that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of this code for the use such division or group of occupancy. Subject to the approval of the building official, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

3408A.1.1 Change in function. A change in function shall require compliance with all the functional requirements for new construction in this code, including requirements in Sections 1224, 1225, 1226, and 1227.

3408A.2 Certificate of occupancy. A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.

3408A.3 Stairways. Existing stairways in an existing structure shall not be required to comply with the requirements of a new stairway as outlined in Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.

3408A.4 Structural. Seismic. When a change of occupancy results in a structure being reclassified to a higher risk category, the structure shall conform to the seismic requirements for a new structure of the higher risk category.

Exceptions: Specific seismic detailing requirements of Section 1613A for a new structure shall not be required to be met where it can be shown that the level of performance is equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, over strength, redundancy, and ductility of the structure.

SECTION 3409A

Reserved

SECTION 3410A MOVED STRUCTURES

3410.1 Conformance. Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.

SECTION 3411A

ADDITIONS, ALTERATIONS, REPAIRS, AND SEISMIC RETROFIT TO EXISTING BUILDINGS OR STRUCTURES DESIGNED IN ACCORDANCE WITH PRE-1973 BUILDING CODE.

3411A. 1 General. Provisions of this section shall apply to hospital buildings which were originally designed to pre-1973 building code and not designated as SPC 3 or higher in accordance with Chapter 6 of the California Administrative Code:

3411A.1.1 Incidental and minor structural alteration, additions or repairs. Incidental and minor structural additions shall be permitted, provided the additions meet this code for new construction using importance factor, I_e , equal to or greater than 1.0. Alterations, or repair to existing gravity and lateral load force-resisting systems shall be made to conform to the requirements of Sections 3404A or 3405A respectively using importance factor, I_e , equal to or greater than 1.0.

3411A.1.1.1 Nonstructural Components. Component importance factor, I_p , shall be permitted to be 1.0.

Exception: Components required for life-safety purposes after an earthquake, including emergency and standby power systems, mechanical smoke removal systems, fire protection sprinkler systems, fire alarm control panels, and egress stairways shall have a component importance factor (I_p) of 1.5.

3411A.1.2 Major structural alteration, additions, or repairs. Major structural alterations, additions, or repairs shall be in accordance with Sections 3403A, 3404A, or 3405A respectively 3412A.1.1.a or 3412A.1.1.c, as applicable.

SECTION 3412A COMPLIANCE ALTERNATIVES FOR ADDITIONS, ALTERATIONS, REPAIRS, AND SEISMIC RETROFIT TO EXISTING STRUCTURES

3412A.1 Adoption of ASCE 41. Except for the modifications as set forth in Sections 3412A and 3413A all additions, alterations, repairs and seismic retrofit to existing structures or portions thereof shall be permitted to be designed in accordance with the provisions of ASCE 41. When For load combinations which do not include seismic forces are required, the new building code provisions of this code shall be applicable.

3412A.1.1 ASCE 41 Section 1.4 – Rehabilitation Performance Objectives. Target building performance level shall be as follows:

a. For general acute care hospitals buildings along with all structures required for their continuous operation or access/egress:

- I. – Immediate Occupancy (IO) Structural Performance Level (S-1) as defined in Section 2.3.1.1 ~~4.5.4.4~~ at Basic Safety Earthquake 1N (BSE-1N) Seismic Hazard Level; as defined in Section ~~1.6.1.2~~ and Collapse Prevention
- II. Life Safety (LS) Structural Performance Level (S-3 ~~5~~) ~~per~~ as defined in Section 2.3.1.3 ~~4.5.4.5~~ at Basic Safety Earthquake 2N (BSE-2N) Seismic Hazard Level; as defined in Section ~~1.6.1.1~~ and
- III. The nonstructural performance level components shall satisfy the requirements of this code for new construction ~~hospital buildings~~.

Exceptions: Buildings satisfying requirements of Sections ~~3411A or 3412A.2.~~

Exception: Performance objectives for upgrading nonconforming hospital buildings to SPC-4D and for incidental or minor alterations or repairs of SPC-4D buildings shall be in accordance with Section 3412A.2.3.2 of this code.

b. For incidental and minor additions, alterations or repairs of pre-1973 Hospital Buildings which will not be used for general acute care services after January 1, 2030: – Basic Safety Objective (BSO) Level as defined Section ~~1.4.1~~. BSO level includes

- I. Life Safety Building Structural Performance Level (S-3 ~~C~~) as defined in ASCE 41 Section 2.3.1.3 ~~4.5.3.3~~ at the Basic Safety Earthquake 1E (BSE-1E) Seismic Hazard Level; as defined in Section ~~1.6.1.2~~ and
- II. Collapse Prevention (CP) building performance level (~~5-D~~ E) ~~per~~ in accordance with Section 2.3.3.4 ~~4.5.3.4~~ at the Basic Safety Earthquake 2E (BSE-2E) Seismic Hazard Level; as defined in Section ~~1.6.1.1~~ and
- III. The nonstructural components shall satisfy the requirements of Position Retention Nonstructural Performance Level (N-B) in accordance with ASCE 41 Section 2.3.2.2 at BSE-1E Seismic Hazard Level.

Exceptions: Buildings satisfying requirements of Sections ~~3411A or 3412A.2.~~

c. All others Hospital Buildings:

- I. – Immediate Occupancy (IO) Operational Building Performance Level of (1-A ~~B~~) as defined in Section 2.3.3.1 ~~4.5.3.2~~ at Basic Safety Earthquake 1N (BSE-1N) Seismic Hazard Level; as defined in Section ~~1.6.1.2~~ and
- II. Collapse Prevention (CP) Life Safety (LS) building performance level (S-3 ~~5-E~~) ~~per~~ as defined in Section 2.3.1.3 ~~4.5.3.4~~ at Basic Safety Earthquake 2N (BSE-2N) Seismic Hazard Level. as defined in Section ~~1.6.1.1~~.

3412A.1.2 Material Testing Required. Use of material properties based on historical information as default values shall not be permitted.

3412A.1.3 Analysis Procedure. The selection of a particular analysis procedure from ASCE 41 shall be subject to the approval of the enforcement agent agency.

3412A.1.4 Structural Design Criteria. Prior to implementation of ASCE 41 Nonlinear Dynamic Procedure, the ground motion, analysis and design methods, material assumptions, and acceptance criteria proposed by the engineer shall be reviewed by the enforcement agent agency.

3412A.1.5 Alternative Modeling Parameters and Acceptance Criteria. Where analysis/modeling parameters or acceptance criteria for structural elements are not provided in ASCE 41 or are considered to be inadequate, the analysis/modeling parameters or acceptance criteria shall be permitted to be established on the basis of test, using a criteria acceptable to the building official, and ASCE 41 Section 7.6.3.

3412A.1.6 3412A.1.5 Construction, § structural observation, testing, and inspections.

Construction, testing, inspection, and structural observation requirements shall be as required for new construction.

3412A.2 Seismic Evaluation and Retrofit of General Acute Care Hospitals for Compliance with the California Administrative Code, Chapter 6.

Notwithstanding any other requirements of this code, existing general acute care hospitals shall comply with the seismic evaluation requirements specified in Chapter 6, of the California Administrative Code, when applicable. Seismic retrofit to comply with requirements specified in Chapter 6 of the California Administrative Code shall be permitted to be in accordance with this section. When For load combinations which do not include seismic forces are required, the new building provisions of this code shall be applicable.

3412A.2.1 SPC 5 and NPC 4/NPC 5. ~~Structures and nonstructural components and systems satisfying the requirements of this Code for new buildings for Risk Category IV shall be considered to satisfy the requirements of SPC 5 and NPC 4. NPC 4 buildings satisfying operational requirements for NPC 5 of Table 11.1, Chapter 6 of the California Administrative Code shall be placed in non-structural performance category NPC 5.~~

New general acute care hospitals (facility) and or new building(s), larger than 4000 sft., required for general acute care services designed and built to the requirements of this code for general acute care hospital buildings shall be considered to satisfy the requirements of SPC 5 and NPC 5.

3412A.2.2 SPC 5 using ASCE 41. Structures shall be considered to comply with SPC 5 requirements of Table 2.5.3, Chapter 6 of the California Administrative Code where all of the following are satisfied: satisfying the requirements of

- I. Immediate Occupancy structural performance level (S-1) in accordance with Section 2.3.1.1 4-5-1.4 of ASCE 41 at BSE-1N;
- II. Life Safety Collapse prevention performance level S-3 S-5 in accordance with Section 2.3.1.3 4-5-1.5 of ASCE 41 at BSE-2N; and
- III. Items identified in Chapter 6, Article 10 of the California Administrative Code, satisfying the requirements of Immediate Occupancy Operational Nonstructural performance level (N-A B) per in accordance with Section 2.3.2.1 4-5-2.2 of ASCE 41 at BSE-1N, shall be considered to comply with SPC 5 requirements of Table 2.5.3, Chapter 6 of the California Administrative Code.

3412A.2.3 SPC-4D. Nonconforming hospital buildings satisfying the following requirements and one of Sections 3412A.2.3.1, 3412A.2.3.2 or 3412A.2.3.3, but not a combination thereof, shall be considered to satisfy the requirements of SPC-4D.

1. Approval of construction documents based on building characterization in accordance with the California Administrative Code (CAC) Chapter 6 Section 2.1.2.1, material properties in accordance with the CAC Chapter 6 Section 2.1.2.2 and Section 3413A.1.3 of this code, and a complete rational structural analysis shall be required.
2. Where the SPC-4D upgrade involves construction, a building permit prior to construction shall be required.
3. Where multiple building permits are used to upgrade a building to SPC-4D, a complete rational structural analysis to justify compliance with SPC-4D for the building in its final configuration, shall be submitted as part of the construction documents submittal to the Office for the last project.
4. Where the SPC-4D upgrade involves construction, buildings shall be assigned to SPC-4D after all projects required for SPC-4D are closed in compliance.

3412A.2.3.1 Prescriptive compliance provisions for SPC-4D using the California Building Code, 1980 (CBC 1980). Nonconforming Buildings shall satisfy the following requirements:

1. The California Building Code, 1980 (CBC 1980), as used in this chapter, consists of the Uniform Building Code, 1979 (UBC 1979) along with requirements contained in:

- a) California Code of Regulations, Title 24- Building Standards, dated February 2, 1980 (Revision record for Register 80, No. 5).
 - b) California Code of Regulations, Title 22 – Social Security, dated October 13, 1979 (Revision Record for Register 79, No 41).
 - c) California Code of Regulations, Title 17 – Public Health, dated October 13, 1979 (Revision Record for Register 79, No 41-B).
2. All existing structural elements of Seismic Force Resisting System (SFRS) shall satisfy the detailing requirements in the CBC 1980 or demonstrate that the level of seismic performance is equivalent to that given in the CBC 1980, as determined by the building official.
 3. A continuous load path or paths with adequate strength and stiffness to transfer all the forces from the point of origin to final point of resistance shall be justified by analysis.
 4. Site data report in accordance with the CBC 1980 shall establish that seismically induced differential settlement does not exceed 1" in 40'.
 5. Adjacent buildings shall satisfy the SPC building separation requirements in accordance with the California Administrative Code, Chapter 6 Section 3.4.
 6. The addition of new structural elements or strengthening of existing structural elements for retrofit of nonconforming buildings to SPC-4D shall comply with the following:
 - a) The seismic demand (forces or displacements) shall be in accordance with the CBC 1980;
 - b) Capacity, detailing and connections for new structural elements shall satisfy the requirements in this code (CBC 2016) for new construction; and
 - c) The strengthening of existing structural elements shall use capacities determined in accordance with this code (CBC 2016) for new construction consistent with the detailing and connections used in the strengthened member.
 7. All construction, quality assurance and quality control shall be in accordance with the new construction provisions of this code (CBC 2016).
 8. Elements not part of the Seismic Force Resisting System (SFRS), including those identified in the California Administrative Code Chapter 6, Article 10, shall be evaluated using seismic forces and the requirements of the CBC 1980.
 9. Any column or wall that forms part of two or more intersecting SFRS and is subjected to axial load due to seismic forces acting along either principal plan axis equaling or exceeding 20 percent of the axial design strength of the column or wall shall be evaluated for the most critical load effect due to application of seismic force in any direction. The most critical load effect may be deemed to be satisfied if members and their foundations are evaluated for 100 percent of the forces for one direction plus 30 percent of the forces for the perpendicular direction, whereby the combination produces the maximum effect.

Exceptions: The following buildings (with structural irregularities or unusual configuration/system) shall not be eligible for the SPC-4D upgrade using the prescriptive provisions in this section:

1. Buildings with prohibited irregularities in accordance with Section 1616A.1.10 of this code.

2. Buildings taller than 5-stories or 65' height above the base having horizontal or vertical irregularities in accordance with ASCE 7 Tables 12.3-1 Items # 1a, 1b and 3 or 12.3-2 Items #1a, 1b, 5a and 5b.
3. Buildings with unusual configuration or structural system, as determined by the building official.

3412A.2.3.2 SPC-4D using ASCE 41. Structures shall be deemed to comply with the SPC-4D requirements of Table 2.5.3, Chapter 6 of the California Administrative Code, when all of the following are satisfied:

1. Damage control structural performance level (S-2) in accordance with Section 2.3.1.2.1 of ASCE 41 at BSE-1E;
2. Collapse Prevention Structural Performance Level (S-5) in accordance with Section 2.3.1.5 of ASCE 41 at BSE-2E; and
3. Items identified in Chapter 6, Article 10 of the California Administrative Code satisfy the requirements of Position Retention nonstructural performance level (N-B) in accordance with Section 2.3.2.2 at BSE-1E.

3412A.2.3.3 Prescriptive compliance provisions for SPC-4D using the new building design requirements of this code. Structures satisfying the requirements of this code for new general acute care hospital buildings design shall be deemed to satisfy the SPC-4D requirements of Table 2.5.3, Chapter 6 of the California Administrative Code.

All existing structural elements of Seismic Force Resisting System (SFRS) shall satisfy the detailing requirements of this code for new construction or demonstrate that the level of seismic performance is equivalent, as determined by the building official. A demonstration of equivalence shall consider the regularity, overstrength, redundancy, and ductility of the structure.

Elements not part of the Seismic Force Resisting System (SFRS), including those identified in the California Administrative Code Chapter 6, Article 10, shall be evaluated using seismic forces and the requirements of this code for new general acute care hospital buildings.

3412A.2.4 3412A.2.3 SPC 2 using ASCE 41. Structures shall be considered to comply with SPC 2 requirements of Table 2.5.3, Chapter 6 of the California Administrative Code, when all of the following are satisfied: ~~satisfying the requirements of~~

- I. Life Safety structural performance level (S-3) in accordance with per Section 2.3.1.3 4.5.1.3 of ASCE 41 at BSE-1E; and
- II. Items identified in Chapter 6, Article 10 of the California Administrative Code satisfying the requirements of Position Retention ~~life-safety~~ nonstructural performance level (N-B ~~C~~) per in accordance with Section 2.3.2.2 4.5.2.3 of ASCE 44 at BSE-1E, shall be considered to comply with SPC 2 requirements of Table 2.5.3, Chapter 6 of the California Administrative Code.

3412A.2.5 3412A.2.4 NPC. A continuous load path of sufficient strength and stiffness between the component and the supporting structure shall be verified. Local elements of the supporting structure shall be verified for the component loads where they control the design of the elements or their connections.

3412A.2.5.1 NPC-4 and NPC-5 using ASCE 41: Non-structural components for Immediate Occupancy Operational Nonstructural performance level (N-A ~~B~~) in Section 2.3.2.1 or NPC-4 4.5.2.2 shall ~~meet~~ satisfy the requirements of this Code for new construction, buildings. Non-structural components for Operational Nonstructural performance level (NPC-5) in Section 4.5.2.4 shall ~~meet~~ satisfy Operational performance level N-A/NPC-4 B and Section 1616A.1.40 Items 1 & 2 of this code. 3413A.1.30. Building satisfying the requirements of non-structural performance level NPC-5 and N-B as described in this section shall be considered to satisfy the requirements of NPC 5 & NPC 4 of Table 11.1, Chapter 6 of the California Administrative Code respectively.

3412A.2.5.2 NPC-2, NPC-3 and NPC-3R using ASCE 41: Operational Immediate Occupancy Nonstructural performance level (N-A-B) in Section 1.5.2.2 and Position Retention Life-Safety Nonstructural performance level (N-B-C) in Section 1.5.2.3 of ASCE 41 at BSE-1N shall be considered equivalent to NPC 3/NPC 2 and NPC 3R requirements respectively of Table 11.1, Chapter 6 of the California Administrative Code. For NPC 3/NPC 3R/NPC 2, only components listed in Table 11.1, Chapter 6 of the California Administrative Code for NPC 3/NPC 3R/NPC 2 need to satisfy the requirements specified above.

Exceptions:

- 1) Evaluation procedure in of Article 11, Chapter 6 of the California Administrative Code shall be used for seismic evaluation of NPC 2, NPC 3/NPC 3R, NPC 4 and NPC 5, where specific procedure is not outlined in ASCE 41. Administrative and permitting provisions outlined in Article 11, Chapter 6 of the California Administrative Code shall apply.
- 2) Supports and attachments Anchorage and bracing of nonstructural components, except those listed in item 4 below, in buildings in seismic performance categories SPC 1 and SPC 2 with a performance level of NPC 3R shall be permitted to comply with the provisions of Section 1630A of the 1995 California Building Code using an importance factor $I_p=1.0$. The capacity of welds, anchors and fasteners shall be determined in accordance with requirements of this Code.
- 3) Supports and attachments Anchorage and bracing of nonstructural components, except those listed in item 4 below, in buildings in seismic performance categories SPC 1 or SPC 2 with a performance level of NPC 3 or higher, and SPC 3, or SPC 4, or SPC-4D, shall be permitted to comply with the provisions of Section 1630B of the 1998 California Building Code using an importance factor $I_p=1.5$. The capacity of welds, anchors and fasteners shall be determined in accordance with requirements of this code.
- 4) Supports and attachments for systems listed under NPC-2 and NPC-5 (excluding those specifically listed for NPC-3/NPC-3R and NPC-4) in the California Administrative Code, Chapter 6, Table 11.1 shall satisfy the requirements of this code for new construction and items 2 and 3 above shall not be applicable.
- 5) ~~A continuous load path of sufficient strength and stiffness between the component and the supporting structure shall be verified. Local elements of the supporting structure shall be verified for the component loads where they control the design of the elements or their connections. Increases in F_p due to anchorage conditions (for example shallow anchors) need not be considered. For NPC 3R, the adequacy of load path for nonstructural elements need only be verified when the total reaction at the point of support (including the application of F_p) exceeds the following limits:~~
 1. 250 pounds for components or equipment attached to light frame walls. For the purposes of this requirement, the sum of the absolute value of all reactions due to component loads on a single stud shall not exceed 250 pounds.
 2. 1,000 pounds for components or equipment attached to roofs, or walls of reinforced concrete or masonry construction.
 3. 2,000 pounds for components or equipment attached to floors or slabs-on-grade.

Exception: If the anchorage or bracing is configured in a manner that results in significant torsion on a supporting structural element, the effects of the nonstructural reaction force on the structural element shall be considered in the anchorage design.

SECTION 3413A MODIFICATIONS TO ASCE 41

3413A.1 GENERAL. The text of ASCE 41 shall be modified as indicated in Sections 3413A.1.1 through 3413A.1.14, ~~3413A.1.32~~.

3413A.1.1 ASCE 41 Section 1.1. Modify ASCE 41 Section 1.1 with the following:
Seismic evaluations shall be performed for performance objective specified in Section 3412A of this code (CBC) using procedure of this standard (ASCE 41) as follows: ~~and criteria of ASCE 41.~~

1. Structural components shall be evaluated in accordance with Tier 3 systematic evaluations procedure in Chapter 6.
2. Nonstructural components shall be evaluated in accordance with Chapter 13.

Exception: ~~except f~~ For general acute care hospitals, which shall be evaluated per seismic evaluation shall be permitted to be in accordance with Chapter 6 of the California Administrative Code (CAC) when required ~~per~~ by provisions of that chapter.

3413A.1.2 ASCE 41 Section 2.4 ~~1.6~~ Seismic Hazard. Modify ASCE 41 Section 2.4 ~~1.6~~ with by the following:

Response spectra and acceleration time histories shall be constructed in accordance with Sections 1613A, 1616A, and 1803A.6. ~~Basic Safety Earthquake 2 (BSE-2) in ASCE 41 shall be same as Maximum Considered Earthquake (MCE_R) in ASCE 7. Basic Safety Earthquake 1 (BSE-1) shall be 2/3rd of BSE-2.~~

~~3413A.1.29 ASCE 41 Chapter 10.~~ Replace ASCE 41 Chapter 10 as follows:
~~Simplified Rehabilitation.~~ Not permitted by OSHPD.

~~3413A.1.3~~ 3413A.1.3 ASCE 41 Section 6.2, ~~2.2.6~~. Modify ASCE 41 Section 6.2 ~~2.2.6~~ with the following:

Data Collection Requirements. The extent of data collection shall be at Comprehensive level for all structures, including structures upgraded to SPC-4D, except that data collection at Usual level shall be permitted for structures with BSO or lower target performance objective. A testing program for materials properties testing program shall be pre-approved by the enforcement agent prior to commencement of material testing work. Previously approved material test results shall be permitted to be used to satisfy part of the comprehensive data collection requirements.

Exception: Data collection at Usual level shall be permitted for structures with SPC-2 or lower target performance objective.

Tension testing of reinforcing bars shall be in accordance with ASTM A370 Annex A9. All test specimens shall be the full section of the bar as rolled (8-in. gage length) and shall not be reduced.

At test sample locations, structural members, slabs and walls shall be repaired to a state that is equivalent to their original condition, ~~at test sample locations.~~

For buildings built under an OSHPD permit based on the 1976 or later edition of the CBC, where materials properties are shown on design drawings and original materials test data are available, no materials testing shall be required when approved by the enforcement agent.

~~3413A.1.4 ASCE 41 Section 2.4.1.1.~~ Modify ASCE 41 Section ~~2.4.1.1~~ with the following:

- ~~1. If one or more component DCRs exceed 1.5 for the Immediate Occupancy Structural Performance Level (S-1) or 2.0 for the Life Safety Structural Performance level (S-3) and any irregularity described in Section 2.4.1.1.1 through 2.4.1.1.4 is present, then linear procedures~~

~~are not applicable and shall not be used.~~

2. ~~Linear procedures are not applicable to moment resisting frames where plastic hinges do not form in either the beam at the face of column or in the column panel zone.~~

3413A.1.7 ASCE 41 Section 3.2.10.1. ~~Modify ASCE 41 Section 3.2.10.1 with the Following:~~

~~**Linear Procedures.** Equation 3-5 is not permitted by OSHPD.~~

3413A.1.4 3413A.1.5 ASCE 41 Section 7.3.2.1 2.4.2.1 ~~Modify ASCE 41 Section 7.3.2.1 2.4.2.1 with the following:~~

Nonlinear Static Procedure. If higher mode effects are significant and building is taller than 75 feet above the base, the Nonlinear Dynamic Procedure shall be used.

3413A.1.8 ASCE 41 Section 3.3.1.3.5. ~~Replace ASCE 41 Section 3.3.1.3.5 as follows:~~

~~**Unreinforced Masonry Buildings.** Unreinforced Masonry not permitted by OSHPD.~~

3413A.1.5 3413A.1.10 ASCE 41 Section 7.5.1, 3.4.2.2. ~~Modify ASCE 41 Section 7.5.1 3.4.2.2 with the following:~~

Acceptance Criteria for Linear Procedures— Drift Limitations. The interstory drift ratio shall not exceed the drift limits for Risk Category IV buildings in ASCE 7 Table 12.12-1 due to forces corresponding to BSE-1E or BSE-1N, as applicable, ~~except that buildings designed to BSO or lower performance levels are permitted to meet the drift limits for Risk Category II buildings. For dual systems, the least interstory drift ratio shall control.~~

Exception: Larger interstory drift ratios shall be permitted where justified by rational analysis that both structural and non-structural elements can tolerate such drift and approved by the enforcement agent.

3413A.1.6 3413A.1.6 ASCE 41 Section 7.5.1.4 2.4.4.5. ~~Modify ASCE 41 Section 7.5.1.4 2.4.4.5 by the following:~~

Material Properties. Expected material properties are not permitted to be determined by multiplying lower bound values by the assumed factors specified in Chapters 8-5 through 12-8, and shall be based exclusively on materials tests.

3413A.1.9 ASCE 41 Section 3.3.3.2.2 ~~Modify ASCE 41 Section 3.3.3.2.2 with the following:~~

~~**Simplified NSP Analysis.** Not permitted by OSHPD.~~

3413A.1.11 ~~Reserved.~~

ASCE 41 Section 3.4.3.2.1. ~~Modify ASCE 41 Section 3.4.3.2.1 with the following:~~

~~**Deformation-Controlled Actions.** For any building required to meet the Operational Building Performance level, 1-A or Immediate Occupancy Building Performance Level, 1-B, primary components shall be within the acceptance criteria for primary components and secondary components shall be within the acceptance criteria for secondary components.~~

3413A.1.7 3413A.1.12 ASCE 41 Section 8.4, 4.4. ~~Modify ASCE 41 Section 8.4 4.4 with the followings:~~

Foundation Strength and Stiffness. Foundation and soil strength shall be used to evaluate potential overturning, uplift, and sliding for fixed base assumptions, and stiffness for flexible base assumptions, including deformations associated with those actions.

~~3413A.1.13 ASCE 41 Section 4.4.1.1.~~ Replace ASCE 41 Section 4.4.1.1 as follows:

~~Presumptive Capacities.~~ Not permitted by OSHPD.

~~3413A.1.8 3413A.1.14 ASCE 41 Section 8.4.1.1, 4.4.1.2.~~ Replace ASCE 41 Section 8.4.1.1 4.4.1.2 as follows:

~~Prescriptive Expected Capacities.~~ Not permitted by OSHPD.

~~3413A.1.15 ASCE 41 Section 4.4.3.2.2.~~ Modify ASCE 41 Section 4.4.3.2.2 with the following:

~~Flexible Base Assumption.~~ The soil strength shall be evaluated.

3413A.1.9 ASCE 41 Section 8.5. Modify ASCE 41 Section 8.5 with the following:

The product of $RRS_{bsa} \times RRS_{eq}$ shall not be less than 0.7.

The combined effect of kinematic interaction and foundation damping shall meet the following:

1. The site specific response spectrum modified for soil-structure interaction effects shall not be taken as less than 80 percent of the spectral acceleration as determined from a site-specific response spectrum in accordance with ASCE 7 Section 21.3, or
2. The site specific response spectrum modified for soil-structure interaction effects shall not be taken as less than 70 percent of the spectral acceleration as determined from the design response spectrum and MCE_R response spectrum in accordance and with ASCE 7 Sections 11.4.5 and 11.4.6 respectively.

Exception: For the seismic retrofit of existing nonconforming buildings, design ground motion shall be consistent with performance objectives in Section 3412A.

3413A.1.10 3413A.1.16 ASCE 41 Section 8.6, 4.5. Modify ASCE 41 Section 8.6 4.5 with the following:

Seismic Earth Pressure. Where the grade difference from one side of the building to another exceeds one-half story height, the seismic increment of earth pressure shall be added to the gravity lateral earth pressure to evaluate the building overturning and sliding stability and the lateral force resisting system below grade in combination with the building seismic forces.

3413A.1.17 ASCE 41 Table 5.6. Modify ASCE 41 Table 5.6 with the following:

~~Acceptance Criteria for Nonlinear Procedures – Structural Steel Components.~~ For fully and partially restrained moment connections designed to 1989 or prior edition of the California Building Code shall be verified for the presence of welds using E70T-4 electrodes or other electrodes with equivalent aluminum content. Where E70T-4 or equivalent electrodes are present, the plastic rotation angles and residual strength ratios used shall be substantiated by the statistical analysis of three or more applicable cyclic test results subject to the approval of the enforcement agent.

3413A.1.11 3413A.1.18 ASCE 41 Section 10.7.1.1, 6.7.1.1. Modify ASCE 41 Section 10.7.1.1 6.7.1.1 with the following:

Monolithic Reinforced Concrete Shear Walls and Wall Segments. For nonlinear procedures, shear walls or wall segments with axial loads greater than $0.35 P_o$ shall be included in the model as primary elements with appropriate strength and stiffness degrading properties assigned to those components subject to the approval of the enforcement agent. For linear procedures, the effects of deformation compatibility shall be investigated using moment-curvature section analyses and cyclic testing results of similar components to determine whether strengthening is necessary to maintain the gravity load carrying capacity of that component.

Horizontal wall segments or spandrels reinforced similar to vertical wall segments or piers shall be classified as wall segments, not shear wall coupling beams, in Tables 10-19 ~~6-18~~ through ~~6-24~~ 10-22.

3413A.1.12 ASCE 41 Section 11.1. Modify ASCE 41 Section 11.1 by the following:

Scope: ~~Unreinforced Masonry walls (including unreinforced infill walls) and partitions are not permitted for General Acute Care (GAC) hospital buildings.~~

3413A.1.19 ASCE 41 Section 7.3.2. Replace ASCE 41 Section 7.3.2 as follows:

Unreinforced Masonry Walls and Piers In-plane. ~~Not permitted by OSHPD.~~

3413A.1.20 ASCE 41 Section 7.3.3. Replace ASCE 41 Section 7.3.3 as follows:

Unreinforced Masonry Walls Out-of-plane. ~~Not permitted by OSHPD.~~

3413A.1.21 ASCE 41 7.3.4.2.2. Shear Strength of Walls and Piers. ~~Modify ASCE 41 Section 7.3.4.2.2 with the following:~~

~~The spacing of shear reinforcing, S , shall be less than or equal to the wall pier clear height divided by 2 or the story height divided by 2, whichever is smaller.~~

3413A.1.22 ASCE 41 Section 9.2.4. Modify ASCE 41 Section 9.2.4 with the following:

Linear Procedures. ~~Verification of the interstory lateral displacements, isolator displacements, the strength adequacy of the seismic force resisting system and isolation system, and anchorage to the foundation shall be accomplished using the Nonlinear Dynamic Procedure.~~

3413A.1.23 ASCE 41 Section 9.2.5.1. Modify ASCE 41 Section 9.2.5.1 with the following:

Nonlinear Static Procedure. ~~Verification of the interstory lateral displacements, isolator displacements, the strength adequacy of the seismic force resisting system and isolation system, and anchorage to the foundation shall be accomplished using the Nonlinear Dynamic Procedure.~~

3413A.1.13 ASCE 41 Section 14.1. Modify ASCE 41 Section 14.1 by the following:

Scope: ~~For buildings located in Seismic Design Category F, verification of the interstory lateral displacements, the strength adequacy of the seismic force resisting system and anchorage to the foundation shall be accomplished using the Nonlinear Dynamic Procedure.~~

3413A.1.26 ASCE 41 Section 9.3.4. Modify ASCE 41 Section 14.3.4 9.3.4 with the following:

Linear Procedures. ~~Verification of the interstory lateral displacements, damper relative velocities and displacements, the strength adequacy of the seismic force resisting system and damping system, and anchorage to the foundation shall be accomplished using the Nonlinear Dynamic Procedure.~~

3413A.1.27 ASCE 41 Section 9.3.5.1. Modify ASCE 41 Section 9.3.5.1 with the following:

Nonlinear Static Procedure. ~~Verification of the interstory lateral displacements, damper relative velocities and displacements, the strength adequacy of the seismic force resisting system and damping system, and anchorage to the foundation shall be accomplished using the Nonlinear Dynamic Procedure.~~

3413A.1.28 Reserved.

3413A.1.30 ASCE 41 Section 11.3.2. Modify ASCE 41 Section 11.3.2 with the following:

~~**Operational Nonstructural Performance Level (NPC-5) Requirements.** All Structures shall meet Immediate Occupancy Nonstructural Performance Level (N-B) and facility shall have on-site supplies of water and holding tanks for sewage and liquid waste, sufficient to support 72 hours emergency operations, are integrated into the building plumbing systems in accordance with the California Plumbing code. An on-site emergency system as defined in the California Electrical Code is incorporated into the building electrical system for critical care areas. Additionally, the system shall provide for radiological service and an onsite fuel supply for 72 hours of acute care operation.~~

~~**3413A.1.31 ASCE 41 Section 11.9.4.3.1.** Modify ASCE 41 Section 11.9.4.3.1 with the following:~~

~~Ceilings in all Categories shall satisfy requirements for ceilings in Category C specified in this section.~~

~~**3413A.1.32 ASCE 41 Section 11.10.2.4.** Modify ASCE 41 Section 11.10.2.4 by the following:~~

~~For general acute care hospital, Nonstructural Evaluation shall comply with requirements of Section 11.2, Chapter 6 of the California Administrative Code.~~

~~**3413A.1.14 ASCE 41 Chapter 15.** Not permitted by OSHPD.~~

SECTION 3414A PEER REVIEW REQUIREMENTS

3414A.1 General. Independent peer review is an objective technical review by knowledgeable reviewer(s) experienced in structural design, analysis and performance issues involved. The reviewer(s) shall examine the available information on the condition of the building, basic engineering concept employed and recommendations for action.

3414A.2 Timing of Independent Review. The independent reviewer (s) shall be selected prior to initiation of substantial portion of the design and analysis work that is to be reviewed, and review shall start as soon as practical and sufficient information defining the project is available.

3414A.3 Qualifications and Terms of Employment. The reviewer shall be independent from the design and construction team.

3414A.3.1 The reviewer(s) shall have no other involvement in the project before, during or after the review, except in a review capacity.

3414A.3.2 The reviewer shall be selected and paid by owner and shall have technical expertise in ~~repair of buildings~~ similar to the project ~~one~~ being reviewed, as determined by enforcement agent.

3414A.3.3 The reviewer (in case of review team, the chair) shall be a California-licensed structural engineer who is familiar with technical issues and regulations governing the work to be reviewed.

3414A.3.4 The reviewer shall serve through completion of the project and shall not be terminated except for failure to perform the duties specified herein. Such termination shall be in writing with copies to enforcement agent, owner, and the engineer of record. When a reviewer is terminated or resigns, a qualified replacement shall be appointed within 10 working days or a timeframe mutually agreed to by the Owner, Registered Design Professional (RDP) and the Office.

3414A.4 Scope of Review. Review activities shall include, where appropriate, available construction documents, design criteria, observation of the condition of structure, all new and original inspection reports, including methods of sampling, analyses prepared by the engineer of record and consultants, and the retrofit or repair design. Review shall include consideration of the proposed design approach, method, materials and details.

3414A.5 Reports. The reviewer(s) shall prepare a written report to the owner and responsible enforcement agent that covers all aspect of the review performed including conclusions reached by the reviewer. Report shall be issued after the schematic phase, during design development, and at the completion of construction documents, but prior to their issuance of permit. Such report shall include, at the minimum, statement of the following:

1. Scope of engineering design peer review with limitations defined.
2. The status of the project documents at each review stage.
3. Ability of selected materials and framing systems to meet the performance criteria with given loads and configuration.
4. Degree of structural system redundancy and the deformation compatibility among structural and non-structural elements.
5. Basic constructability of the retrofit or repair system.
6. Other recommendation that will be appropriate for the specific project.
7. Presentation of the conclusions of the reviewer identifying any areas that need further review, investigation and / or clarification.
8. Recommendations.

3414A.6 Responses and Corrective Actions. The engineer of record shall review the report from the reviewer(s) and shall develop corrective actions and other responses as appropriate. Changes observed during construction that affect the seismic-resisting system shall be reported to the reviewer in writing for review and recommendations. All reports, responses and corrective actions prepared pursuant to this section shall be submitted to the responsible enforcement agent and the owner along with other plans, specifications and calculations required. If the reviewer resigns or is terminated by the owner prior to completion of the project, then the reviewer shall submit copies of all reports, notes, and the correspondence to the responsible enforcement agent, the owner, and the engineer of record within 10 working days of such termination.

SECTION 3415A EARTHQUAKE MONITORING INSTRUMENTS FOR EXISTING BUILDINGS

3415A.1 Earthquake recording instrumentation of existing buildings. All owners of existing structures, selected by the enforcement agency for the installation of earthquake-recording instruments, shall provide space for the installation and access to such instruments. Location of said instruments shall be determined by the enforcement agency. The enforcement agency shall make arrangements to provide, maintain, and service the instruments. Data shall be the property of the enforcement agency, but copies of individual records shall be made available to the public on request and the payment of an appropriate fee.

SECTION 3416A COMPLIANCE ALTERNATIVES FOR SERVICES/SYSTEMS AND UTILITIES

3416A.1 General. The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings while permitting repair, alteration, addition and change of occupancy without requiring full compliance with Chapters 2 through 33, or Sections 3401A.3, and 3403A through 3408A, except where compliance with other provisions of this code is specifically required in this section.

Services/systems and utilities that originate in and pass through or under buildings and are necessary to the operation of the hospital buildings an acute care hospital, skilled nursing facility, intermediate care facility, or correctional treatment center shall meet the structural requirements of this section. Examples of services/systems and utilities include but are not limited to normal power; emergency power; nurse call; fire alarm; communication and data systems; space-heating systems; process load

systems; cooling systems; domestic hot and cold water systems; means of egress systems; fire-suppression systems; building drain and sewer systems; and medical gas systems that support basic and supplemental services.

After January 1, 2030, services/systems and utilities for acute care hospital buildings shall not originate in or pass through or under a non-hospital or Hospital building unless it has approved performance categories of SPC- 3 or higher and NPC-5.

3416A.1.1 Services/systems and utilities. Services/systems and utilities that are necessary to the operation of ~~the hospital buildings an acute care hospital, skilled nursing facility, intermediate care facility, or correctional treatment center~~ shall meet the structural requirements of this section, based upon the approved Structural Performance Category (SPC) of the building receiving the services/systems and utilities.

Services from ~~a conforming building an acute care hospital, skilled nursing facility, a correctional treatment center~~ shall be permitted to serve a nonconforming building with prior approval of the Office. The services/systems and utilities in the nonconforming building shall be equipped with fail safe valves, switches, or other equivalent devices that allow the nonconforming building to be isolated from the ~~acute care hospital buildings~~ conforming building.

Exception: Remodel projects that use available existing services/systems and utilities are exempted from the requirements of this section. The enforcing agency shall be permitted to exempt minor addition, minor alteration, and minor remodel projects and projects to upgrade existing services/systems and utilities from the requirements of this section.

3416A.1.1.1 Services/systems and utilities for hospital buildings.

3416A.1.1.1.1 New hospital buildings, additions, alterations, and remodels of conforming (SPC-3, -4, -4D, or -5) hospital buildings. Services/systems and utilities for new hospital buildings and additions, alterations or remodels to existing conforming buildings shall originate in hospital buildings that are conforming or have approved performance categories of SPC-3 or higher, and NPC-4 or higher. The services/systems and utilities shall not pass through or under buildings that do not have approved performance categories of SPC-2 or higher and NPC-4 or higher.

Exceptions:

Services/systems and utilities shall be permitted to pass through or under buildings that have approved nonstructural performance categories of NPC-3 or higher or NPC-2, provided that the building has an approved extension to the NPC-3 deadline. The services/systems and utilities feeding the new building addition, alteration, or remodel shall conform to the new building provisions of this code and shall be deemed by OSHPD to be free of adverse seismic interactions that could be caused by potential failure of overhead or adjacent components.

3416A.1.1.1.2 Additions, alterations, and remodels of SPC-2 hospital buildings. Services/systems and utilities for additions, alterations, or remodels of SPC-2 hospital buildings shall be permitted to originate in and pass through or under SPC-2 or higher buildings that have an approved nonstructural performance category of NPC-3 or higher.

Exception: Services/systems and utilities shall be permitted to pass through or under buildings that have approved nonstructural performance categories of NPC-2, provided that the building has an approved extension to the NPC-3 deadline. Services/systems and utilities feeding the addition, alteration or remodel shall conform to the nonstructural bracing requirements for new buildings.

3416A.1.1.1.3 Alterations and remodels of SPC-1 hospital buildings.

Services/systems and utilities for alterations or remodels of SPC-1 hospital buildings shall be permitted to originate in and pass through or under SPC-1 or higher buildings that have an approved nonstructural performance category of NPC-2 or higher.

3416A.1.1.1.4 Buildings without SPC/NPC ratings. When services/systems and utilities for new buildings, additions, alterations, or remodels pass through or under hospital buildings which would not otherwise require evaluation for an SPC rating, such buildings shall be evaluated in accordance with the requirements of Section 1.3, Chapter 6, of the California Administrative Code, to determine the appropriate ratings, or shall be shown to meet the structural requirements of these regulations for new hospital buildings. The services/systems and utilities feeding the new building addition, alteration, or remodel shall conform with new building provisions of this code and shall be deemed by OSHPD to be free of adverse seismic interactions that could be caused by potential failure of overhead or adjacent components.

3416A.1.1.1.5 Buildings removed from acute-care hospital service.

Services/systems and utilities for conforming acute care hospital buildings shall be permitted to pass through or under a building that has been removed from acute care hospital service until January 1, 2030 if the building removed from service meets the performance requirements of Section 3416A.1.1.1.1. Services/systems and utilities for nonconforming non-acute care hospital buildings shall be permitted to pass through or under a building that has been removed from acute care hospital service only if the building removed from service meets the performance requirements of Section 3416A.1.1.1.2.

~~3416A.1.1.2 Services/systems and utilities for skilled nursing facilities, intermediate care facilities and correctional treatment centers.~~

~~3416A.1.1.2.1 New buildings and additions.~~ ~~Services/systems and utilities for new buildings and additions shall not originate in or pass through or under nonconforming structures.~~

~~**Exception:** As an alternate to this section, skilled nursing and intermediate care facilities and correctional treatment centers shall be permitted to meet the requirements in Section 3416A.1.1.1 for hospital buildings.~~

~~3416A.1.1.2.2 Alterations and remodels.~~ ~~Services/systems and utilities for alterations or remodels of existing buildings shall be permitted to pass through nonconforming structures, provided the new services/systems and utilities passing through the buildings are anchored and braced for seismic forces in accordance with these regulations for new buildings and are free of adverse seismic interactions caused by potential failure of overhead or adjacent components.~~

3416A.1.2 Jurisdiction. Services/systems and utilities for Hospitals, skilled nursing facilities, and intermediate care facilities shall originate in and only pass through or under buildings that are under the jurisdiction of the Office of Statewide Health Planning and Development (OSHPD).

**SECTION 3417A
COMPLIANCE ALTERNATIVES
FOR MEANS OF EGRESS**

3417A.1 General. Means of egress through existing buildings shall be in accordance with Chapter 10 except as modified in this section.

~~3417A.1.1 Means of egress. for hospitals, skilled nursing facilities, intermediate care facilities, and, correctional treatment centers.~~ ~~Means of egress for acute care hospitals, skilled~~

~~nursing facilities, intermediate care facilities, and correctional treatment centers~~ shall comply with the requirements of Sections 3417A.1.1.1 and 3417A.1.1.2.

Exception: The enforcing agency shall be permitted to exempt minor additions, minor alterations and minor remodel projects from these requirements.

3417A.1.1.1 Means of egress for hospital buildings. Means of egress for hospital buildings shall comply with the requirements of Sections 3417A.1.1.1.1 through 3417A.1.1.1.6.

3417A.1.1.1.1 New and existing conforming hospital buildings. Means of egress for new hospital buildings and additions to existing conforming hospital buildings shall only pass through buildings that are conforming or comply with the requirements of SPC-3 or higher, and NPC-4 or higher.

Exception: Existing means of egress that pass through hospital buildings that have approved nonstructural performance categories NPC-3, or NPC-2, if the building has an approved extension to the NPC-3 deadline, shall be permitted to remain for the duration of extension. The nonstructural components in the path of egress shall be braced in accordance with the new building provisions of this code.

3417A.1.1.1.2 Existing SPC-2 hospital buildings. Means of egress for additions to existing SPC-2 hospital buildings shall only pass through hospital buildings that have approved performance categories of SPC-2 or higher and NPC-4 or higher.

Exception: The means of egress shall be permitted to pass through hospital buildings that have approved nonstructural performance categories of NPC-3, or NPC-2 if the building has an approved extension to the NPC-3 deadline. Nonstructural components in the path of egress shall be braced in accordance with the new building provisions of this code.

3417A.1.1.1.3 Existing SPC-3 or higher hospital buildings. Means of egress for remodels of existing SPC-3 or higher hospital buildings shall only pass through hospital buildings that have approved performance categories of SPC-2 or higher and NPC-4 or higher.

Exception: The means of egress shall be permitted to pass through hospital buildings that have approved nonstructural performance categories of NPC-3, or NPC-2 if the building has an approved extension to the NPC-3 deadline. Nonstructural components in the path of egress shall be braced in accordance with the new building provisions of this code.

3417A.1.1.1.4 Existing SPC-1 hospital buildings. Means of egress for remodels of existing SPC-1 hospital buildings shall only pass through hospital buildings that have approved performance categories of SPC-1 or higher and NPC-2 or higher.

Exception: Means of egress for acute care service spaces for hospitals licensed pursuant to subdivision (a) of Section 1250 of the Health and Safety Code shall comply with the requirements of Section 3417A.1.1.1.2.

3417A.1.1.1.5 Other ~~non-conforming~~ hospital buildings. Hospital buildings that would not otherwise require evaluation for an SPC rating, which are used as a part of the means of egress for ~~acute care~~ hospital buildings, shall be evaluated in accordance with the requirements of Section 1.3, Chapter 6, of the California Administrative Code to determine the appropriate rating, or shall meet the structural requirements of these regulations for conforming hospital buildings. Means of egress shall be in accordance with the requirements of Sections 3417A.1.1.1.1 through 3417A.1.1.1.4.

3417A.1.1.1.6 Buildings removed from hospital service. The means of egress for acute care hospitals shall be permitted to pass through buildings that are removed from hospital service only if the buildings remain under the jurisdiction of OSHPD, and only until January 1, 2030, subject to the following:

1. Egress for conforming hospital buildings shall be permitted to pass through buildings that have been removed from acute care hospital service that comply with the requirements of Section 3417A.1.1.1.1 or 3417A.1.1.1.3.
2. Egress for nonconforming hospital buildings shall be permitted to pass through buildings that have been removed from acute care hospital service that comply with the requirements of Section 3417A.1.1.1.2 or 3417A.1.1.1.4.

After January 1, 2030, the means of egress for acute care hospital buildings shall only pass through hospital buildings that have approved performance categories of SPC-3 or higher and NPC-5.

~~**3417A.1.1.2 Means of egress for skilled nursing facilities, intermediate care facilities and correctional treatment centers.** Means of egress for skilled nursing facilities, intermediate care facilities, and correctional treatment centers shall comply with the requirements of Sections 3417.1.1.2.1 and 3417.1.1.2.2.~~

~~**3417A.1.1.2.1 New facilities or additions to existing facilities.** Means of egress for new or additions to skilled nursing facilities, intermediate care facilities, or correctional treatment centers shall only pass through conforming buildings.~~

~~**Exception:** As an alternate, skilled nursing facilities, intermediate care facilities, and correctional treatment centers shall be permitted to meet the egress requirements in Sections 3417A.1.1.1.1 through 3417A.1.1.1.5 for hospital buildings.~~

~~**3417A.1.2 Jurisdiction.** Means of egress for Hospitals, skilled nursing facilities and intermediate care facilities, shall only pass through buildings that are under the jurisdiction of the Office of Statewide Health Planning and Development (OSHPD).~~

SECTION 3418A [OSHPD-1] REMOVAL OF HOSPITAL BUILDINGS FROM GENERAL ACUTE CARE SERVICES

3418A.1 General. The requirements of this section shall apply when general acute care services are completely removed from SPC buildings or when buildings are removed from OSHPD jurisdiction. All buildings that remain under the OSHPD jurisdiction, after one or more SPC buildings are removed, shall satisfy the requirements of the California Building Standards Code. Approval of construction documents and a building permit are required for removal of SPC Buildings from general acute care services or removal of buildings from OSHPD jurisdiction.

3418A.1.1 Buildings without approved extensions. A SPC 1 hospital building without an approved delay in compliance requirements in accordance with the California Administrative Code (CAC) Chapter 6 Section 1.5.2 or past the extension date granted in accordance with the CAC Chapter 6 Section 1.5.2 shall not be issued a building permit until a project to remove the subject SPC 1 building from general acute care services has been approved, permitted, and closed in compliance by the Office.

Exception: Building permits for seismic compliance, maintenance and repair shall be permitted to be issued.

3418A.2 Definitions. The following words and terms are applicable to this section only:

BUILDING. The area included within surrounding exterior walls or any combination of exterior walls and fire walls (as described in Sections 202 and 706) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above. A building may consist of one or more adjacent SPC Buildings.

GENERAL ACUTE CARE SERVICE. Means basic and supplemental services, as defined in Section 1224.3, provided in a general acute care hospital building, as defined in Section ~~202~~ 1224.3 and the California Administrative Code, Chapter 6, Section 1.2.

~~Relocated to Section 3412A~~ **SPC SEISMIC SEPARATION.** Means a building separation in accordance with the California Administrative Code, Chapter 6 Section 3.4.

STRUCTURAL SEPARATION. Means a building separation in accordance with this code.

3418A.3 Establishing eligibility for removal from general acute care service. In order to establish that one or more SPC buildings are eligible for removal from general acute care service, the hospital owner shall submit construction documents showing that after the SPC Buildings are removed from general acute care service:

1. All basic acute care services or supplemental services on the hospital's license are provided in SPC buildings satisfying the requirements for SPC-2, SPC-3, SPC-4, SPC-4D, or SPC-5.

Exception: If the hospital includes SPC-1 buildings that are not being removed from general acute care service, and these SPC-1 buildings have an approved extension to the SPC-2 deadline, basic acute care services or supplemental services on the hospital's license are permitted to remain in these SPC buildings for the duration of their extension or until these SPC-1 buildings are removed from general acute care service, whichever comes first.

2. All basic acute care services or supplemental services on the hospital's license are provided in SPC buildings satisfying the requirements for NPC-3, NPC-4, or NPC-5.

Exception: Services shall be permitted to be located in SPC buildings satisfying the requirements of NPC-2 if the SPC buildings have an approved extension to NPC-3 deadline.

3. The hospital complies with all egress requirements, including occupant load, number of required exits and travel distance to exits, and provides evidence that no egress from any acute care hospital building passes through the SPC buildings removed from general acute care service, SPC-1 buildings, or through buildings not under OSHPD jurisdiction.

Exceptions:

1. If the SPC building has an approved extension to the SPC-2 deadline, existing egress through the SPC-1 building shall be permitted for the duration of the extension or until the SPC-1 Building is removed from general acute care service, whichever comes first.
2. When permitted by Section 3417A.1.1.1.6.
4. No SPC building removed from general acute care service is used as a smoke compartment for any acute care hospital building. Buildings not under OSHPD jurisdiction shall not be used as a smoke compartment for any acute care hospital building.
5. Structural separation, fire barriers and fire walls shall satisfy the requirements of the California Building Standards Code.

Exception: An SPC seismic separation in accordance with the California Administrative Code Chapter 6 Section 3.4 shall be deemed to satisfy the building structural/seismic separation requirement in this section for SPC buildings that will remain under OSHPD jurisdiction.

6. If the SPC building removed from general acute care service shares a common fire alarm system with the acute care hospital, the main fire alarm control panel shall be located in an acute care hospital building. The SPC building removed from general acute care service shall be in a separate zone monitored by the main fire alarm control panel. Flexible connections shall be provided for conduits/conductors crossing structural or SPC seismic separation joints. If the intent is to place the SPC building under local jurisdiction, the building shall satisfy Section 3418A.5.1.

Exception: Flexible connections for fire alarm conduits/conductors crossing seismic separation joints and fail safe shut-off valves, and disconnects for utilities between an SPC building removed from general acute care service and adjacent SPC-1 or SPC-2 buildings may be omitted, provided the fire alarm and utilities in the adjacent SPC-1 and SPC-2 buildings have no connection to any SPC-3, SPC-4, SPC-4D, and SPC-5 buildings providing general acute care service.

7. If the SPC building removed from general acute care service shares the fire sprinkler system with the acute care hospital, an isolation valve with a tamper switch shall be provided to isolate the portion of the system serving the SPC building removed from acute care service. Flexible connections shall be provided in piping that crosses structural or SPC seismic separation joints. The fire sprinkler system shall not originate in the SPC building removed from general acute care service. If the intent is to place the building under local jurisdiction, the building shall satisfy Section 3418A.5.1.

Exception: Flexible connections for seismic separation joints and fail safe shut-off valves, and disconnects for utilities between an SPC building removed from general acute care service and adjacent SPC-1 or SPC-2 buildings may be omitted, provided utilities in the adjacent SPC-1 and SPC-2 buildings have no connection to any SPC-3, SPC-4, SPC-4D, and SPC-5 buildings providing general acute care service.

8. Patient access as required by Section 1224.4.7.5 does not pass through an SPC building removed from general acute care service or through buildings that are not under the jurisdiction of OSHPD.
9. The primary accessible entrance to the hospital is not through an SPC building removed from general acute care service or through buildings that are not under the jurisdiction of OSHPD.
10. No utilities servicing acute care hospital buildings originate in or pass through, over, or under, an SPC building removed from general acute care service, except as permitted by Section 3416A.1.1.1.5, or a building not under OSHPD jurisdiction.
11. If utilities originating in an acute care hospital building feed a SPC building removed from general acute care hospital service, fail safe shut-off valves and/or disconnects shall be provided that permit isolation of the SPC building removed from general acute care service from the hospital utilities. Flexible connections shall be provided for all utilities crossing structural or SPC seismic separation joints.

Exception: Flexible connections for ~~fire alarm conduits/conductors~~ crossing seismic separation joints and fail safe shut-off valves, and disconnects for utilities between an SPC building removed from general acute care service and adjacent SPC-1 or SPC-2 buildings may be omitted, provided ~~the fire alarm and~~ utilities in the adjacent SPC-1

and SPC-2 buildings have no connection to any SPC-3, SPC-4, SPC-4D, and SPC-5 buildings providing general acute care service.

3418A.4 Buildings intended to remain under OSHPD jurisdiction.

3418A.4.1 Qualifying non-acute care services. In order for a freestanding building to remain under OSHPD jurisdiction that is removed from general acute care service, it shall contain one or more qualifying services. Qualifying services include:

- a. Services considered "Outpatient Clinical Services" as defined in H&SC § 129730(a):
 - i. Administrative space
 - ii. Central sterile supply
 - iii. Storage
 - iv. Morgue and autopsy facilities
 - v. Employee dressing rooms and lockers
 - vi. Janitorial and housekeeping facilities
 - vii. Laundry
- b. Outpatient portions of the following services (with no more than 25 percent in-patient use), including but not limited to:
 - i. Surgical
 - ii. Chronic dialysis
 - iii. Psychiatry
 - iv. Rehabilitation, occupational therapy, or physical therapy
 - v. Maternity
 - vi. Dentistry
 - vii. Chemical dependency
- c. Services that duplicate Basic Services, as defined in H&SC §1250, or services that are provided as part of a Basic Service, but are not required for facility licensure (with no more than 25 percent in-patient use).

All hospital support services listed in Section 3418A.4.1 Item a that are located in an SPC building at the time general acute care services are removed may remain, provided the California Department of Public Health certifies to the Office that it has received and approved a plan that demonstrates how the health facility will continue to provide all basic services in the event of any emergency when the SPC building may no longer remain functional. This certification shall be submitted by hospital to the Office prior to approval of the application to remove the SPC building from general acute care service.

3418A.4.2 Maintaining existing non-acute care services under existing license. Existing approved non-acute care occupancies, or services, existing in the SPC building at the time it is removed from general acute care service shall be permitted to remain, and removal of the SPC building from general acute care service is not considered a change in occupancy. The enforcement agency shall be permitted to require evidence that the existing occupancies and services were in compliance at the time they were located in the SPC building. Any hospital support services located in the building removed from general acute care service, including administrative services, central sterile supply, storage, morgue and autopsy, employee dressing rooms and lockers, janitorial and housekeeping service, and laundry, shall be in excess of the minimum requirements for licensure and operation. Prior approval by the California Department of Public Health shall be obtained by hospital to maintain these services in the SPC building removed from acute care service.

3418A.4.3 Change of licensed services under existing license. A change of service or function for all, or a portion, of the SPC building removed from general acute care service requires compliance with the current requirements for that service, including accessibility requirements in accordance with Chapter 11B.

3418A.4.3.1 Skilled nursing or acute psychiatric services. When general acute care services are removed from an SPC building which is intended to be used for skilled nursing or acute psychiatric services, and the new services will be licensed under the existing license of

the general acute care hospital these new services shall comply with Section 3416A.1.1.1.5 for a nonconforming hospital building.

3418A.4.3.1 3418A.4.3.2 Outpatient clinical services. When general acute care services are removed from an SPC building which is intended to be used for outpatient clinical services under the existing acute care hospital license, the building is required to comply with the current OSHPD 3 code requirements for the new service.

3418A.4.4 SPC buildings removed from general acute care service with new license. When general acute care services are removed from an SPC building, and new services provided in the SPC building are issued an initial license, as determined by the California Department of Public Health, as a skilled nursing facility or acute psychiatric hospital, the SPC building shall comply with the new building code requirements or equivalent provisions of the California Building Standards code at the time of application.

3418A.4.5 Change of building occupancy or division. When an SPC building is removed from general acute care service with or without change of license, the new occupancy group and division of the building, and/or new service or function, shall be established. A new certificate of occupancy shall be required for the building removed from general acute care service.

3418A.5 Change in jurisdiction for buildings removed from general acute care service. Except as provided by Section 3418A.5.3, at the hospital's discretion, a building removed from general acute care service shall be permitted to be placed under the jurisdiction of the local enforcement agency. To be eligible for a change in jurisdiction, the building removed from general acute care service shall satisfy the requirements of Section 3418A.5.1.

3418A.5.1 Eligibility for change in jurisdiction. For a building removed from general acute care service to be eligible for a change in jurisdiction to the local enforcing agency, all the following criteria shall be satisfied:

- a. The building removed from general acute care service shall be freestanding, as defined in the California Administrative Code, Section 7-111.
- b. Any hospital support services located in the building removed from general acute care service, including administrative services, central sterile supply, storage, morgue and autopsy, employee dressing rooms and lockers, janitorial and housekeeping service, and laundry, shall be in excess of the minimum requirements for licensure and operation. Prior approval by the California Department of Public Health shall be obtained by hospital to locate these services in the building removed from general acute care service.
- c. Services/systems and utilities (e.g. power, emergency power, communication/data/nurse-call systems, space-heating systems, fire alarm system, fire-sprinkler system, medical gas & plumbing systems) shall be separate and independent from those serving any buildings under OSHPD jurisdiction.
- d. If the building being transferred to the jurisdiction of the local enforcing agency is adjacent to a building under OSHPD jurisdiction and fire resistive construction separations are required, they shall be located in the building under OSHPD jurisdiction.

3418A.5.2 Modification of buildings removed from OSHPD jurisdiction. The owner of the building shall be responsible for bringing the building into compliance with all requirements of the new authority having jurisdiction. If a building requires modification to become eligible for removal from OSHPD jurisdiction, the construction project shall be closed with compliance by OSHPD prior to the change in jurisdiction. All occupancy separation, set-back, and allowable area requirements shall be enforced.

3418A.5.3 Buildings not eligible for change in jurisdiction. The following freestanding buildings shall remain under OSHPD jurisdiction:

- a. Any building in which basic and/or supplementary services are provided for a general acute care hospital, acute psychiatric hospital, and general acute care hospital providing only acute medical rehabilitation center services.
- b. Any building which provides required patient access, egress, or smoke compartment for a Building under OSHPD's jurisdiction.
- c. Any building in which services under OSHPD jurisdiction are provided, including skilled nursing services, intermediate care services, acute psychiatric services, and distinct part skilled nursing or intermediate care services.
- d. Any building providing central plant or utility services to a building under OSHPD jurisdiction.
- e. Any building through which utilities pass through, over or under, to serve a building under OSHPD jurisdiction.

3418A.6 Vacant space. With the removal of general acute care services, the vacated space must be re-classified with an intended occupancy as required under Section 302. If the hospital determines that the building or space in the SPC building removed from general acute care service will be vacant, the hospital shall demonstrate that unsafe conditions as described in Section 116.1 are not created.

3418A.7 Demolition: Demolition of SPC buildings to be removed from general acute care services shall be permitted when buildings remaining under OSHPD's jurisdiction, after demolition, satisfy the requirements of the California Building Standards Code and demolition activity does not impair the operation and/or safety of any buildings that remain under the OSHPD's jurisdiction. Demolition shall be in accordance with Section 3303.

SECTION 3419A [~~OSHPD 1~~] HOSPITAL BUILDINGS REMOVED FROM GENERAL ACUTE CARE SERVICES

3419A.1 General. The requirements of this section and Section 3418A shall apply to buildings removed from general acute care services that remain under OSHPD jurisdiction.

3419A.2 Non-GAC buildings. Non-GAC buildings shall conform to the requirements of Section 1.10.1.

3419A.3 Freestanding buildings. Application and enforcement of freestanding buildings removed from general acute care services but remaining under OSHPD jurisdiction shall be in accordance with Section 1.10.

Freestanding hospital-owned clinics shall be permitted to be under the jurisdiction of OSHPD in accordance with the California Administrative Code Sections 7-2104, 7-2105, and 7-2106.

All existing amendments that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

CHAPTER 35 REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the

effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.4.

[OSHPD 1 & 4] Reference to other chapters. In addition to the code sections referenced, the standards listed in this chapter are applicable to the respective code sections in Chapters 16A, 17A, 18A, 19A, 21A, and 22A. ~~and 34A.~~

...		
AAMA	American Architectural Manufacturing Association 1827 Waldon Office Square, Suite 550 Schaumburg, IL 60173	
Standard reference number	Title	Referenced in code section number
...		
501.4-09	<i>Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts</i>	2410.1
501.6-09	<i>Recommended Dynamic Test Method For Determining The Seismic Drift Causing Glass Fallout From A Wall</i>	2410.1

ACI	American Concrete Institute 38800 Country Club Drive Farmington Hills, MI 48333-9094	
Standard reference number	Title	Referenced in code section number
...		
318-14	Building Code Requirements for Structural Concrete	<i>Table 1705A.2.1, Table 1705A.3, - 1705A.2.2.1.2, 1810A.3.10.4, 1901.3.4.4 1903A, 1904A, 1905A, 1910A.5.4 1913A.5, 1913A.7.2, 1913.2, 1913.3</i>
355.2-07	<i>Qualification of Post-Installed Mechanical Anchors in Concrete</i>	1616A.1.19
<u>355.4-11</u>	<u><i>Qualification of Post-Installed Adhesive Anchors in Concrete</i></u>	<u>1616A.1.19</u>
440.2R-08	<i>Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures</i>	<u>1911A.3 1914A.3</u>
...		
503.7-07	<i>Specification for Crack Repair by Epoxy Injection.</i>	<u>1911A.2 1914A.2</u>
506-05	<i>Guide to Shotcrete</i>	<u>1913.4.5, 1908A.1 1910A.1, 1908A.3 1910A.3, 1908A.12 1910A.12, 1911A.2 1914A.2</u>
530-13	Building Code Requirements for Masonry Structures	<u>2107A.5. 2107A.6</u>
...		

...

AISC	American Institute of Steel Construction Construction One East Wacker Drive, Suite 700 Chicago, IL 60601-2001	
Standard reference number	Title	Referenced in code section number
341-10	Seismic Provisions for Structural Steel Buildings	1705A.2.1, 2212.2, 2205A, 2206A
358-10	<i>Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications including Supplements No. 1 & 2</i>	2212.3, 2205A, 2206A.2
360-10	Specifications for Structural Steel Buildings	1705A.2.1, Table 1705A.2.1, 2206A.2, 2212.1.1, 2204A.4, 2204A.2.2, 2212A.1.2, 2212A.2.1

AISI	American Iron and Steel Institute 1140 Connecticut Avenue, 705 Suite 705 Washington, DC 20036	
Standard reference number	Title	Referenced in code section number
S214-12	North American Standard for Cold-formed Steel Framing- Truss Design, 2012	2211A.3, 2212.5.1.2

ANSI	American National Standards Institute 25 West 43rd Street, Fourth Floor New York, NY 10036	
Standard reference number	Title	Referenced in code section number
A 190.1-12	Structural Glued Laminated Timber	<u>1705A.5.4</u>

...

APA	APA - Engineered Wood Association 7011 South 19th Tacoma, WA 98466	
Standard reference number	Title	Referenced in code section number
A 190.1-12	Structural Glued Laminated Timber	<u>1705A.5.4</u>

...

ASCE/SEI	American Society of Civil Engineers Structural Engineering Institute 1801 Alexander Bell Drive Reston, VA 20191-4400	
Standard reference number	Title	Referenced in code section number
5-13	Building Code Requirements for Masonry Structures	<u>2107A.5, 2107A.6</u>
...		
7-10	<i>Minimum Design Loads for Buildings and Other Structures including Supplement No. 1</i>	104.11, 202, 1616.9, 1616.10, 1603A.2 1613A, 1616A, 1803A.6, 1905A.1.21, 2114A.1, 2114.13, 2210A.2, 2212A.2.4, 2410.1.1, 2410.1.2,
...		
19- 10	Structural Application of Steel Cables for Buildings	<u>2208A.1, 2207.1, 2207.2</u>
...		
24 - 43 <u>14</u>	Flood Resistant Design and Construction	1203.4.2, 1612.4, 1612A.4, 1612.5, 1612A.5, 2702.1.7, 3001.2
...		
41- 06 <u>13</u>	<i>Seismic Evaluation and Retrofit Rehabilitation of Existing Buildings including Supplement No. 4</i>	1603A.2, 1616A.1.30, <u>3406A, 3412A, 3413A</u>
49- <u>12</u> 07	Wind Tunnel Testing for Buildings and Other Structures	1609.1.1, <u>1609A.1.1</u>

...

ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2959	
Standard reference number	Title	Referenced in code section number
...		
A 153/A 153M-09	Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware	<u>2304.10.1.1 2304.9.1.4</u>
A370 – 13 <u>40</u>	<i>Standard Test Methods and Definitions for Mechanical Testing of Steel Products</i>	3413A.1.3
...		
A 722/A722M-12	Specifications for Uncoated High-strength Steel Bar for Prestressing Concrete	<u>1812A.4.2</u> J106.2.4.2, 1811A.4
...		
<u>A1064-13</u>	<i>Standard Specification for Carbon steel wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete</i>	<u>1903A.8</u>
...		
B 695-04 (<u>2009</u>)	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel Strip for Building Construction	<u>2304.10.1.1 2304.9.1.4</u>

...		
<u>C90-14</u>	<u>Standard Specification for Load Bearing Concrete Masonry Units</u>	<u>2105A.2</u>
C 94/C94M- <u>14a</u> <u>43</u>	Specifications for Ready Mix Concrete	<u>1705A.3.3.1</u> <u>1705A.3.3</u>
...		
C 150-12	Specification for Portland Cement	<u>1903A</u> , <u>1910A</u> <u>1913A</u> , <u>1916.1.2</u>
...		
C 270- <u>14a</u> <u>12a</u>	Specifications for Mortar for Unit Masonry	<u>2114.2</u> <u>2105A.3</u>
<u>C 289-07</u>	<u>Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates</u>	<u>1903A.3</u>
...		
C 595-13	Specification for Blended Hydraulic Cement	<u>1903A.6</u> , <u>1910A.1</u> <u>1913A.1</u>
...		
C 618 – <u>12a</u> <u>08a</u>	<u>Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete</u>	<u>1903A.3</u> , <u>1910A.1</u> <u>1913A.1</u> , <u>1913.2</u>
...		
C 635/C 635M- <u>13a</u>	Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel ceilings	<u>1616.10.16</u> , <u>1616A.1.21</u> <u>1616A.1.20</u>
C 636/C 636M - <u>13</u> <u>08</u>	Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels	<u>1616.10.16</u> , <u>1616A.1.21</u> <u>1616A.1.20</u>
...		
C 989- <u>13</u> <u>09</u>	<u>Standard Specification for Slag Cement for Use in Concrete and Mortars</u>	<u>1903A.5</u> , <u>1903A.6</u> , <u>1910A.1</u> <u>1913A.1</u> , <u>1913.2</u>
...		
C 1019- <u>13</u> <u>14</u>	Test Method of Sampling and Testing Grout	<u>2105A.3</u> <u>2105A.2.2.1.4</u> , <u>2114.6.1</u> <u>2114.9.1</u>
...		
C 1157/C 1157M-11	ASTM Standard Performance Specification for Hydraulic Cement	<u>1910A.1</u> <u>1913A.1</u> ,
...		
<u>C 1240-11</u>	<u>Standard Specification for Silica Fume Used in Cementitious Mixtures</u>	<u>1903A.6</u>
C 1249- <u>06a</u> (2010)	Standard Guide for Secondary Seal for Sealed Insulated Glass Units for Structural Sealant Glazing Applications	<u>1903A.6</u> , <u>2410.1.1</u>
...		
<u>C 1260-07</u>	<u>Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar Bar Method)</u>	<u>1903A.6</u> , <u>2410.1.1</u>
...		
<u>C 1293-08b</u>	<u>Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction</u>	<u>1903A.6</u> , <u>1913.2.3</u>
...		
<u>C 1314-07</u>	<u>Test Method for Compressive Strength of Masonry Prisms</u>	<u>2114.9.1</u>
...		
C 1392-00(<u>2014</u> <u>2009</u>)	Standard Guide for Evaluating Failure of Structural Sealant Glazing	<u>2410.1.3</u>
C 1394-03 (<u>2012</u> <u>2008</u>)	Standard Guide for In-Situ Structural Silicone Glazing Evaluation	<u>2410.1.3</u>
...		

C 1401-1409a	Standard Guide for Structural Sealant Glazing	2410.1
...		
C1567-08	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of the Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)	1903A.6, 1913.2.3;
C1586-05 (2011)	Standard Guide for Quality Assurance of Mortars	2114.9.1, 2105A.3 2105A.2.2.1.4
...		
D 1586-11	Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils	J112.2 1813A
...		
D 3441-05	Standard Test Method for Mechanical Cone Penetration Tests of Soil	J112.2
D 5778-12	Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils	1813A
...		
D 3966-07 (2013)	Standard Test Method for Piles Under Lateral Loads	1810A.3.3.2
...		
E 580-14 44b	Standard Practice for Installation of Ceiling Suspension Systems of Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions	1616A.1.21 1616A.1.20
...		
F 606-14	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets	2213A.1
...		

AWC	American Wood Council 222 Catoclin SE, Suite 201 Leesburg, VA 20175	
Standard reference number	Title	Referenced in code section number
...		
ANSI/AWC NDS-2015	National Design Specifications (NDS) for Wood Construction with 2012 Supplement and addendum	1905A.1.8 1905A.1.21...

AWPA	American Wood Products Association P.O. Box 361784 Birmingham, AL 35236-1784	
...		
U1-14	USE CATEGORY SYSTEM: User Specification for Treated Wood Except Section 6, Commodity Specification H	<u>1812A.2 ...J106.2.2</u>

...

AWS	American Welding Society 550 N.W. LeJeune Road Miami, FL 33126	
Standard reference number	Title	Referenced in code section number
D1.1- 10	<i>Structural Welding Code-Steel</i>	<i>Table 1705A.2.1, <u>1705A.2.5</u> 1705A.2.2.5, 2212.6.2, 2213A.2</i>
D1.3-08	Structural Welding Code-Sheet Steel	<i>Table 1705A.2.1, <u>1705A.2.5</u></i>
D1.4-11	Structural Welding Code – Reinforcing Steel	<i>Table 1705A.2.1, 1705.2.2.1.2, 2107A.3, 2107A.4</i>
D1.8-09	<i>Structural Welding Code – Seismic Supplement</i>	<i><u>1705A.2.5</u> 1705A.2.2.5</i>
QC1-07 06	<i>Standard for AWS Certification of Welding Inspectors</i>	<i><u>1705A.2.5</u> 1705A.2.2.5</i>

...

FM	Factory Mutual Global Research Standards Laboratories Department 1301 Atwood Avenue, P.O. Box 7500 Johnston, RI 02919	
Standard reference number	Title	Referenced in code section number
ANSI/FM 1950- 15 40	<i>Approval Standard for Seismic Sway Braces for Automatic Sprinkler Systems Pipe, Tubing and Conduit</i>	<i><u>1705A.13.2</u> 1705A.12.3</i>
...		

...

ICC	International Code Council, Inc. 500 New Jersey Ave, NW 6 th Floor Washington, DC 20001	
Standard reference number	Title	Referenced in code section number
...		
ICC-ES AC 01-42 <u>15*</u>	Acceptance criteria for expansion anchors in Masonry elements	1616A.1.19
ICC-ES AC 58-42 <u>15*</u>	Acceptance criteria for Adhesive anchors in Masonry elements	1616A.1.19
ICC-ES AC 70-42 <u>15*</u>	Acceptance criteria for fasteners power-driven into Concrete, Steel and Masonry elements	<u>1616A.1.20</u> <u>1908A.1.4</u>
ICC-ES AC 106- 42 <u>15*</u>	Acceptance criteria for predrilled fasteners (screw anchors) in Masonry	1616A.1.19
ICC-ES AC 125- 42 <u>15*</u>	Acceptance criteria for Concrete, and Reinforced and Unreinforced Masonry strengthening using externally bonded Fiber-Reinforced Polymer (FRP) composite systems.	<u>1911A.3</u> <u>1914.3</u>
ICC-ES AC 156-42 <u>15*</u>	Acceptance criteria for Seismic Certification by Shake-Table Testing of Nonstructural Components	<u>1705A.13.3</u> <u>1705A.12.4</u>
ICC-ES AC 178- 42 <u>15*</u>	Acceptance criteria for inspection and verification of Concrete, and Reinforced and Unreinforced Masonry strengthening using Fiber-Reinforced Polymer (FRP) composite systems.	<u>1911A.3</u> <u>1914A.3</u>
ICC-ES AC 193- 42 <u>15*</u>	Acceptance criteria for mechanical anchors in Concrete elements	1616A.1.19, <u>1909A.11</u>
ICC-ES AC 232- 15*	Acceptance criteria for anchor channels in Concrete elements	<u>1616A.1.19</u> , <u>1901.3.2</u>
ICC-ES AC 308- 42 <u>15*</u>	Acceptance criteria for post-installed adhesive anchors in Concrete elements	1616A.1.19, <u>1901.3.3</u>
ICC-ES AC 358- 42 <u>15*</u>	Acceptance criteria for Helical foundation systems and devices	1810A.3.1.5.1
ICC-ES AC 446- 15*	Acceptance criteria for headed cast-in specialty inserts in Concrete	<u>1616A.1.19</u> , <u>1901.3.2</u>

* Refers to International Building Code, 2012 2015 as a reference standard.

...

ISO	International Organization for Standardization ISO Central Secretariat 1 ch, de la Voie-Creuse, Case Postale 56 CH-1211 Geneva 20, Switzerland	
Standard reference number	Title	Referenced in code section number
...		
<i>ISO 9001-08</i>	<i>Quality management systems - Requirements</i>	<u>1705A.13.3</u> <u>1705A.12.4</u>
<u>ISO 17020-12</u>	<u>Conformity assessment - Requirements for the operation of various types of bodies performing inspection</u>	<u>1704A.2</u>
<i>ISO 17025-05</i>	<i>General requirement for competence of testing and calibration laboratories</i>	<u>1703A.4</u> <u>1705A.12.4</u>

...

NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471	
Standard reference number	Title	Referenced in code section number
...		
13-16	Installation of Sprinkler Systems	1616.9.5 , 1616.10.17

...

PCI	Precast Prestressed Concrete Institute 200 West Adams Street, Suite 2100 Chicago, IL 60606-5230	
Standard reference number	Title	Referenced in code section number
...		
<i>PCI 120-10</i>	<i>PCI Design Handbook, 7th Edition</i>	<u>1905A.1.1</u> , <u>1905A.1.2</u> 1905A.1

PTI	Post-Tensioning Institute 8601 North Black Canyon Highway, Suite 103 Phoenix, AZ 85021	
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Standard reference number	Title	Referenced in code section number
...		
PTI-2004	<i>Recommendations for Prestressed Rock and Soil Anchors (4th Edition)</i>	<u>1810A.3.10.4, 1811A.2, 1812A.4, 1812A.5, 1813A.2, J106.2.4, J106.2.5</u>
...		

...

TMS	The Masonry Society 3970 Broadway, Unit 201-D Boulder, CO 80304-1135	
Standard reference number	Title	Referenced in code section number
...		
402— 13	Building Code Requirements for Masonry Structures	<u>2107A.5, 2107A.6</u>
...		

...

UL	UL LLC 333 Pfingsten Road Northbrook, IL 60062-2096	
Standard reference number	Title	Referenced in code section number
...		
857— 13	Busways	<u>1705A.13.3.1</u>
...		

...

WCLIB	West Coast Lumber Inspection Bureau P. O. Box 23145 Portland, OR 97281	
Standard reference number	Title	Referenced in code section number
...		
AITC 111-05	<i>Recommended Practice for Protection of Structural Glued Laminated Timber During Transit, Storage and Erection</i>	<u>2303.1.3.1</u>
...		

AITC 117-10	Standard Specifications for Structural Glued Laminated Timber of Softwood Species	2303.1.3.1
...		
AITC 404-05	Standard for Radially Reinforcing Curved Glued Laminated Timber Members to Resist Radial Tension	2303.1.3.1

...
All existing amendments that are not revised above shall continue without any change.

NOTATION:

Authority: Health and Safety Code Section 130005(g) & 130021

Reference: Health and Safety Code Section 1275, 129790, 129850 & 130005(g)

**APPENDIX J
GRADING**

This Appendix is not adopted by OSHPD.

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**SECTION J104
PERMIT APPLICATION AND SUBMITTALS**

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J104.4 Liquefaction study. For sites with mapped maximum considered earthquake spectral response accelerations at short periods (S_s) greater than 0.5g as determined by Section 1613, a study of the liquefaction potential of the site shall be provided, and the recommendations incorporated in the plans.

Exception:

1. A liquefaction study is not required where the building official determines from established local data that the liquefaction potential is low.
2. *[OSHPD 1, 2, & 4] Exception 1 not permitted by OSHPD.*

...

**SECTION J106
EXCAVATIONS**

...

Relocated to Chapter 16A **J106.2 Earth-retaining shoring. [OSHPD 1 & 4]**

J106.2.1 General. *The requirements of this section shall apply to temporary and permanent earth retaining shoring using soldier piles and lagging with or without tie-back anchors in soil or rock, only when existing or new OSHPD 1 or 4 facilities are affected. Shoring used as construction means and methods only, which does not affect existing or new OSHPD 1 or 4 facilities, are not regulated by OSHPD and shall satisfy the requirements of the authorities having jurisdiction. Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections J106.2.2 through J106.2.8.*

J106.2.2 Duration. *Shoring shall be considered temporary when elements of the shoring will be exposed to site conditions for a period of less than one (1) year, and shall be considered permanent otherwise. Permanent shoring shall account for the increase in lateral soil pressure due to earthquake. At the end of the construction period, the existing and new structures shall not rely on the temporary shoring for support in anyway. Wood components shall not be used for permanent shoring lasting more than two (2) years. Wood components of the temporary shoring*

that may affect the performance of permanent structure shall be removed after the shoring is no longer required.

All components of the shoring shall have corrosion protection or preservative treatment for their expected duration. Wood components of the temporary shoring that will not be removed shall be treated in accordance with AWWA U1 (Commodity Specification A, Use Category 4B and Section 5.2), and shall be identified in accordance with Section 2303.1.8.1.

J106.2.3 Surcharge: Surcharge pressure due to footings, traffic, or other sources shall be considered in design. If the footing surcharge is located within the semi-circular distribution or bulb of earth pressure (when shoring is located close to a footings), lagging shall be designed for lateral earth pressure due to footing surcharge. Soil arching effects may be considered in the design of lagging. Underpinning of the footing may be used in lieu of designing the shoring and lagging for surcharge pressure. Alternatively, continuously contacting drilled pier shafts near the footings shall be permitted. The lateral surcharge design pressure shall be derived using Boussinesq equations modified for the distribution of stresses in an elastic medium due to a uniform, concentrated or line surface load as appropriate and soil arching effects.

J106.2.4 Design and testing: Except for the modifications as set forth in Sections J106.2.4.1 and J106.2.4.2 below, all Prestressed Rock and Soil Tie-back Anchors shall be designed and tested in accordance with PTI Recommendations for Prestressed Rock and Soil Anchors (PTI-2004).

J106.2.4.1 Geotechnical requirements: The geotechnical report for the earth retaining shoring shall address the following:

1. Minimum diameter and minimum spacing for the anchors including consideration of group effects.
2. Maximum unbonded length and minimum bonded length of the tie-back anchors.
3. Maximum recommended anchor tension capacity based upon the soil or rock strength / grout bond and anchor depth / spacing.
4. Allowable bond stress at the ground / grout interface and applicable factor of safety for ultimate bond stress for the anchor. For permanent anchors, a minimum factor of safety of 2.0 shall be applied to ground soil interface as required by PTI-2004 Section 6.6.
5. Minimum grout pressure for installation and post grout pressure for the anchor. The presumptive post grout pressure of 300 psi may be used for all soil type.
6. Class I Corrosion Protection is required for all permanent anchors. The geotechnical report shall specify the corrosion protection recommendations for temporary anchors.
7. Performance test for the anchors shall be at a minimum of two (2) times the design loads and shall not exceed 80% of the specified minimum tensile strength of the anchor rod. A creep test is required for all prestressed anchors that are performance tested. All production anchors shall be tested at 150% of design loads and shall not be greater than 70% of the specified minimum tensile strength of the anchor rod.
8. Earth pressure, surcharge pressure, and the seismic increment of earth pressure loading, when applicable.
9. Maximum recommended lateral deformation at the top of the soldier pile, at the tie-back anchor locations, and the drilled pier concrete shafts at the lowest grade level.
10. Allowable vertical soil bearing pressure, friction resistance, and lateral passive soil resistance for the drilled pier concrete shafts and associated factors of safety for these allowable capacities.
11. Soil pier shaft / pile interaction assumptions and lateral soil stiffness to be used in design for drilled pier concrete shaft or pile lateral loads.
12. Acceptable drilling methods.
13. Geotechnical observation and monitoring recommendations.

J106.2.4.2 Structural requirements:

1. Tendons shall be thread-bar anchors conforming to ASTM A 722.
2. Anchor design loads shall be based upon the load combinations in Section 1605A.3.1 and shall not exceed 60 percent of the specified minimum tensile strength of the tendons.
3. The anchor shall be designed to fail in grout bond to the soil or rock before pullout of the soil wedge.
4. Design of shoring system shall account for as-built locations of soil anchors considering all specified construction tolerances in Section J106.2.8.

5.—Design of shoring system shall account for both short and long term deformation.

J106.2.4.3 Testing of tie-back anchors:

- 1.—The geotechnical engineer shall keep a record at job site of all test loads, total anchor movement, and report their accuracy.
- 2.—If a tie back anchor initially fails the testing requirements, the anchor shall be permitted to be re-grouted and retested. If anchor continues to fail, the followings steps shall be taken:
 - a.—The contractor shall determine the cause of failure—variations of the soil conditions, installation methods, materials, etc.
 - b.—Contractor shall propose a solution to remedy the problem. The proposed solution will need to be reviewed and approved by geotechnical engineer, shoring design engineer, and the building official.
- 3.—After a satisfactory test, each anchor shall be locked off in accordance with Section 8.4 of PTI 2004.
- 4.—The shoring design engineer shall specify design loads for each anchor.

J106.2.5 Construction: The construction procedure shall address the following:

- 1.—Holes drilled for piles / tie back anchors shall be done without detrimental loss of ground, sloughing or caving of materials and without endangering previously installed shoring members or existing foundations.
- 2.—Drilling of earth anchor shafts for tie backs shall occur when the drill bench reaches two to three feet below the level of the tie back pockets.
- 3.—Casing or other methods shall be used where necessary to prevent loss of ground and collapse of the hole.
- 4.—The drill cuttings from earth anchor shaft shall be removed prior to anchor installation.
- 5.—Unless tremie methods are used, all water and loose materials shall be removed from the holes prior to installing piles / tie backs.
- 6.—Tie back anchor rods with attached centralizing devices shall be installed into the shaft or through the drill casing. Centralizing device shall not restrict movement of the grout.
- 7.—After lagging installation, voids between lagging and soil shall be backfilled immediately to the full height of lagging.
- 8.—The soldier piles shall be placed within specified tolerances in the drilled hole and braced against displacement during grouting. Fill shafts with concrete up to top of footing elevation, rest of the shaft can generally be filled with lean concrete. Excavation for lagging shall not be started until concrete has achieved sufficient strength for all anticipated loads as determined by the shoring design engineer.
- 9.—Where boulders and / or cobbles have been identified in the geotechnical reports, contractor shall be prepared to address boulders and / or cobbles that may be encountered during the drilling of soldier piles and Tie back anchors.
- 10.—The grouting equipment shall produce grout free of lumps and indispensed cement. The grouting equipment shall be sized to enable the grout to be pumped in continuous operation. The mixer shall be capable of continuously agitating the grout.
- 11.—The quantity of grout and grout pressure shall be recorded. The grout pressure shall be controlled to prevent excessive heave in soils or fracturing rock formations.
- 12.—If post-grouting is required, post grouting operation shall be performed after initial grout has set for 24 hours in the bond length only. Tie backs shall be grouted over a sufficient length (anchor bond length) to transfer the maximum anchor force to the anchor grout.
- 13.—Testing of anchors may be performed after post-grouting operations provided grout has reached strength of 3,000 psi as required by PTI-2004 Section 6.11.
- 14.—Anchor rods shall be tensioned straight and true. Excavation directly below the anchors shall not continue before those anchors are tested.

J106.2.6 Inspection, survey monitoring, and observation

- 1.—The shoring design engineer or his designee shall make periodic inspections of the job site for the purpose of observing the installation of shoring system, testing of tie back anchors, and monitoring of survey.
- 2.—Testing, inspection, and observation shall be in accordance with testing, inspection and observation requirements approved by the building official. The following activities and materials shall be tested, inspected, or observed by the special inspector and

geotechnical engineer:

- a. ~~Sampling and testing of concrete in soldier pile and tie back anchor shafts.~~
 - b. ~~Fabrication of tie back anchor pockets on soldier beams~~
 - c. ~~Installation and testing of tie back anchors.~~
 - d. ~~Survey monitoring of soldier pile and tie back load cells.~~
 - e. ~~Survey Monitoring of existing buildings.~~
3. ~~A complete and accurate record of all soldier pile locations, depths, concrete strengths, tie back locations and lengths, tie back grout strength, quantity of concrete per pile, quantity of grout per tie back and applied tie back loads shall be maintained by the special inspector and geotechnical engineer. The shoring design engineer shall be notified of any unusual conditions encountered during installation.~~
 4. ~~Calibration data for each test jack, pressure gauge, and master pressure gauge shall be verified by the special inspector and geotechnical engineer. The calibration tests shall be performed by an independent testing laboratory and within 120 calendar days of the data submitted.~~
 5. ~~Monitoring points shall be established at the top and at the anchor heads of selected soldier piles and at intermediate intervals as considered appropriate by the geotechnical engineer.~~
 6. ~~Control points shall be established outside the area of influence of the shoring system to ensure the accuracy of the monitoring readings.~~
 7. ~~The periodic basis of shoring monitoring, as a minimum, shall be as follows:~~
 - a. ~~Initial monitoring shall be performed prior to any excavation.~~
 - b. ~~Once excavation has begun, the periodic readings shall be taken weekly until excavation reaches the estimated subgrade elevation and the permanent foundation is complete.~~
 - c. ~~If performance of the shoring is within established guidelines, shoring design engineer may permit the periodic readings to be bi-weekly. Once initiated, bi-weekly readings shall continue until the building slab at ground floor level is completed and capable of transmitting lateral loads to the permanent structure. Thereafter, readings can be monthly.~~
 - d. ~~Where the building has been designed to resist lateral earth pressures, the periodic monitoring of the soldier piles and adjacent structure can be discontinued once the ground floor diaphragm and subterranean portion of the structure is capable of resisting lateral soil loads and approved by the shoring design engineer, geotechnical engineer, and the building official.~~
 - e. ~~Additional readings shall be taken when requested by special inspector, shoring design engineer, geotechnical engineer, or the building official.~~
 8. ~~Monitoring reading shall be submitted to shoring design engineer, engineer in responsible charge, and the building official within 3 working days after they are conducted. Monitoring readings shall be accurate to within 0.01 feet. Results are to be submitted in tabular form showing at least the initial date of monitoring and reading, current monitoring date and reading and difference between the two readings.~~
 9. ~~If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches 1/2" or soldier piles reaches 1" all excavation activities shall be suspended. The geotechnical and shoring design engineer shall determine the cause of movement, if any, and recommend corrective measures, if necessary, before excavation continues.~~
 10. ~~If the total cumulative horizontal or vertical movement (from start of construction) of the existing buildings reaches 3/4" or soldier piles reaches 1 1/2" all excavation activities shall be suspended until the causes, if any, can be determined. Supplemental shoring shall be devised to eliminate further movement and the building official shall review and approve the supplemental shoring before excavation continues.~~
 11. ~~Monitoring of Tie back Anchor Loads:~~
 - a. ~~Load cells shall be installed at the tie back heads adjacent to buildings at maximum interval of 50', with a minimum of one load cells per wall.~~
 - b. ~~Load cell readings shall be taken once a day during excavation and once a week during the remainder of construction.~~

- c. ~~Load cell readings shall be submitted to the geotechnical engineer, shoring design engineer, engineer in responsible charge, and the building official.~~
- d. ~~Load cell readings can be terminated once the temporary shoring no longer provides support for the buildings.~~

J106.2.7 Monitoring of existing OSHPD 1 and 4 structures

- 1. ~~The contractor shall complete a written and photographic log of all existing OSHPD 1 & 4 structures within 100 ft or three times depth of shoring, prior to construction. A licensed surveyor shall document all existing substantial cracks in adjacent existing structures.~~
- 2. ~~Contractor shall document existing condition of wall cracks adjacent to shoring walls prior to start of construction.~~
- 3. ~~Contractor shall monitor existing walls for movement or cracking that may result from adjacent shoring.~~
- 4. ~~If excessive movement or visible cracking occurs, contractor shall stop work and shore / reinforce excavation and contact shoring design engineer and the building official.~~
- 5. ~~Monitoring of the existing structure shall be at reasonable intervals as required by the registered design professional subject to approval of the building official. Monitoring shall be performed by a licensed surveyor and shall consist of vertical and lateral movement of the existing structures. Prior to starting shoring installation a pre-construction meeting shall take place between the contractor, shoring design engineer, surveyor, geotechnical engineer, and the building official to identify monitoring locations on existing buildings.~~
- 6. ~~If in the opinion of the building official or shoring design engineer, monitoring data indicate excessive movement or other distress, all excavation shall cease until the geotechnical engineer and shoring design engineer investigates the situation and makes recommendations for remediation or continuing.~~
- 7. ~~All reading and measurements shall be submitted to the building official and shoring design engineer.~~

J106.2.8 Tolerances. ~~Following tolerances shall be specified on the construction documents.~~

- 1. ~~Soldier Piles:~~
 - i. ~~Horizontal and vertical construction tolerances for the soldier pile locations.~~
 - ii. ~~Soldier pile plumbness requirements (angle with vertical line).~~
- 2. ~~Tie back Anchors:~~
 - i. ~~Allowable deviation of anchor projected angle from specified vertical and horizontal design projected angle.~~
 - ii. ~~Anchor clearance to the existing/new utilities and structures.~~

SECTION J107 FILLS

J107.1 General. Unless otherwise recommended in the soils report, fills shall conform to provisions of this section.

...

J107.5 Compaction. All fill material shall be compacted to 90 percent of maximum density as determined by ASTM D 1557, Modified Proctor, in lifts not exceeding 12 inches (305 mm) in depth.

~~[OSHPD 1, 2, & 4] This section establishes minimum requirements only.~~

...

~~Relocated to Chapter 15.4~~ **Section J112**
Vibro Stone Columns for Ground Improvement

~~J112.1 General [OSHPD 1, 2, & 4]~~ This section shall apply to Vibro Stone Columns (VSCs) for ground improvement using unbounded aggregate materials. Vibro stone column provisions in this section are intended to increase bearing capacity, reduce settlements, and mitigate liquefaction for shallow foundations. These requirements shall not be used for grouted or bonded stone columns, ground improvement for deep foundation elements, or changing site class. VSCs shall not be considered as a deep foundation element.

~~Ground improvement shall be installed under the entire building/structure footprint and not under isolated foundation elements only.~~

~~Design, construction, testing, and inspection shall satisfy the requirements of this code except as modified in Sections J112.2 through J112.5.~~

~~J112.2 Geotechnical Report.~~ Geotechnical report shall specify vibro stone column requirements to ensure uniformity in total and differential immediate settlement, long term settlement, and earthquake induced settlement.

- ~~1. Soil compaction shall be sufficient to mitigate potential for liquefaction as described in California Geological Survey (CGS) Special Publication 117A (SP-117A): Guidelines for Evaluating and Mitigating Seismic Hazard in California.~~
- ~~2. Area replacement ratio for the compaction elements and the basis of its determination shall be explained. Minimum factor of safety for soil compaction shall be in accordance with SP-117A.~~
- ~~3. Depth of soil compaction elements and extent beyond the footprint of structures/foundation shall be defined. Extent beyond the foundation shall be half the depth of the VSCs with a minimum of 10' or an approved alternative.~~
- ~~4. Minimum diameter and maximum spacing of soil compaction elements shall be specified. VSC's shall not be less than 2 feet in diameter and center to center spacing shall not exceed 8 feet.~~
- ~~5. The modulus of subgrade reactions for shallow foundations shall account for the presence of compaction elements.~~
- ~~6. The modulus of subgrade reactions, long term settlement, and post earthquake settlement shall be specified along with expected total and differential settlements for design.~~
- ~~7. The acceptance criteria for Cone Penetration Test (CPT) in accordance with ASTM D 3441 complemented by Standard Penetration Test (SPT) in accordance with ASTM D 1586, if necessary, to verify soil improvement shall be specified~~
- ~~8. The requirements for special inspection and observation by the Geotechnical engineer shall be specified.~~
- ~~9. A Final Verified Report (FVR) documenting the installation of the ground improvement system and confirming that the ground improvement acceptance criteria have been met shall be prepared by the Geotechnical Engineer and submitted to the enforcement agency for review and approval.~~

~~J112.3 Shallow Foundations.~~ VSCs under the shallow foundation shall be located symmetrically around the centroid of the footing or load.

- ~~1. There shall be a minimum of four stone columns under each isolated or continuous/combined footing or approved equivalent.~~
- ~~2. The VSCs or deep foundation elements shall not be used to resist tension or overturning uplift from the shallow foundations.~~
- ~~3. The foundation design for the shallow foundation shall consider the increased vertical stiffness of the VSCs as point supports for analysis, unless it is substantiated that the installation of the VSCs result in improvement of the surrounding soils such that the modulus of subgrade reaction, long term settlement, and post earthquake settlement can be considered uniform throughout.~~

~~J112.4 Installation.~~ VSCs shall be installed with vibratory probes. Vertical columns of compacted unbounded aggregate shall be formed through the soils to be improved by adding gravel near the tip of the vibrator and progressively raising and re-penetrating the vibrator which will results in the gravel being pushed into the surrounding soil.

~~Gravel aggregate for VSCs shall be well graded with a maximum size of 6" and not more than 10% smaller than 3/8" after compaction.~~

J112.5 Construction Documents. ~~Construction documents for VSCs, as a minimum, shall include the following:~~

- ~~1. Size, depth, and location of VSCs.~~
- ~~2. Extent of soil improvements along with building/structure foundation outlines.~~
- ~~3. Field verification requirements and acceptance criteria using CPT/SPT.~~
- ~~4. The locations where CPT/SPT shall be performed.~~
- ~~5. The Testing, Inspection and Observation (TIO) program shall indicate the inspection and observation required for the VSCs.~~

~~OSHPD is not adopting Appendix J, since requirements are now covered in Chapter 18A~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

APPENDIX L EARTHQUAKE RECORDING INSTRUMENTATION

SECTION L101 GENERAL

L101.1 General. Every structure located where the 1-second spectral response acceleration, S_1 , in accordance with Section 1613.3 is greater than 0.40 that either 1 exceeds six stories in height with an aggregate floor area of 60,000 square feet (5574 m²) or more, or 2 exceeds 10 stories in height regardless of floor area, shall be equipped with not less than three approved recording accelerographs. The accelerographs shall be interconnected for common start and common timing.

[OSHPD 1, 3, & 4] There shall be a sufficient number of instruments to characterize the response of the building during an earthquake and shall include at least one tri-axial free field instrument or equivalent.

L101.2 Location. As a minimum, instruments shall be located at the lowest level, mid-height, and near the top of the structure. Each instrument shall be located so that access is maintained at all times and is unobstructed by room contents. A sign stating "MAINTAIN CLEAR ACCESS TO THIS INSTRUMENT" in 1-inch block letters shall be posted in a conspicuous location.

[OSHPD 1, 3, & 4] A proposal for instrumentation and equipment specifications shall be forwarded to the enforcement agency for review and approval.

L101.3 Maintenance. Maintenance and service of the instrumentation shall be provided by the owner of the structure. Data produced by the instrument shall be made available to the building official on request.

Maintenance and service of the instruments shall be performed annually by an approved testing agency. The owner shall file with the building official a written report from an approved testing agency certifying that each instrument has been serviced and is in proper working condition. This report shall be submitted when the instruments are installed and annually thereafter. Each instrument shall have affixed to it an externally visible tag specifying the date of the last maintenance or service and the printed name and address of the testing agency.

[OSHPD 1] The Owner of the building shall be responsible for the implementation of the instrumentation program. Maintenance of the instrumentation and removal/processing of the records shall be the responsibility of the enforcement agency.

~~All existing amendments are continued without any change~~

NOTATION:

Authority: Health and Safety Code Section 129850

Reference: Health and Safety Code Sections 1275, 129850 and 129790

**FINAL EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF THE STATE FIRE MARSHAL

REGARDING PROPOSED CHANGES TO
2016 CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2**

LEGEND FOR EXPRESS TERMS

1. Existing California amendments or code language being modified are in italics when they appear in the model code text: All such language appears in *italics*, modified language is underlined.
2. New California amendments: All such language appears underlined and in italics.
3. Repealed text: All such language appears in ~~strikeout~~.

FINAL EXPRESS TERMS

The Office of the State Fire Marshal (SFM) proposes to adopt the 2015 edition of the International Building Code (IBC) into the 2016 edition of the California Building Code (CBC). SFM further proposes to:

- Repeal the adoption by reference of the 2012 International Building Code and incorporate and adopt by reference in its place the 2015 International Building Code for application and effectiveness in the 2016 California Building Code.
 - Repeal certain amendments to the 2012 International Building Code and/or California Building Standards not addressed by the model code that are no longer necessary.
 - Adopt new building standards or necessary amendments to the 2015 International Building Code that address inadequacies of the 2015 International Building Code as they pertain to California laws.
 - Bring forward previously existing California building standards or amendments, which represent no change in their effect from the 2013 California Building Code.
 - Codify non-substantive editorial and formatting amendments from the format based upon the 2012 International Building Code to the format of the 2015 International Building Code.
-

NOTE OF EXPLANATION:

For the **2015 Triennial Code Adoption Cycle**, the Express Terms are displayed as follows:

****PART 1**** Includes the California Amendments SFM proposes to bring forward from the 2013 California Building Code **with changes** as shown, and also identifies the model code standards from the 2015 International Building Code SFM proposes for adoption into the 2016 California Building Code.

****PART 2**** Displays the standards SFM proposes to bring forward from the 2010 California Building Code **without change**, except for nonsubstantive editorial corrections, for adoption into the 2013 California Building Code; the text is provided for context and the convenience of the code user.

SUMMARY OF REGULATORY ACTION

SFM PROPOSES TO:

****PART 1****

1. Bring forward existing California Amendments from the 2013 California Building Code for adoption into the 2016 California Building Code **with amendment**.
2. Adopt standards from the 2015 International Building Code into the 2016 California Building Code **without amendment**.
3. Adopt standards from the 2015 International Building Code into the 2016 California Building Code **with amendment**.
4. Repeal 2013 California Amendments, which are **not** brought forward into the 2016 California Building Code.

****PART 2****

1. Bring forward existing California Amendments from the 2013 California Building Code for adoption into the 2016 California Building Code **without amendment**, except for editorial corrections.
-

****PART 1****

[1. The SFM is proposing to maintain the adoption of those existing California provisions contained Sections 1.1 Through 1.1.12 and Sections 1.11 through 1.11.10 with modification.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 1

SCOPE AND ADMINISTRATION

DIVISION I CALIFORNIA ADMINISTRATION

SECTION 1.1 GENERAL

1.1.1 Title. These regulations shall be known as the California Building Code, may be cited as such and will be referred to herein as "this code." The California Building Code is Part 2 of ~~twelve~~thirteen parts of the official compilation and publication of the adoption, amendment, and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the ~~2012~~2015 International Building Code of the International Code Council with necessary California amendments.

1.1.3.2 State-Regulated Buildings, Structures, and Applications. The model code, state amendments to the model code, and/or state amendments where there are no relevant model code provisions, shall apply to the following buildings, structures, and applications regulated by state agencies as specified in Sections 1.2 through 1.14, except where modified by local ordinance pursuant to Section 1.1.8. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the state legislature.

Note: See Preface to distinguish the model code provisions from the California provisions.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California, and regulated by the Building Standards Commission. See Section 1.2 for additional scope provisions.

2. Local detention facilities regulated by the Board of State and Community Corrections ~~Corrections Standards Authority~~. See Section 1.3 for additional scope provisions.

3. Barbering, cosmetology or electrolysis establishments, acupuncture offices, pharmacies, veterinary facilities, and structural pest control locations regulated by the Department of Consumer Affairs. See Section 1.4 for additional scope provisions.

4. ~~Energy efficiency standards regulated by the~~ Section 1.5 reserved for the California Energy Commission. See ~~Section 1.5 for additional scope provisions~~.

5. Dairies and places of meat inspection regulated by the Department of Food and Agriculture. See Section 1.6 for additional scope provisions.

6. Organized camps, laboratory animal quarters, public swimming pools, radiation protection, commissaries serving mobile food preparation vehicles and wild animal quarantine facilities regulated by the Department of Public Health. See Section 1.7 for additional scope provisions.

7. Hotels, motels, lodging houses, ~~apartment houses~~ apartments, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings

containing sleeping accommodations with or without common toilets or cooking facilities. See Section 1.8.2.1.1 for additional scope provisions.

8. Accommodations for persons with disabilities in buildings containing newly constructed covered multifamily dwellings, new common use spaces serving existing covered multifamily dwellings, additions to existing buildings where the addition alone meets the definition of "COVERED MULTIFAMILY DWELLINGS," and new common-use spaces areas serving new covered multifamily dwellings which are regulated by the Department of Housing and Community Development. See Section 1.8.2.1.2 for additional scope provisions.

9. Permanent buildings and permanent accessory buildings or structures constructed within mobilehome parks and special occupancy parks regulated by the Department of Housing and Community Development. See Section 1.8.2.1.3 for additional scope provisions.

10. Reserved for the Division of the State Architect – Access Compliance.

11. Public elementary and secondary schools, community college buildings and state-owned or state leased essential service buildings regulated by the Division of the State Architect. See Section 1.9.2 for additional scope provisions.

12. Reserved for the State Historical Building Safety Board with the Division of the State Architect. See Section 1.9.2 for additional scope provisions.

13. General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 1.10 for additional scope provisions.

14. Applications regulated by the Office of State Fire Marshal include but are not limited to the following in accordance with Section 1.11:

14.1. Buildings or structures used or intended for use as an:

1. Asylum, jail.
2. Mental hospital, hospital, home for the elderly, children's nursery, children's home or institution, school or any similar occupancy of any capacity.
3. Theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.
4. Small family day care homes, large family day-care homes, residential facilities and residential facilities for the elderly, residential care facilities.
5. State institutions or other state-owned or state-occupied buildings.
6. High rise structures.
7. Motion picture production studios.
8. Organized camps.
9. Residential structures.

14.2. Tents, awnings or other fabric enclosures used in connection with any occupancy.

14.3. Fire alarm devices, equipment and systems in connection with any occupancy.

14.4. Hazardous materials, flammable and combustible liquids.

14.5. Public school automatic fire detection, alarm and sprinkler systems.

14.6. Wildland-urban interface fire areas.

15. Public libraries constructed and renovated using funds from the California Library Construction and Renovation Bond Act of 1988 and regulated by the State Librarian. See Section 1.12 for additional scope provisions.

16. Section 1.13 reserved for Graywater systems regulated by the Department of Water Resources. See Section 1.13 for additional scope provisions.

17. For applications listed in Section 1.9.1 regulated by the Division of the State Architect – Access Compliance, outdoor environments and uses shall be classified according to accessibility uses described in Chapter 11A, 11B and 11C.

18. Marine Oil Terminals regulated by the California State Lands Commission. See Section 1.14 for additional scope provisions.

1.1.7.3 Conflicts. When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, the most restrictive requirements shall prevail.

Exception: Detached one-and two-family dwellings, efficiency dwelling units, lodging houses, live/work units, townhouses not more than three stories above grade plane with a separate means of egress, and their accessory

structures, shall not be required to comply with the California Residential Code if constructed in accordance with the California Building Code.

1.1.8.1 Findings and filings.

1. The city, county, or city and county shall make express findings for each amendment, addition, or deletion based upon climatic, topographical, or geological conditions.

Exception: Hazardous building ordinances and programs mitigating unreinforced masonry buildings.

2. The city, county, or city and county shall file the amendments, additions, or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions, or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.

3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development, Division of Codes and Standards, P.O. Box 1407, Sacramento, CA 95812-1407 or ~~1800 3rd Street, Room 260, Sacramento, CA 95811~~ 2020 West El Camino Avenue, Suite 250, Sacramento, CA 95833-1829.

1.1.8.2 Locally adopted energy standards – California Energy Code, Part 6

In addition to the provisions of Section 1.1.8.1 of this Part, the provisions of this section apply to cities, counties, and city and county amending adopted energy standards affecting buildings and structures subject to the California Energy Code, Part 6.

Applicable provisions of Public Resources Code Section 25402.1 and applicable provisions of Chapter 10 of the California Administrative Code, Part 1 apply to local amendment of energy standards adopted by the California Energy Commission.

1.1.10 Availability of codes. At least one complete copy each of Titles 8, 19, 20, 24, and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county, or city and county shall have an up-to-date copy of the code available for public inspection, See Health and Safety Code Sections 18942(d e)(1) and (2).

Notation

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

[2. The SFM proposes to only adopt Sections 105.2.1 – 105.2.2, 105.3 – 105.3.1, 105.4, 105.6 – 105.7, 106.1, 106.2 – 106.3, 107.1 – 107.3, 107.4, 107.5, 108.1 – 108.4, 110.1 – 110.3, 110.3.4 – 110.3.6, 110.3.8 – 110.3.10, 110.4 – 110.6, 111.1, 111.2, 111.3 – 111.4, 112, 114.1 – 114.2, 115 and 116 contained in Chapter 1.]

(IBC Chapter 1 Administrative provisions - Sections 101 through 114 relocated to Division II of Chapter 1.)

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**DIVISION II
SCOPE AND ADMINISTRATION**

Notation

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2

[3. The SFM proposes to adopt Chapter 2 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 2
DEFINITIONS**

~~**CONGREGATE LIVING HEALTH FACILITY (CLHF).** As termed, is a residential home with a capacity of no more than six beds, which provides inpatient care, including the following basic services: medical supervision, 24-hour skilled nursing and supportive care, pharmacy, dietary, social recreational, and at least provides services for persons who are diagnosed with a terminal illness or who are catastrophically and severely disabled.~~

Congregate living health facility (CLHF). means a residential home with a capacity, except as provided in paragraph (3), of no more than 12 beds, that provides inpatient care, including the following basic services: medical supervision, 24-hour skilled nursing and supportive care, pharmacy, dietary, social, recreational, and at least one type of service specified in paragraph (1). The primary need of congregare living health facility residents shall be for availability of skilled nursing care on a recurring, intermittent, extended, or continuous basis. This care is generally less intense than that provided in general acute care hospitals but more intense than that provided in skilled nursing facilities.

(1) Congregate living health facilities shall provide one of the following services:

(A) Services for persons who are mentally alert, persons with physical disabilities, who may be ventilator dependent,

(B) Services for persons who have a diagnosis of terminal illness, a diagnosis of a life-threatening illness, or both. Terminal illness means the individual has a life expectancy of six months or less as stated in writing by his or her attending physician and surgeon. A "life-threatening illness" means the individual has an illness that can lead to a possibility of a termination of life within five years or less as stated in writing by his or her attending physician and surgeon.

(C) Services for persons who are catastrophically and severely disabled. A person who is catastrophically and severely disabled means a person whose origin of disability was acquired through trauma or nondegenerative neurologic illness, for whom it has been determined that active rehabilitation would be beneficial and to whom these services are being provided. Services offered by a congregare living health facility to a person who is catastrophically disabled shall include, but not be limited to, speech, physical, and occupational therapy.

(2) A congregare living health facility license shall specify which of the types of persons described in paragraph (1) to whom a facility is licensed to provide services.

(3)(A) A facility operated by a city and county for the purposes of delivering services under this section may have a capacity of 59 beds.

(B) A congregare living health facility not operated by a city and county servicing persons who are terminally ill, persons who have been diagnosed with a life-threatening illness, or both, that is located in a county with a population of 500,000 or more persons, or located in a county of the 16th class pursuant to Section 28020 of the Government Code, may have not more than 25 beds for the purpose of serving persons who are terminally ill.

(C) A congregare living health facility not operated by a city and county serving persons who are catastrophically and severely disabled, as defined in subparagraph (C) of paragraph (1) that is located in a county of 500,000 or more persons may have not more than 12 beds for the purpose of serving persons who are catastrophically and severely disabled.

(5) A congregare living health facility shall have a noninstitutional, homelike environment.

DIRECT ACCESS. A path of travel from a space to an immediately adjacent space through an opening in the common wall between the two spaces.

~~**DIRECT ACCESS.** A path of travel from a space to an immediately adjacent space through an opening in the common wall between the two spaces.~~

FIREWORKS. Any composition or device for the purpose of producing a visible or an audible effect for entertainment purposes by combustion, deflagration or detonation that meets the definition of 1.4G fireworks or 1.3G fireworks. Fireworks, 1.4G. Small fireworks devices containing restricted amounts of pyrotechnic composition designed primarily to produce visible or audible effects by combustion. Such 1.4G fireworks which comply with the construction, chemical composition and labeling regulations of the DOTn for Fireworks, UN 0336, and the U.S. Consumer Product Safety Commission as set forth in CPSC 16 CFR Parts 1500 and 1507, are not explosive materials for the purpose of this code.

Fireworks, 1.3G. Large fireworks devices, which are explosive materials, intended for use in fireworks displays and designed to produce audible or visible effects by combustion, deflagration or detonation. Such 1.3G fireworks include, but are not limited to, firecrackers containing more than 130 milligrams (2 grains) of explosive composition, aerial shells containing more than 40 grams of pyrotechnic composition and other display pieces which exceed the limits for classification as 1.4G fireworks. Such 1.3G fireworks are also described as Fireworks, UN 0335 by the DOTn.

Note: Fireworks shall have the same meaning as defined in Health and Safety Code Section 12511 which has been reprinted as follows:

12511. "Fireworks" means any device containing chemical elements and chemical compounds capable of burning independently of the oxygen of the atmosphere and producing audible, visual, mechanical, or thermal effects which are useful as pyrotechnic devices or for entertainment.

The term "fireworks" includes, but is not limited to, devices designated by the manufacturer as fireworks, torpedoes, skyrockets, roman candles, rockets, Daygo bombs, sparklers, party poppers, paper caps, chasers, fountains, smoke sparks, aerial bombs, and fireworks kits.

12512. "Fireworks kit" means any assembly of materials or explosive substances, which is designed and intended by the seller to be assembled by the person receiving such material or explosive substance and when so assembled would come within the definition of fireworks in Section 12511.

HYDROGEN FUEL GAS ROOM. A room or space that is intended exclusively to house a gaseous hydrogen system.

~~**HYDROGEN FUEL GAS ROOM.** A room or space that is intended exclusively to house a gaseous hydrogen system.~~

~~**MENTALLY RETARDED PERSONS, PROFOUNDLY OR SEVERELY.** Shall mean any retarded person who is unable to evacuate a building unassisted during emergency conditions.~~

~~**Note:** The determination as to such incapacity shall be made by the Director of the State Department of Public Health or his or her designated representative pursuant to Health and Safety Code Section 13131.3.~~

PERSONS WITH INTELLECTUAL DISABILITIES, PROFOUNDLY OR SEVERELY. Shall mean any persons with intellectual disabilities who is unable to evacuate a building unassisted during emergency conditions.

Note: The determination as to such incapacity shall be made by the Director of the State Department of Public Health or his or her designated representative pursuant to Health and Safety Code Section 13131.3.

Notation

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2

[4. The SFM proposes to adopt Chapter 3 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 3
USE AND OCCUPANCY CLASSIFICATIONS

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers
Ambulatory care facilities *serving five or fewer patients (see Section 308.3-2308.4.2 for facilities serving more than five patients)*
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic—outpatient [SFM] *(not classified as Group I-2.1)*
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m²) in area.
Laboratories: testing, and research and [SFM] instruction
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).
~~Training and skill development not within a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics, and similar uses regardless of the ages served, and where not classified as a Group A occupancy)~~

305.2.1 Within places of religious worship. Rooms and spaces within places of religious worship providing such day care during religious functions shall be classified as part of the primary occupancy where not licensed for day care purposes by the Department of Social Services.

TABLE 307.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF
HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, m, n, p}

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE ^b			USE-CLOSED SYSTEMS ^b			USE-OPEN SYSTEMS ^b	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible dust	NA	H-2	See Note q	NA	NA	See Note q	NA	NA	See Note q	NA
Combustible fiber ^a	Loose Baled ^e	H-3	(100) (1,000)	NA	NA	(100) (1,000)	NA	NA	(20) (200)	NA
Combustible liquid ^{a, i}	II IIIA IIIB	H-2 or H-3 H-2 or H-3 NA	NA	120 ^{d, e} 330 ^{d, e} 13,200 ^{e, f}	NA	NA	120 ^d 330 ^d 13,200 ^f	NA	NA	30 ^d 80 ^d 3,300 ^f
Consumer fireworks	1.4G	H-3	125 ^{e, i}	NA	NA	NA	NA	NA	NA	NA
Cryogenic flammable	NA	H-2	NA	45 ^d	NA	NA	45 ^d	NA	NA	10 ^d

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Cryogenic inert	NA	NA	NA	NA	NL	NA	NA	NL	NA	NA
Cryogenic oxidizing	NA	H-3	NA	45 ^d	NA	NA	45 ^d	NA	NA	10 ^d
Explosives	Division 1.1	H-1	1 ^{c,g}	(1) ^{c,g}	NA	0.25 ^g	(0.25) ^g	NA	0.25 ^g	(0.25) ^g
	Division 1.2	H-1	1 ^{c,g}	(1) ^{c,g}		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
	Division 1.3	H-1 or H-2	510 ^{c,g}	(510) ^{c,g}		1 ^g	(1) ^g		1 ^g	(1) ^g
	Division 1.4	H-3	50 ^{c,g}	(50) ^{c,g}		50 ^g	(50) ^g		NA	NA
	Division 1.4G	H-3	125 ^{d,e,1}	NA		NA	NA		NA	NA
	Division 1.5	H-1	1 ^{c,g}	(1) ^{c,g}		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
	Division 1.6	H-1	1 ^{c,g}	NA		NA	NA		NA	NA
Flammable gas	Gaseous Liquefied	H-2	NA	NA (150) ^{d,e}	1,000 ^{d,e} NA	NA	NA (150) ^{d,e}	1,000 ^{d,e} NA	NA	NA
Flammable liquid ^c	IA IB and IC	H-2 or H-3	NA	30 ^{d,e} 120 ^{d,e}	NA	NA	30 ^d 120 ^d	NA	NA	10 ^d 30 ^d
Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120 ^{d,e,h}	NA	NA	120 ^{d,h}	NA	NA	30 ^{d,h}
Flammable solid	NA	H-3	125 ^{d,e}	NA	NA	125 ^d	NA	NA	25 ^d	NA
Inert gas	Gaseous	NA	NA	NA	NL	NA	NA	NL	NA	NA
	Liquefied	NA	NA	NA	NL	NA	NA	NL	NA	NA
Organic peroxide	UD	H-1	1 ^{c,g}	(1) ^{c,g}	NA	0.25 ^g	(0.25) ^g	NA	0.25 ^g	(0.25) ^g
	I	H-2	5 ^{d,e}	(5) ^{d,e}		1 ^d	(1) ^d		1 ^d	(1) ^d
	II	H-3	50 ^{d,e}	(50) ^{d,e}		50 ^d 125 ^d	(50) ^d		10 ^d 25 ^d	(10) ^d
	III	H-3	125 ^{d,e}	(125) ^{d,e}		NL	NL		NL	NL
	IV	NA	NL	NL		NL	NL		NL	NL
	V	NA	NL	NL		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
Oxidizer	4	H-1	1 ^g	(1) ^{c,g}	NA	0.25 ^g	(0.25) ^g	NA	0.25 ^g	(0.25) ^g
	3 ^k	H-2 or H-3	10 ^{d,e}	(10) ^{d,e}		2 ^d	(2) ^d		2 ^d	(2) ^d
	2	H-3	250 ^{d,e}	(250) ^{d,e}		250 ^d	(250) ^d		50 ^d	(50) ^d
	1	NA	4,000 ^{e,f}	(4,000) ^{e,f}		4,000 ^f	(4,000) ^f		1,000 ^f	(1,000) ^f
Oxidizing gas	Gaseous Liquefied	H-3	NA	NA (150) ^{d,e}	1,500 ^{d,e} NA	NA	NA (150) ^{d,e}	1,500 ^{d,e} NA	NA	NA
Pyrophoric	NA	H-2	4 ^{c,g}	(4) ^{c,g}	50 ^{c,g}	1 ^g	(1) ^g	10 ^{c,g}	0	0
Unstable (reactive)	4	H-1	1 ^{c,g}	(1) ^{c,g}	10 ^{c,g}	0.25 ^g	(0.25) ^g	2 ^{c,g}	0.25 ^g	(0.25) ^g
	3	H-1 or H-2	5 ^{d,e}	(5) ^{d,e}	50 ^{d,e}	1 ^d	(1) ^d	10 ^{d,e}	1 ^d	(1) ^d
	2	H-3	50 ^{d,e}	(50) ^{d,e}	750 ^{d,e}	50 ^d	(50) ^d	750 ^{d,e}	10 ^d	(10) ^d
	1	NA	NL	NL	NL	NL	NL	NL	NL	NL
Water reactive	3	H-2	5 ^{d,e}	(5) ^{d,e}	NA	5 ^d	(5) ^d	NA	1 ^d	(1) ^d
	2	H-3	50 ^{d,e}	(50) ^{d,e}		50 ^d	(50) ^d		10 ^d	(10) ^d
	1	NA	NL	NL		NL	NL		NL	NL

For SI: 1 cubic foot = 0.028 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

NL = Not Limited; NA = Not Applicable; UD = Unclassified Detonable.

a. For use of control areas, see Section 414.2.

b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

c. The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited provided the liquids are packaged in individual containers not exceeding 1.3 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

d. [SFM] In other than Group L occupancies, Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied accumulatively.

- e. ~~[SFM] In other than Group L occupancies,~~ Maximum allowable quantities shall be increased 100 percent when stored in approved storage cabinets, day boxes, gas cabinets, gas rooms or exhausted enclosures or in listed safety cans in accordance with Section 5003.9.10 of the ~~International~~*California Fire Code*. Where Note d also applies, the increase for both notes shall be applied accumulatively.
- f. Quantities shall not be limited in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- g. Allowed only in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- h. Containing not more than the maximum allowable quantity per control area of Class IA, IB or IC flammable liquids.
- i. The maximum allowable quantity shall not apply to fuel oil storage complying with Section 603.3.2 of the ~~International~~*California Fire Code*.
- j. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.
- k. A maximum quantity of 200 pounds of solid or 20 gallons of liquid Class 3 oxidizers is allowed when such materials are necessary for maintenance purposes, operation or sanitation of equipment when the storage containers and the manner of storage are approved.
- l. Net weight of the pyrotechnic composition of the fireworks. Where the net weight of the pyrotechnic composition of the fireworks is not known, 25 percent of the gross weight of the fireworks, including packaging, shall be used.
- m. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 5003.1.2 of the ~~International~~*California Fire Code*.
- n. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 414.2.5, see Tables 414.2.5(1) and 414.2.5(2).
- o. Densely packed baled cotton that complies with the packing requirements of ISO 8115 shall not be included in this material class.
- p. The following shall not be included in determining the maximum allowable quantities:
1. Liquid or gaseous fuel in fuel tanks on vehicles.
 2. Liquid or gaseous fuel in fuel tanks on motorized equipment operated in accordance with the ~~International~~*California Fire Code*.
 3. Gaseous fuels in piping systems and fixed appliances regulated by the ~~International Fuel Gas Code~~ *California Mechanical Code*.
 4. Liquid fuels in piping systems and fixed appliances regulated by the ~~International~~*California Mechanical Code*.
 5. Alcohol-based hand rubs classified as Class I or II liquids in dispensers that are installed in accordance with Sections 5705.5 and 5705.5.1 of the ~~International~~*California Fire Code*. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the construction documents.
- q. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3.

~~308.4.1 Occupancy conditions. Buildings of Group I-2 shall be classified as one of the occupancy conditions specified in Section 308.4.1.1 or 308.4.1.2.~~

~~308.4.1.1 Condition 1. This occupancy condition shall include facilities that provide nursing and medical care but do not provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to nursing homes and foster care facilities.~~

~~308.4.1.2 Condition 2. This occupancy condition shall include facilities that provide nursing and medical care and could provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to hospitals.~~

310.2 Definitions. The following terms are defined in Chapter 2:

~~**MENTALLY RETARDED PERSONS, PROFOUNDLY OR SEVERELY PERSONAL CARE SERVICE.**~~

~~**PERSONS WITH INTELLECTUAL DISABILITIES, PROFOUNDLY OR SEVERELY**~~

~~**310.6.1 Condition 1.** This occupancy Condition shall include buildings in which all persons receiving custodial care, without any assistance, are capable of responding to an emergency situation to complete building evacuation.~~

~~**310.6.2 Condition 2.** This occupancy Condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.~~

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 12081, 12552, 12553, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 12000 through 12401 and 12500 through 12725, 13108, 13143, 13211, 18949.2

[5. The SFM proposes to adopt Chapter 4 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY**

403.4.8.1 Equipment room. If the standby or emergency power system includes a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. System supervision with manual start and transfer features shall be provided at the fire command center.

Exception: In Group I-2, ~~Condition 2~~, manual start and transfer features for the critical branch of the emergency power are not required to be provided at the fire command center.

404.5 Smoke control. A smoke control system shall be installed in accordance with Section 909.

Exception: In other than Group I-2, and ~~Group I-1, Condition 2~~ R-2.1 smoke control is not required for atriums that connect only two stories.

406.3.1 Classification. Private garages and carports shall be classified as Group U occupancies. Each private garage shall be not greater than 1,000 square feet (93 m²) in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-hour fire barriers in accordance with Section 707, or 1-hour horizontal assemblies in accordance with Section 711, or both.

Exception: The area of a private garage accessory to Group R-3 one- or two-family dwellings shall not be greater than 3,000 square feet in area.

406.6.2 Ventilation. A mechanical ventilation system shall be provided in accordance with the ~~International~~ California Mechanical Code.

Exception: Mechanical ventilation shall not be required for enclosed parking garages that serve Group R-3 one- or two-family dwellings.

407.3.1.1 Swing of corridor doors. Corridor doors, other than those equipped with self-closing or automatic-closing devices shall not swing into the required width of corridors.

Exception: In detention and/or secure mental health facilities, doors may swing into required width of corridors in I-3 facilities as long as 44" clear is maintained with any one door open 90 degrees and clear corridor widths required in Chapter 12 can be maintained with doors open 180 degrees.

407.4.1 Direct access to a corridor. Habitable rooms in Group I-2 and I-2.1 occupancies shall have an exit access door leading directly to a corridor.

Exceptions:

- ~~1. Rooms with exit doors opening directly to the outside at ground level.~~
- ~~2. Rooms arranged as care suites complying with Section 407.4.3~~

407.4.3 Projections in nursing home corridors~~Reserved~~. In Group I-2, Condition 1, occupancies, where the corridor width is a minimum of 96 inches (2440 mm), projections shall be permitted for furniture where all of the following criteria are met:

1. The furniture is attached to the floor or to the wall.
2. The furniture does not reduce the clear width of the corridor to less than 72 inches (1830 mm) except where other encroachments are permitted in accordance with Section 1005.7.
3. The furniture is positioned on only one side of the corridor.
4. Each arrangement of furniture is 50 square feet (4.6 m²) maximum in area.
5. Furniture arrangements are separated by 10 feet (3048 mm) minimum.
6. Placement of furniture is considered as part of the fire and safety plans in accordance with Section 1001.4.

407.10 Electrical systems. In Group I-2 or I-2.1 occupancies, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

410.3.6 Scenery. Combustible materials used in sets and scenery shall ~~meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 704~~ shall be flame resistant in accordance with the provisions set forth in CCR, Title 19, Division 1, Chapter 8, in accordance with Section 806 and the International California Fire Code. Foam plastics and materials containing foam plastics shall comply with Section 2603 and the ~~International California Fire Code.~~

SECTION 421 ~~HYDROGEN FUEL GAS ROOMS~~ HYDROGEN FUEL GAS ROOMS

[Editorial Note: Remove existing amendments to Section 421.1 through 421.7. Model code now matches old CA amendments.]

421.1 General. When required by the ~~International California Fire Code~~, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections 421.1 through 421.7 421.8.

421.1 General. When required by the ~~International California Fire Code~~, hydrogen ~~fuel gas rooms~~ shall be designed and constructed in accordance with Sections 421.1 through 421.8.

421.2 Definitions. The following terms are defined in Chapter 2:

GASEOUS HYDROGEN SYSTEM

~~HYDROGEN FUEL GAS ROOM.~~

HYDROGEN FUEL GAS ROOM.

421.3 Location. Hydrogen fuel gas rooms shall not be located below grade.

~~421.3 Location.~~ Hydrogen ~~fuel gas rooms~~ shall not be located below grade.

421.4 Design and construction. Hydrogen fuel gas rooms not classified as Group H shall be separated from other areas of the building in accordance with Section 509.1.

~~421.4 Design and construction.~~ Hydrogen ~~fuel gas rooms not classified as Group H~~ shall be separated from other areas of ~~the building in accordance with Section 509.1.~~

421.4.1 Pressure control. Hydrogen fuel gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

~~421.4.1 Pressure control.~~ Hydrogen ~~gas rooms~~ shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

421.5 Exhaust ventilation. Hydrogen fuel gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the ~~International California Mechanical Code.~~

~~421.5 Exhaust Ventilation.~~ Gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the ~~California Mechanical Code.~~

421.6 Gas detection system. Hydrogen fuel gas rooms shall be provided with an approved flammable gas detection system in accordance with Sections 421.6.1 through 421.6.4.

~~421.6 Gas detection system.~~ Hydrogen ~~fuel gas rooms~~ shall be provided with an approved flammable gas detection system in accordance with Sections 421.6.1 through 421.6.4.

421.6.2 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

~~**421.6.2 Gas detection system components.** Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.~~

421.6.3 Operation. Activation of the gas detection system shall result in all of the following:

1. Initiation of distinct audible and visual alarm signals both inside and outside of the hydrogen fuel gas room.
2. Activation of the mechanical exhaust ventilation system.

~~**421.6.3 Operation.** Activation of the gas detection system shall result in all of the following:~~

- ~~1. Initiation of distinct audible and visual alarm signals both inside and outside of the cutoff fuel gas room.~~
- ~~2. Activation of the mechanical exhaust ventilation system.~~

421.6.4 Failure of the gas detection system. Failure of the gas detection system shall result in activation of the mechanical exhaust ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.

~~**421.6.4 Failure of the gas detection system.** Failure of the gas detection system shall result in activation of the mechanical exhaust ventilation system, cessation of hydrogen generation and the sounding of a trouble signal in an approved location.~~

421.7 Explosion control. Explosion control shall be provided where required by Section 414.5.1.

~~**421.7 Explosion control.** Explosion control shall be provided where required by Section 414.5.1.~~

~~**425.8.4.2435.8.4.2** The minimum clear width of a corridor shall be as follows:~~

- ~~1. Group R-2.1 occupancies shall have 60 inches (1524 mm) on floors housing nonambulatory clients and 44 inches (1118 mm) on floors housing only ambulatory clients.~~
- ~~2. Group R-4 occupancies shall have 44 inches (1118 mm) on floors housing clients.~~

Exceptions:

- ~~1. Corridors serving an occupant load of 10 or less shall not be less than 36 inches (914 mm) in width.~~
- ~~2. Corridors serving ambulatory persons only and having an occupant load of 49 or less shall not be less than 36 inches (914 mm) in width.~~
- ~~3. Group R-4 occupancies shall have thirty-six inches (914 mm) on floors housing 10 or less clients.~~

~~**425.8.7435.8.7 Floor separation.** Group R-3.1 occupancies with non-ambulatory clients housed above the first floor shall be provided with a non-fire resistance constructed floor separation at stairs which will prevent smoke migration between floors. Such floor separation shall have equivalent construction of 0.5 inch (12.7 mm) gypsum wallboard on one side of wall framing.~~

Exceptions:

- ~~1. Occupancies with at least one exterior exit from floors occupied by clients.~~
- ~~2. Occupancies provided with automatic fire sprinkler systems complying with Chapter 9.~~

**SECTION 434444
EXPLOSIVES [SFM]**

[Section 444 have been repealed and replaced by the adoption of California Fire Code Chapter 56.]

~~**434.1 General construction requirements.** Magazines shall be constructed in conformity with the provisions of these regulations, or may be of substantially equivalent construction satisfactory to the enforcing agency having jurisdiction. Reasonable allowances shall be made for storage facilities in existence prior to the adoption of these regulations. No allowance, however, shall be made for storage facilities which constitute a distinct hazard to life and property.~~

~~**434.2 Ventilation and weather resistance.** Magazines for the storage of explosives shall be sufficiently ventilated and weather resistant and when used for the storage of Class A explosives (other than black powder, blasting agents,~~

~~blasting caps and electric blasting caps), they shall also be of bullet-resistant construction unless deemed exempt by the enforcing agency having jurisdiction.~~

~~**Note:** The recommendation for ventilation as contained in Pamphlet No. 1, Institute of Makers of Explosives, 1965 edition, is evidence of good practice.~~

~~**434.3 Construction for separation between primers and flammable liquids.** Primers shall be separated from flammable liquids by a one-hour fire-resistive occupancy separation.~~

~~**Exception:** A separation need not be provided for small-arms ammunition primers when such primers are located a distance of not less than 25 feet (7620 mm) from flammable liquids.~~

~~**434.4 Construction of Type I Magazine.** Type I magazines shall be of bullet-resistant construction. Plans shall be submitted to the enforcing agency having jurisdiction for approval prior to construction.~~

~~**434.4.1 General.** Use of the following materials and methods of construction shall be evidence of compliance with this requirement:~~

- ~~1. Masonry units not less than 8 inches (203 mm) in thickness with all hollow spaces filled with weak cement, well-tamped sand, or equivalent material; or~~
- ~~2. Reinforced concrete not less than 6 inches (152 mm) in thickness; or~~
- ~~3. Steel walls of minimum No. 14 manufacturers' standard gage (0.0747 inch) (1.9 mm) to No. 6 manufacturers' standard gage (0.1943 inch) (4.9 mm) may be used, provided there are two layers spaced at least 6 inches (152 mm) apart with all hollow spaces filled with weak cement, well-tamped sand or equivalent material; or~~
- ~~4. One layer of No. 6 manufacturer's standard gage (0.1943 inch) (4.9 mm) or heavier, steel lined on the interior with a minimum of 4 inches (102 mm) of wood; or~~
- ~~5. Two layers of No. 6 manufacturer's standard gage (0.1943 inch) (4.9 mm) or heavier steel spaced a minimum 1/2 inch (12.7 mm) apart and lined on the interior with a minimum of 2 inches (51 mm) of wood; or~~
- ~~6. Two layers of wood, at least 2 inches (51 mm) nominal thickness each, spaced a minimum 4 inches (102 mm) apart with the hollow space filled with weak cement, well-tamped sand or equivalent material.~~
- ~~7. Wood used shall conform to the following:
Wood shall be of tongue-and-grooved lumber or plywood. Wood shall be covered, on the exterior side, with metal to provide protection against flying embers and sparks.~~

~~**434.4.2 Doors.** Doors shall be of bullet-resistant construction. Each door is to be equipped with:~~

- ~~1. Two mortise locks;~~
- ~~2. Two padlocks fastened in separate hasps and staples;~~
- ~~3. A combination of a mortise lock and a padlock;~~
- ~~4. A mortise lock that requires two keys to open; and~~
- ~~5. A three-point lock.~~

~~Padlocks must have at least five tumblers and a case-hardened shackle of at least 3/8 inch (9.5 mm) diameter. Padlocks must be protected with not less than 1/4 inch (6.4 mm) steel hoods constructed so as to prevent sawing or lever action on the locks, hasps and staples. These requirements do not apply to magazine doors that are adequately secured on the inside by means of a bolt, lock or bar that cannot be actuated from the outside.~~

~~**434.4.3 Floors.** Floors of magazines shall be securely fastened in place and shall be capable of withstanding the loads imposed.~~

~~**434.4.4 Roofs.** Roofs shall be securely fastened in place and they shall be bullet resistant, if required by the fire chief having jurisdiction.~~

~~**434.4.5 Ventilation openings.** Ventilation openings shall be screened to prevent the entrance of sparks and they shall be protected in a manner that will maintain the bullet resistance of the magazine.~~

~~**434.4.6 Interiors.** Magazine interiors shall be of a smooth finish without cracks or crevices with all nails, screws, bolts and nuts countersunk. Exposed metal capable of emitting sparks shall be covered so as not to come in contact with packages of explosives.~~

~~434.4.7 Location.~~ No Type I magazine, or portion thereof, shall be located under a high-voltage power line (750 volts or more). For the purposes of this section, "under" shall include an open space of not less than the height of the power line from the ground at right angles to the walls of the magazine.

~~434.5 Buildings used for mixing of blasting agents.~~ Buildings used for the mixing of blasting agents shall conform to the requirements of Sections 434.5 and 434.6, unless otherwise specifically approved by the enforcing agency having jurisdiction.

~~434.5.1 Construction.~~ Buildings shall be of all noncombustible construction or of sheet metal on wood studs.

~~434.5.2 Separation.~~ The layout of the mixing building shall be such so as to provide physical separation between the finished product storage and the mixing and packaging operations.

~~434.5.3 Storage areas.~~ Floors in storage areas and in the processing plant shall be of concrete or other noncombustible material. Isolated fuel storage shall be provided to avoid contact between molten ammonium nitrate and fuel in case of fire.

~~434.5.4 Ventilation.~~ The building shall be well ventilated in accordance with Section 434.2.

~~434.5.5 Heat.~~ Heat, if used, shall be provided exclusively from a unit outside of the building.

~~434.5.6 Venting.~~ Explosion venting shall be provided when required by the enforcing agency having jurisdiction.

~~434.6 Building construction storage.~~ Blasting agents may be stored in the manner set forth in Title 19, California Code of Regulations, Subchapter 10, Article 3, or in one-story warehouses (without basements), which shall be:

- ~~1. Of noncombustible or one-hour fire resistive construction;~~
- ~~2. Constructed so as to eliminate floor drains and piping into which molten materials could flow and be confined in case of fire;~~
- ~~3. Weather resistant;~~
- ~~4. Well ventilated in accordance with Section ; 434.2 and~~
- ~~5. Equipped with a substantially constructed and lockable door which shall be kept securely locked, except when the facility is open for business.~~

~~434.7 Electrical requirements for Type I magazines.~~ Magazines shall not be provided with either heat or light, except upon the approval of the enforcing agency having jurisdiction. Electrical installation, when permitted, shall be in accordance with the California Electrical Code for Type II, Division I locations.

~~434.8 Mixing room blasting agents.~~ All electrical switches, controls, motors and lights, if located in the mixing room, shall be installed in accordance with the California Electrical Code for Type II, Division I locations.

~~434.9 Storage of special effects materials.~~ The storage of not more than 750 pounds (340 kg) of special effects materials shall be in a building or a room conforming to the requirements of Group H, Division I Occupancies as defined in this part. In addition, the following shall apply to every special effects materials storage building or room:

- ~~1. The building shall be sprinklered as required in Chapter 9.~~
- ~~2. It shall be deemed that the storage of special effects materials creates an atmosphere of flammable dust.~~
- ~~3. Two or more permanent openings having an area of not less than 100 square inches (64 500 mm²) shall be located in the exterior wall to provide natural ventilation. These openings shall be protected by screens or louvers covered with 1/4-inch (6.4 mm) wire mesh screen.~~
- ~~4. Walls, floor ceiling, shelves and benches shall have a smooth nonmetallic surface which can be easily cleaned with a minimum of brushing or scrubbing.~~
- ~~5. Each entrance door shall be posted on the outside with signs stating, "Authorized Personnel Only" and "No Smoking."~~
- ~~6. Assembling and manufacturing are prohibited in special effects storage rooms or buildings.~~
- ~~7. The room shall be located above grade in a one-story building or on the top floor of a multistory building or may be a separate building.~~

~~8. The room or building shall have a minimum floor area of 80 square feet (7.4 m²) with no dimension less than 8 feet (2438 mm). 9. Electric wiring, lighting and heating shall be of a type approved for use in hazardous locations.~~

~~**434.10 Mixing room or building.** Buildings or rooms in which more than 50 pounds (22.7 kg) of special effects materials are present at any time shall be constructed with at least one wall of explosion-relief type. The relief wall should be placed so as to be of least hazard to persons in adjacent buildings.~~

~~**434.10.1 Explosive venting.** When explosive venting is required, the venting area will be calculated on 1 square foot (0.0929 m²) for each 35 cubic feet (0.99 m³) of building or roof area.~~

~~**434.10.2 Egress.** All rooms or buildings shall have adequate aisle space and at least two exits separated by a distance equal to at least one-fifth the perimeter of the room. Openings in fire walls shall be equipped with approved, self-closing fire doors. All exit doors shall open outward and be equipped with approved panic hardware.~~

~~**Exception:** Cubicles 100 square feet (9.3 m²) or less and occupied by not more than two persons working within 12 feet (3658 mm) of an unobstructed passageway may have one exit.~~

~~**434.10.3 Room finishes.** Floors, walls, interior surfaces and equipment shall be of a finish and color that will indicate the presence of dust and spilled material. They shall be smooth finished for easy cleaning.~~

~~**434.10.4 HVAC.** Heating and cooling shall be by the indirect method using water, steam, electric heaters or other indirect methods. **Note:** Floor registers shall not be permitted.~~

~~**434.10.5 Electrical.** All electrical wiring and equipment shall be acceptable for the hazard involved and installed in accordance with Hazardous Locations, California Electrical Code.~~

~~**434.10.6 Grounding.** Effective bonding and grounding means shall be provided to prevent accumulation of static charges where static charges are a hazard, as set forth in the California Electrical Code.~~

~~**434.10.7 Pressure relief valves.** Hydraulic or air presses and hand jacks shall be provided with pressure-relief valves so arranged and set that the material being processed will not be subjected to pressure likely to cause it to explode. Dies and plugged press equipment shall not be cleared by striking blows that may detonate or start the material burning.~~

~~**434.10.8 Dust control.** Dust from special effects materials shall not be exhausted to the atmosphere. Where vacuum dust collections systems are used, they shall comply with the following requirements:~~

- ~~1. Adequate filters must be installed between the source vacuum and the point of pickup to prevent explosive special effects materials from entering the vacuum pump or exhauster.~~
- ~~2. The dust collection system shall be designed to prevent pinch points threaded fittings exposed to the hazardous dust and sharp turns, dead ends, pockets, etc., in which special effects materials may lodge and accumulate outside the collecting chamber.~~
- ~~3. The entire vacuum collection system shall be made electrically continuous and be grounded to a maximum resistance of 5 ohms.~~
- ~~4. Chambers in which the dusts are collected shall not be located in the operating area unless adequate shields for the maximum quantity of material in the collector are furnished for personnel protection.~~
- ~~5. No more than two rooms may be serviced by a common connection to a vacuum collection chamber. Where interconnections are used, means should be employed to prevent propagation of an incident via the collection piping.~~
- ~~6. When collecting the more sensitive special effects materials, such as black powder, lead azide, etc., a "wet" collector which moistens the dust close to the point of intake and maintains the dust wet until removed for disposal shall be used. Wetting agents shall be compatible with the explosives.~~
- ~~7. Dusts shall be removed from the collection chamber as often as necessary to prevent overloading. The entire system shall be cleaned at a frequency that will eliminate hazardous concentrations of dusts in pipes, tubing and/or ducts.~~

~~**434.10.9 Fans.** Squirrel-cage blowers should not be used for exhausting hazardous fumes, vapors or gases. Only nonferrous fan blades are permitted for fans located within the ductwork and through which hazardous materials are exhausted. Motors shall be located outside the duct.~~

~~434.10.10 Work stations. Work stations for small amounts of special effects materials [less than 1 pound (0.454 kg)] shall be separated by distance, barrier or other means, so fire in one station will not ignite material in the next work station. When necessary, each operator shall be protected by a personnel shield located between the operator and the material being processed. This shield and its support shall be a test design to withstand a blast from the maximum amount of special effects materials allowed behind it.~~

~~434.10.11 Shielding. When shields or structures are needed to protect personnel, the following requirement shall be followed when specific weights of special effects materials in the amount of 1 pound (0.454 kg) or more are involved:~~

Weight of Explosive	Structure of Shield Wall
1-15 pounds (0.454-6.8 kg)	Shield wall constructed of concrete not less than 12 inches (305 mm) thick which is reinforced near both sides by rods not less than 1/2 inch (12.7 mm) in diameter located on maximum centers of 12 inches (305 mm) both horizontally and vertically. The rods must be staggered on opposite faces.
More than 15 pounds (6.8 kg)	The shield wall for the protection of workers must be designed in such a manner to protect against the efforts of not less than 25 percent overload above the expected maximum charge to be processed.

Notes:

- ~~1. One inch (25 mm) of mild steel is equivalent to 1 foot (305 mm) of reinforced concrete.~~
- ~~2. Explosives shall be located not less than 36 inches (914 mm) from the wall and 24 inches (610 mm) above the floor.~~

~~If this personnel protection wall for the required operation involving large quantities of special effects materials becomes so large that it is impractical, the operator must perform the operations by remote control or be protected by a suitably constructed shelter designed with a safety factor of not less than~~

~~4 to withstand the overpressure from the maximum amount of explosives in process.~~

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 12081, 12552, 12553, 13108, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 12000 through 12401 and 12500 through 12725, 13108, 13143, 13211, 18949.2

[6. The SFM proposes to adopt Chapter 5 without modification.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 13143, 13211, 18949.2

[7. The SFM proposes to adopt Chapter 6 without modification.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 6 TYPES OF CONSTRUCTION

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 13143, 13211, 18949.2

[8. The SFM proposes to adopt Chapter 7 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 7
FIRE-RESISTANCE-RATED CONSTRUCTION**

708.1 General. The following wall assemblies shall comply with this section.

1. Separation walls as required by Section 420.2 for Groups I-4, R-1, R-2, R-2.1, and R-3.
2. Walls separating tenant spaces in covered and open mall buildings as required by Section 402.4.2.1.
3. Corridor walls as required by Section 1020.1.
4. Elevator lobby separation as required by Section 3006.2.
5. Egress balconies as required by Section 1019.2
6. *Walls separating enclosed tenant spaces in high-rise buildings and in buildings of Types I, IIA, IIIA, IV or VA construction of Group A, E, H, I, L and R-2.1 occupancies and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal.*

717.5.5 Smoke barriers. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a smoke barrier. Smoke dampers and smoke damper actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. Smoke dampers are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.
2. ~~Smoke dampers are not required in smoke barriers required by Section 407.5 for Group I-2, Condition 2 where the HVAC system is fully ducted in accordance with Section 603 of the International/California Mechanical Code and where buildings are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and equipped with quick response sprinklers in accordance with Section 903.3.2.~~

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 13143, 13211, 18949.2

[9. The SFM proposes to maintain the adoption of SFM Chapter 7A the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 7A
MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE [SFM]**

706A.2 Requirements. *Ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation openings shall be fully covered with metal wire mesh, vents, other materials, or other devices that meet one of the following requirements:*

1. Listed vents complying with ASTM E2886.

1.1 The Ember Intrusion Test shall have no flaming ignition of the cotton material.

1.2 There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

2. Vents complying with all of the following:

2.1. The dimensions of the openings therein shall be a minimum of 1/16th inch (1.6 mm) and shall not exceed 1/8th inch (3.2 mm).

2.2. The materials used shall be noncombustible.

Exception: Vents located under the roof covering, along the ridge of roofs, with the exposed surface of the vent covered by noncombustible wire mesh, may be of combustible materials.

2.3. The materials used shall be corrosion resistant.

706A.3 Ventilation openings on the underside of eaves and cornices: Vents shall not be installed on the underside of eaves and cornices.

Exceptions:

1. Listed vents complying with ASTM E2886

1.1 The Ember Intrusion Test shall have no flaming ignition of the cotton material.

1.2 There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).

1.2. The enforcing agency may accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers.

2.3. Vents complying with the requirements of Section 706A.2 may be installed on the underside of eaves and cornices in accordance with either one of the following conditions:

2.4.3.1 The attic space being ventilated is fully protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 of the California Building Code or,

2.2.3.2 The exterior wall covering and exposed underside of the eave are of noncombustible material, or ignition-resistant materials as determined in accordance with SFM Standard 12-7A-5 Ignition-Resistant Material and the vent is located more than 12 feet from the ground or walking surface of a deck, porch, patio, or similar surface.

707A.5 Enclosed roof eaves and roof eave soffits. The exposed underside of enclosed roof eaves having either a boxed-in roof eave soffit with a horizontal underside, or sloping rafter tails with an exterior covering applied to the underside of the rafter tails, shall be protected by one of the following:

1. Noncombustible material

2. Ignition-resistant material

3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit

4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

5. Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in either of the following:

5.1 SFM Standard 12-7A-3; or

5.2 ASTM E2957

Exceptions: The following materials do not require protection:

1. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails

2. Fascia and other architectural trim boards

707A.6 Exterior porch ceilings. The exposed underside of exterior porch ceilings shall be protected by one of the following:

1. Noncombustible material

2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the ceiling assembly including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. Porch ceiling assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in either of the following:
 - 5.1 SFM Standard 12-7A-3; or
 - 5.2 ASTM E2957

Exception: Architectural trim boards.

707A.7 Floor projections. The exposed underside of a cantilevered floor projection where a floor assembly extends over an exterior wall shall be protected by one of the following:

1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor projection including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor projection assembly that meet the performance criteria in accordance with the test procedures set forth in either of the following:
 - 5.1 SFM Standard 12-7A-3; or
 - 5.2 ASTM E2957

Exception: Architectural trim boards.

707A.8 Underfloor protection. The underfloor area of elevated or overhanging buildings shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:

1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
5. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in either of the following:
 - 5.1 SFM Standard 12-7A-3; or
 - 5.2 ASTM E2957

Exception: Heavy timber structural columns and beams do not require protection.

707A.9 Underside of appendages. When required by the enforcing agency the underside of overhanging appendages shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:

1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

5. The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in either of the following:
5.1 SFM Standard 12-7A-3; or
5.2 ASTM E2957

Exception: Heavy timber structural columns and beams do not require protection.

Notation:

Authority: Health and Safety Code Sections 13108, 13108.5, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

[10. The SFM proposes to adopt Chapter 8 without modification.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 8
INTERIOR FINISHES**

806.4 Acceptance criteria and reports. Where required to exhibit improved fire performance, curtains, draperies, fabric hangings and similar combustible decorative materials suspended from walls or ceilings shall be tested by an approved agency and meet the flame propagation performance criteria of Test 1 or 2, as appropriate, of NFPA 701, or exhibit a maximum heat release rate of 100 kW when tested in accordance with NFPA 289, using the 20 kW ignition source shall be flame resistant in accordance with the provisions set forth in CCR, Title 19, Division 1, Chapter 8. Reports of test results shall be prepared in accordance with the test method used and furnished to the building official upon request.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 13143, 13211, 18949.2

[11. The SFM proposes to adopt Chapter 9 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 9
FIRE PROTECTION SYSTEMS**

903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.

Exceptions:

1. Existing Group R-3 occupancies converted to Group R-3.1 occupancies not housing bedridden clients, not housing nonambulatory clients above the first floor and not housing clients above the second floor.
2. Existing Group R-3 occupancies converted to Group R-3.1 occupancies housing only one bedridden client and complying with Section ~~425.8.3-34~~ 435.8.3.3.
3. Pursuant to Health and Safety Code Section 13113 occupancies housing ambulatory children only, none of whom are mentally ill ~~or mentally retarded children or children with intellectual disabilities~~, and the buildings or portions thereof in which such children are housed are not more than two stories in height, and buildings or portions thereof housing such children have an automatic fire alarm system activated by approved smoke detectors.

4. Pursuant to Health and Safety Code Section ~~13143.6~~ ^{13143.6} occupancies licensed for protective social care which house ambulatory clients only, none of whom is a child (under the age of 18 years), or who is elderly (65 years of age or over).

~~When not used in accordance with Section 504.2 or 506.3 for height increases or for area increases, an automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be allowed in Group R-2.1 occupancies.~~

~~An automatic sprinkler system designed in accordance with Section 903.3.1.3 shall not be utilized in Group R-2.1 or R-4 occupancies.~~

~~903.2.8.2 Group R-4 Condition 1 Reserved.~~ An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-4 Condition 1 occupancies.

~~903.2.8.3 Group R-4 Condition 2.~~ An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in Group R-4 Condition 2 occupancies. Attics shall be protected in accordance with Section 903.2.8.3.1 or 903.2.8.3.2.

903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one- and two-family dwellings, Group R-3, ~~Group R-4 Condition 1~~ and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D as amended in Chapter 35.

904.11.3 Testing and maintenance. Automatic water mist systems shall be tested and maintained in accordance with California Code of Regulations, Title 19, Division 1, Chapter 5 and the ~~International~~ California Fire Code.

~~904.13 Domestic cooking systems in Group I-2 Condition 1 Reserved.~~ In Group I-2 Condition 1, occupancies where cooking facilities are installed in accordance with Section 407.2.6 of this code, the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.

~~904.13.2 Portable fire extinguishers for domestic cooking equipment in Group I-2 Condition 1 Reserved.~~ A portable fire extinguisher complying with Section 906 shall be installed within a 30-foot (9144 mm) distance of travel from domestic cooking appliances.

907.2.6.4. Large family day-care. Every large family day-care home shall be provided with at least one manual fire alarm box at a location approved by the authority having jurisdiction. Such device shall actuate a fire alarm signal, which shall be audible throughout the facility at a minimum level of 15 db above ambient noise level. These devices need not be interconnected to any other fire alarm device, have a control panel or be electrically supervised or provided with emergency power. Such device or devices shall be attached to the structure and must be a device that is listed and approved by the Office of the State Fire Marshal.

907.2.11.3 Installation near cooking appliances. Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by Section 907.2.11.1 or 907.2.11.2:

1. Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking appliance.
2. Ionization smoke alarms with an alarm silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking appliance.
3. Photoelectric smoke alarms shall not be installed less than 6 feet (1829 mm) horizontally from a permanently installed cooking appliance. See Section 907.2.11.8.

907.2.11.4 Installation near bathrooms. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section 907.2.11.1 or 907.2.11.2. See Section 907.2.11.8.

907.4.2.2 Height. The height of the manual fire alarm boxes shall be not less than 42 inches (1067 mm) and a not more than 48 inches (1372 mm) measured vertically, from the floor level to the highest point of the activating handle or lever of the box. Manual fire alarm boxes shall also comply with Section 11B-309.4.

Exception: [DSA-AC] In existing buildings there is no requirement to retroactively relocate existing manual fire alarm boxes to a minimum of 42 inches (1219 mm) and a maximum of 48 inches (1372 mm) from the floor level to the activating handle or lever of the box.

907.5.2.1 Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm. In Group I-2 occupancies, audible appliances located in patient areas shall be only chimes or similar sounding appliances for alerting staff. See Section 907.6.5 907.6.6.

Exceptions:

1. Audible alarm notification appliances are not required in ~~critical-care patient~~ areas of Group I-2 ~~Condition-2~~ occupancies that are in compliance with Section 907.2.6, Exception 2.
2. A visible alarm notification appliance installed in a nurses' control station or other continuously attended staff location in a Group I-2 ~~Condition-2~~ suite shall be an acceptable alternative to the installation of audible alarm notification appliances throughout the suite in Group I-2 ~~Condition-2~~ occupancies that are in compliance with Section 907.2.6, Exception 2.
3. Where provided, audible notification appliances located in each occupant evacuation elevator lobby in accordance with Section 3008.9.1 shall be connected to a separate notification zone for manual paging only.

907.5.2.2.4 Emergency voice/alarm communication captions. Where stadiums, arenas and grandstands ~~are required to caption audible public announcements in accordance with Section 1108.2.7.3~~ have 15,000 fixed seats or more and provide audible public announcements with prerecorded or real-time captions, the emergency/voice alarm communication system shall be captioned. Prerecorded or live emergency captions shall be from an approved location constantly attended by personnel trained to respond to an emergency.

909.20.4.2 Relief vent. A relief vent capable of discharging a minimum of 2,500 cubic feet per minute (1180 L/s) of air at the design pressure difference shall be located in the upper portion of such pressurized exit stairway or ramp enclosures.

Exception: When approved by the enforcing agency, other engineered design methods capable of discharging a minimum of 2,500 cubic feet per minute (1180 L/s) of air at the design pressure difference shall be permitted.

[Editorial Note: Remove existing amendments to Section 910.1 through 910.4.7. Model code now matches old CA amendments.]

910.1 General. Where required by this code, smoke and heat vents or mechanical smoke removal ~~removal~~ systems shall conform to the requirements of this section.

910.2 Where required. Smoke and heat vents or a mechanical smoke removal system ~~or mechanical smoke removal system~~ shall be installed as required by Sections 910.2.1 and 910.2.2. ~~In occupied portions of a building where the upper surface of the story is not a roof assembly, a mechanical smoke removal system in accordance with Section 910.4 shall be installed~~

Exceptions:

1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an approved automatic sprinkler system.
2. Smoke and heat removal shall not be required in areas of buildings equipped with early suppression fast-response (ESFR) sprinklers.
- ~~1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an approved automatic sprinkler system.~~
- ~~2. Where areas of buildings are equipped with early suppression fast response (ESFR) sprinklers, smoke and heat removal shall not be required within these areas.~~
3. Smoke and heat removal shall not be required in areas of buildings equipped with control mode special application sprinklers with a response time index of 50 (m · s)^{1/2} or less that are listed to control a fire in stored commodities with 12 or fewer sprinklers.

910.2.1 Group F-1 or S-1. Smoke and heat vents installed in accordance with Section 910.3 or a mechanical smoke removal system installed in accordance with Section 910.4 shall be installed in ~~Smoke and heat vents installed in accordance with Section 910.3 or a mechanical smoke removal system installed in accordance with Section 910.4~~ shall be installed in buildings and portions thereof used as a Group F-1 or S-1 occupancy having more than 50,000

square feet (4645 m²) of undivided area. In occupied portions of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 where the upper surface of the story is not a roof assembly, a mechanical smoke removal system in accordance with Section 910.4 shall be installed.

Exception: Group F-1 aircraft manufacturing buildings and Group S-1 aircraft repair hangars.

910.2.2 High-piled combustible storage. Smoke and heat removal required by Table 3206.2 of the International Fire Code for buildings and portions thereof containing high-piled combustible storage shall be installed in accordance with Section 910.3 in unsprinklered buildings. In buildings and portions thereof containing high-piled combustible storage equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, a smoke and heat removal system shall be installed in accordance with Section 910.3 or 910.4. ~~Smoke and heat removal required by Table 3206.2 of the California Fire Code, for buildings and portions thereof containing high-piled combustible storage shall be installed in accordance with Section 910.3 in unsprinklered buildings. In buildings and portions thereof containing high-piled combustible storage equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 a smoke and heat removal system shall be installed in accordance with Section 910.3 or 910.4.~~ In occupied portions of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the upper surface of the story is not a roof assembly, a mechanical smoke removal system in accordance with Section 910.4 shall be installed.

910.3 Smoke and heat vents. The design and installation of smoke and heat vents shall be in accordance with Sections 910.3.1 through 910.3.3.

~~**910.3 Smoke and heat vents.** The design and installation of smoke and heat vents shall be in accordance with Sections 910.3.1 through 910.3.3.~~

910.3.1 Listing and labeling ~~Listing and labeling.~~ Smoke and heat vents shall be listed and labeled to indicate compliance with UL 793, or FM 4430 ~~FM 4430~~, or ICC ES AC 331, ~~or UL 793~~.

910.3.2 Smoke and heat vent ~~Smoke and heat vent~~ **locations.** Smoke and heat vents shall be located 20 feet (6096 mm) or more from adjacent lot lines and fire walls and 10 feet (3048 mm) or more from fire barriers. Vents shall be uniformly located within the roof in the areas of the building where the vents are required to be installed by Section 910.2 with consideration given to roof pitch, sprinkler location and structural members.

910.3.3 Smoke and heat vents area. The required aggregate area of smoke and heat vents shall be calculated as follows:

For buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1:

$$A_{VR} = V/9000 \quad (\text{Equation 9-4})$$

where:

A_{VR} = The required aggregate vent area (ft²)

V = Volume (ft³) of the area that requires smoke removal

For unsprinklered buildings:

$$A_{VR} = A_{FA}/50 \quad (\text{Equation 9-5})$$

where:

A_{VR} = The required aggregate vent area (ft²)

A_{FA} = The area of the floor of the area that requires smoke removal.

~~**910.3.3 Smoke and heat vents area.** The required aggregate area of smoke and heat vents shall be calculated as follows:~~

~~For buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1:~~

~~$$A_{VR} = V/9000 \quad (\text{Equation 9-4})$$~~

~~Where:~~

~~A_{VR} = the required aggregate vent area (ft²)~~

~~V = volume (ft³) of the area that requires smoke removal~~

~~For unsprinklered buildings:~~

~~$$A_{VR} = A_{FA}/50 \quad (\text{Equation 9-5})$$~~

Where:

A_{VR} = the required aggregate vent area (ft^2)

A_{FA} = the area of the floor of the area that requires smoke removal.

910.4 Mechanical smoke removal systems ~~removal systems~~. Mechanical smoke removal systems shall be designed and installed in accordance with Sections 910.4.1 through 910.4.7. ~~Engineered mechanical smoke removal systems shall be designed and installed in accordance with Sections 910.4.1 through 910.4.7.~~

910.4.1 Automatic sprinklers required. The building shall be equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

~~910.4.1 Automatic sprinklers required. The building shall be equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.~~

910.4.2 Exhaust fan construction. Exhaust fans that are part of a mechanical smoke removal system shall be rated for operation at 221°F (105°C). Exhaust fan motors shall be located outside of the exhaust fan air stream.

~~910.4.2 Exhaust fan construction. Exhaust fans that are part of a mechanical smoke removal system shall be rated for operation at 105 deg. C. Exhaust fan motors shall be located outside of the exhaust fan air stream.~~

910.4.3 System design criteria. The mechanical smoke removal system shall be sized to exhaust the building at a minimum rate of two air changes per hour based upon the volume of the building or portion thereof without contents. The capacity of each exhaust fan shall not exceed 30,000 cubic feet per minute (14.2 m3/sec).

~~910.4.3 System design criteria. The mechanical smoke removal system shall be sized to exhaust the building at a minimum rate of two air changes per hour based upon the volume of the building or portion thereof without contents. The capacity of each exhaust fan shall not exceed 30,000 cubic feet per minute.~~

910.4.3.1 Makeup air. Makeup air openings shall be provided within 6 feet (1829 mm) of the floor level. Operation of makeup air openings shall be manual or automatic. The minimum gross area of makeup air inlets shall be 8 square feet per 1,000 cubic feet per minute (0.74 m2 per 0.4719 m3/s) of smoke exhaust.

~~910.4.3.1 Make-up air. Make-up air openings shall be provided within six feet (add metric) of the floor level. Operation of makeup air openings shall be manual or automatic. The minimum gross area of make-up air inlets shall be 8 ft² per 1000 cfm of smoke exhaust.~~

910.4.4 Activation. The mechanical smoke removal system shall be activated by manual controls only.

~~910.4.4 Activation. The mechanical smoke removal system shall be activated by manual controls only.~~

910.4.5 Manual control location. Manual controls shall be located so as to be accessible to the fire service from an exterior door of the building and protected against interior fire exposure by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

~~910.4.5 Manual control location. Manual controls shall be located so as to be accessible to the fire service from an exterior door of the building and be protected against interior fire exposure by not less than 1-hour fire barriers constructed in accordance with Section 707 of the California Building Code or horizontal assemblies constructed in accordance with Section 712 of the California Building Code, or both.~~

910.4.6 Control wiring. Wiring for operation and control of mechanical smoke removal systems shall be connected ahead of the main disconnect in accordance with Section 701.12E of the NFPA 70 California Electric Code and be protected against interior fire exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than 15 minutes.

~~910.4.6 Control wiring. Wiring for operation and control of mechanical smoke removal systems shall be connected ahead of the main disconnect in accordance with Section 701.12E of NFPA 70 and be protected against interior fire exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than 15 minutes.~~

910.4.7 Controls. Where building air-handling and mechanical smoke removal systems are combined or where independent building air-handling systems are provided, fans shall automatically shut down in accordance with the International California Mechanical Code. The manual controls provided for the smoke removal system shall have the capability to override the automatic shutdown of fans that are part of the smoke removal system.

~~910.4.7 Controls. Where building air-handling and mechanical smoke removal systems are combined or where independent building air-handling systems are provided, fans shall automatically shut down in accordance with the~~

~~International Mechanical Code. The manual controls provided for the smoke removal system shall have the capability to override the automatic shutdown of fans that are part of the smoke removal system.~~

SECTION 915 CARBON MONOXIDE DETECTION

915.1 General. Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6915.7. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 14 of the International Fire Code this section.

Pursuant to Health and Safety Code Section 17926, carbon monoxide detection shall be installed in all existing Group R buildings as required in this section.

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I-1, I-2, I-4 and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

915.2 Locations. Where required by Section 915.1.1, carbon monoxide detection shall be installed in accordance with the manufacturer's published instructions in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units in the following locations:

1. outside Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
2. On every occupiable level of a dwelling unit, including basements.
3. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.34.

915.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exceptions:

1. Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.
2. Carbon monoxide alarms in Group R occupancies shall be permitted to receive their primary power from other power sources recognized for use by NFPA 720.
3. Carbon monoxide alarms in Group R occupancies shall be permitted to be battery-powered or plug-in with a battery backup in existing buildings built prior to January 1, 2011, under any of the following conditions:
 - 3.1. No construction is taking place.
 - 3.2. Repairs or alterations do not result in the removal of interior wall and ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.
 - 3.3. Repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.
 - 3.4. Work is limited to the installation, alteration or repair of plumbing, mechanical or electrical systems, which do not result in the removal of interior wall or ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.

915.4.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034.

No person shall install, market, distribute, offer for sale, or sell any carbon monoxide device in the State of California unless the device and instructions have been approved and listed by the Office of the State Fire Marshal.

915.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 2034 and UL 217.

Combination carbon monoxide/smoke alarms shall comply with Section 915, and all requirements for listing and approval by the Office of the State Fire Marshal for smoke alarms.

915.4.4 Interconnection. Where more than one carbon monoxide alarm is required to be installed within a dwelling unit or within a sleeping unit in Group R occupancies, the alarms shall be interconnected in a manner that activation of one alarm shall activate all of the alarms in the individual unit.

Exception: Interconnection is not required in existing buildings, built prior to January 1, 2011, under any of the following conditions:

1. Physical interconnection is not required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.
2. No construction is taking place.
3. Repairs or alterations do not result in the removal of interior wall and ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.
4. Repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.
5. Work is limited to the installation, alteration or repair of plumbing, mechanical, or electrical systems, which do not result in the removal of interior wall or ceiling finishes exposing the structure in areas/spaces where carbon monoxide alarms are required.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2 or NFPA 720. These locations supersede the locations specified in NFPA 720.

915.5.3 Combination detectors. Combination carbon monoxide/smoke detectors installed in carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide detectors, provided they are listed in accordance with UL 2075 and UL 268.

Combination carbon monoxide/smoke detectors shall comply with all requirements for listing and approval by the Office of the State Fire Marshal for smoke alarms.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with the International Fire Code NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

915.7 Visible alarms. In buildings containing covered multifamily dwellings as defined in Chapter 2, all required carbon monoxide alarms shall be equipped with the capability to support visible alarm notification in accordance with NFPA 720.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2, Public Education Code 17074.50

References: Health and Safety Code Sections 13143, 13211, 18949.2

[12. The SFM proposes to adopt Chapter 10 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 10 MEANS OF EGRESS

1004.3 Posting of occupant load. Every room or space that is an assembly occupancy which is used for assembly, classroom, dining, drinking, or similar purposes having an occupant load of 50 or more shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or the owner's authorized agent.

1005.3.1 Stairways. The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the stairways serving that story.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

2. Facilities with smoke-protected assembly seating shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for exit access or exit stairways where the entire path for means of egress from the seating to the exit discharge is provided with a smoke control system complying with Section 909.

3. Facilities with outdoor smoke-protected assembly seating shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for exit access or exit stairways where the entire path for means of egress from the seating to the exit discharge is open to the outdoors.

~~2.4. For Group H-1, H-2, H-3 and H-4 occupancies the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.7 inches (7.62 mm) per occupant.~~

~~3.5. For rooms or spaces used for assembly purposes without smoke protection see Means of egress complying with Section 402.8.1029.~~

1006.3.2 Single exits. A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 1006.3.2(1) or 1006.3.2(2).

2. Rooms, areas and spaces, at the level of exit discharge, complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.

3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.

4. Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.

5. Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:

5.1. The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.

5.2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.

1006.3.2.1 Mixed occupancies. Where one exit, or exit access stairway or ramp providing access to exits at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1006.3.2(1) or Table 1006.3.2(2) for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.2(2) ~~indicated in Table 1021.2(2)~~ for each occupancy does not exceed one. Where dwelling units are located on a story with other occupancies, the actual number of dwelling units divided by four plus the ratio from the other occupancy does not exceed one. ~~Where dwelling units are located on a story with other occupancies, the actual number of dwelling units divided by 4 plus the ratio from the other occupancy does not exceed one.~~

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H, and L.

Exception: Group A occupancy courtrooms are permitted to utilize delayed egress locks.

~~in b~~ Buildings that are with delayed egress locks shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 ~~or~~ and an approved automatic smoke ~~or heat~~ detection system installed in accordance with Section 907. The delayed egress locking system shall be installed and operated in accordance with all of the following: ~~Delayed egress devices shall conform to all of the following:~~

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the automatic sprinkler system or automatic fire detection system, allowing immediate, free egress.

2. The delay electronics of the delayed egress locking system shall deactivate upon loss of *electrical* power controlling the lock or lock mechanism, allowing immediate free egress, ~~to any~~ to any one of the following:

2.1 *The egress-control device itself.*

2.2 *The smoke detection system.*

2.3 *Means of egress illumination as required by Section 40061008*

3. The delayed egress locking system shall have the capability of being deactivated at the fire command center and—~~a switch located in an approved location~~ approved locations.

4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only. *The time delay established for each egress-control device shall not be field adjustable. For applications listed in Section 1.9.1 regulated by the Division of the State Architect- Access Compliance, see Chapter 11B*

Exception: ~~Where approved~~ *In facilities housing Alzheimer's or dementia clients*, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall not pass through more than one delayed egress locking system.

Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.

~~5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS. "KEEP PUSHING. THIS DOOR WILL OPEN IN 15 [30] SECONDS. ALARM WILL SOUND." Sign lettering shall be at least 1 inch (25 mm) in height and shall have a stroke of not less than 1/8 inch (3.2 mm).~~

~~5.1. A tactile sign shall also be provided in Braille and raised characters, which complies with Chapter 11B.~~

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:

6.1. For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS ~~"KEEP PUSHING. THIS DOOR WILL OPEN IN 15 [30] SECONDS. ALARM WILL SOUND."~~

6.2. For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS

6.3. ~~The sign shall comply with the visual character requirements in ICC A117.1.~~ Sign lettering shall be at least 1 inch (25 mm) in height and shall have a stroke of not less than 1/8 inch (3.2 mm).

Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

6.4. A tactile sign shall also be provided in Braille and raised characters, which complies with Chapter 11B

7. Emergency lighting shall be provided on the egress side of the door.

8. The delayed egress locking system units shall be listed in accordance with UL 294.

~~79. Actuation of the panic bar or other door-latching hardware shall activate an audible signal at the door.~~

~~810. The unlatching shall not require more than one operation.~~

~~911. Regardless of the means of deactivation, relocking of the egress-control device shall be by manual means only at the door.~~

1010.1.9.8 Sensor release of electrically locked egress doors. The electric locks on sensor released doors located in a means of egress in buildings with an occupancy in Group A, B, ~~E, I-1, I-2, I-4, M, R-1, or R-2, or R-2.1~~ and entrance doors to tenant spaces in occupancies in Groups A, B, I-2, M, R-1 and R-2, and entrance doors to

tenant spaces in occupancies in Group A, B, ~~E, I-1, I-2, I-4, M, R-1, or R-2~~, or R-2.1 are permitted where installed and operated in accordance with all of the following criteria:

1. The sensor shall be installed on the egress side, arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to the lock or locking system shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock— independent of other electronics— and the doors shall remain unlocked for not less than 30 seconds.
4. Activation of the building fire alarm system, where provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler system or fire detection system, where provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. The door locking system units shall be listed in accordance with UL 294.

1011.15 Ships ladders. Ships ladders are permitted to be used in lifeguard towers not open to the public and Group I-3 as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 square feet (23 m²) with not more than three occupants and for access to unoccupied roofs. The minimum clear width at and below the handrails shall be 20 inches (508 mm).

1013.6.3 Power source. Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. Approved exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 ~~Condition 2~~ exit sign illumination shall not be provided by unit equipment battery only.

1026.4.2 Number of exits. The refuge area into which a horizontal exit leads shall be provided with exits adequate to meet the occupant requirements of this chapter, but not including the added occupant load imposed by persons entering the refuge area through horizontal exits from other areas. In other than I-3 Occupancies, ~~Not~~ less than one refuge area exit shall lead directly to the exterior or to an interior exit stairway or ramp.

Exception: The adjoining compartment shall not be required to have a stairway or door leading directly outside, provided the refuge area into which a horizontal exit leads has stairways or doors leading directly outside and are so arranged that egress shall not require the occupants to return through the compartment from which egress originates.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.65, 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 13143, 13211, 18949.2

[13. The SFM proposes to not adopt Chapters 11.]

(Note: This chapter will not be printed in the California Building Code.)

CHAPTER 11 ACCESSIBILITY

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[14. The SFM proposes to not adopt Chapter 11A.]

**CHAPTER 11A
HOUSING ACCESSIBILITY**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[15. The SFM proposes to not adopt Chapter 11B.]

**CHAPTER 11B
ACCESSIBILITY TO PUBLIC BUILDINGS, PUBLIC ACCOMMODATIONS,
COMMERCIAL BUILDINGS AND PUBLICLY FUNDED HOUSING**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[16. The SFM proposes to only adopt Sections 1203.5, 1206, 1208 and 1209 of Chapter 12 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 12
INTERIOR ENVIRONMENT**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[17. The SFM proposes to not adopt Chapter 13.]

**CHAPTER 13
ENERGY EFFICIENCY**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[18. The SFM proposes to only adopt Sections 1401, 1402, 1403.4, 1403.5, 1404, 1405, 1406, 1407 and 1408 of Chapter 14 without amendment.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 14
EXTERIOR WALLS**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[19. The SFM proposes to only adopt Sections 1501, 1502, 1505, 1506, 1507, 1509 and 1511 of Chapter 15.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 15
ROOF ASSEMBLIES AND ROOFTOP STRUCTURES**

[Editorial Note: 2013 CBC amendments for Section 1505.8 is being repealed. 1505.8 shall remain in CBC with model code language.]

~~**1505.8 Building integrated photovoltaic systems.** Rooftop installed building integrated photovoltaic systems that serve as the roof covering shall be listed and labeled for fire classification in accordance with Section 1505.1.~~

[Editorial Note: 2013 CBC amendments for Section 1505.9 is being repealed. 1505.9 shall remain in CBC with model code language.]

~~**1505.9 Photovoltaic panels and modules.** Effective January 1, 2015, Rooftop mounted photovoltaic systems shall be tested, listed and identified with a fire classification in accordance with UL 1703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.~~

[Editorial Note: 2013 CBC amendments for Section 1510.7.2 is being repealed. 1510.7.2 shall remain in CBC with model code language.]

~~**1510.7.2 Fire classification.** Rooftop mounted photovoltaic systems shall have the fire classification as the roof assembly required by Section 1505.9.~~

[Editorial Note: 2013 CBC amendments for Section 1512.1.1 is being deleted as section has been removed.]

~~**1511.1.1 Structural fire resistance.** The structural frame and roof construction supporting the load imposed upon the roof by the photovoltaic panels/modules shall comply with the requirements of Table 601 and Section 602.1.~~

Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72, 1569.78, 11159.2, 13108, 13131.5, 13133, 13143, 13108.5(a), 13210, 13211, 18949.2, Government Code Section 51189.

References: Health and Safety Code Sections 13143, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204.

[20. The SFM proposes to not adopt Chapters 16]

**CHAPTER 16
STRUCTURAL DESIGN**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[21. The SFM proposes to not adopt Chapters 17.]

**CHAPTER 17
STRUCTURAL TESTS AND SPECIAL INSPECTIONS**

Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72, 1569.78, 11159.2, 13108, 13131.5, 13133, 13143, 13108.5(a), 13210, 13211, 18949.2, Government Code Section 51189.

References: Health and Safety Code Sections 13143, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204.

[22. The SFM proposes to not adopt Chapters 18 through 20.]

**CHAPTER 18
SOILS AND FOUNDATIONS**

**CHAPTER 19
CONCRETE**

**CHAPTER 20
ALUMINUM**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[23. The SFM proposes to only adopt Section 2113.9.2 of Chapter 21 without modification.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 21
MASONRY**

Notation:

Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

[24. The SFM proposes to only adopt Section 2113A.9.2 of Chapter 21A without modification.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 21A
MASONRY**

Notation:

Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

[25. The SFM proposes to not adopt Chapter 22.]

**CHAPTER 22
STEEL**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[26. The SFM proposes to only adopt Sections 2303.2 – 2303.2.9 of Chapter 23 without amendment.]

**CHAPTER 23
WOOD**

Notation:

Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

[27. The SFM proposes to adopt Chapter 24 without amendment.]

**CHAPTER 24
GLASS AND GLAZING**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[28. The SFM proposes to not adopt Chapter 25.]

**CHAPTER 25
GYPSUM BOARD AND PLASTER**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[29. The SFM proposes to adopt Chapter 26 without modifications.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 26
PLASTIC**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[30. The SFM proposes to adopt Chapter 27 without modifications.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 27
ELECTRICAL**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 13210, 13211, 17921, 18949.2

References: Health and Safety Code Sections 13143, 13211, 18949.2

[31. The SFM proposes to adopt Chapter 28 without modifications.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 28
MECHANICAL SYSTEMS**

Notation:

Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

[32 The SFM proposes to not adopt Chapter 29.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 29
PLUMBING SYSTEMS**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[33. The SFM proposes to adopt Chapter 30 without modifications.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[34. The SFM proposes to only adopt Sections 3101, 3102, 3103, 3104, 3105, 3105.4, 3106, 3110 and 3111 of Chapter 31 without modifications.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 31
SPECIAL CONSTRUCTION

3102.6.1.1 Membrane. A membrane meeting the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 704 *shall be flame resistant in accordance with the provisions set forth in CCR, Title 19, Division 1, Chapter 8. Tops and sidewalls shall be made either from fabric which has been flame resistant treated with an approved exterior chemical process by an approved application concern, or from inherently flame resistant fabric approved and listed by the State Fire Marshal (see CCR, Title 19, Division 1, Chapter 8).* The membrane shall be permitted to be used as the roof or as a skylight on buildings of Type IIB, III, IV and V construction, provided the membrane is not less than 20 feet (6096 mm) above any floor, balcony or gallery.

3111.2.2.6 Locations of DC conductors. *Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays. DC wiring shall be installed in metallic conduit or raceways when located within enclosed spaces in a building. Conduit shall run along the bottom of load bearing members.*

3111.2.3.4 Locations of DC conductors. *Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays. DC wiring shall be installed in metallic conduit or raceways when located within enclosed spaces in a building. Conduit shall run along the bottom of load bearing members.*

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[35. The SFM proposes to adopt Chapter 32 without amendment.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

CHAPTER 32
ENCROACHMENT INTO PUBLIC RIGHT-OF-WAY

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[36. The SFM proposes to adopt Chapter 33 without modifications.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION**

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

**CHAPTER 34
RESERVED**

[37. The SFM proposes to adopt Chapter 35 with the following amendments and California regulations.]

See Item 46 for existing SFM amendments and California regulations that are brought forward without modification.

**CHAPTER 35
REFERENCED STANDARDS**

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
<u>E2886-14</u>	<u>Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingent</u>	<u>706A.2, 706A.3</u>

***ASTM E2886, Amended Sections as follows:**

Revise Sections 10.1.8.3, 10.1.8.4, and 10.1.8.5 as follows:

10.1.8.3 ~~When requested, report the temperatures of the unexposed temperatures on the unexposed side of the vent during the entire optional Insulation Test of the Flame Intrusion.~~

10.1.8.4 ~~When requested, the maximum temperature reached during the test by any one of the unexposed surface thermocouples during the entire optional Insulation Test of the Flame Intrusion Test.~~

10.1.8.5 ~~When requested, the maximum average temperature reached during the test by all of the unexposed surface thermocouples during the entire optional Insulation Test of the Flame Intrusion Test.~~

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

E2957-15 Standard Test Method for Flammability and Resistance to707A.5, 707A.6, 70A.7, 707A.8, 707A.9
Wildfire Penetrations of Eaves, Soffits and Other Projections

***ASTM E2957, Amended Sections as follows:**

Add new Section 12.5 as follows:

12.5 Conditions of Acceptance: Should one of the three replicates fail to meet the Conditions of Acceptance, three additional tests may be run. All of the additional tests must meet the Conditions of Acceptance.
1. Absence of flame penetration of the eaves or horizontal projection assembly at any time.
2. Absence of structural failure of the eaves or horizontal projection subassembly at any time.
3. Absence of sustained combustion of any kind at the conclusion of the 40-minute test.

25-13 CA California NFPA 25 Edition (Based on the 2011 Edition)
Inspection, Testing and Maintenance of Water-based Fire Protection SystemsChapter 31F

NFPA

13-13 16 Installation of Sprinkler Systems
13D-13 16 Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes
13R-13 16 Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height
14-13 43 Installation of Standpipes and Hose Systems
20-13 16 Standard for the Installation of Stationary Pumps for Fire Protection
22-13 43 Water Tanks for Private Fire Protection
24-13 16 Installation of Private Fire Service Mains and Their Appurtenances
31-11 44 Installation of Oil-burning Equipment
37-10 15 *Installation and Use of Stationary Combustion Engines and Gas Turbines*
52-13 43 Vehicular Gaseous, ~~Gaseous~~ Fuel System Code
54-12 15 *National Fuel Gas Code*
61-13 43 Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities
72-13 16 National Fire and Signaling ~~and Signaling~~ Alarm Code
80-13 16 Fire Doors and Other Opening Protectives

[Editor's Note: Keep model code NFPA 92, repeal CA amendment for NFPA 92.]

92-12 15 Standard for Smoke Control Systems
~~92-12 Standard for Smoke Control Systems~~

99-15 42 Health Care Facilities Code
101- 15 42 Life Safety Code
105-13 16 Installation of Smoke Door Assemblies and Other Opening Protectives
110-13 16 Emergency and Standby Power Systems
111-13 16 Stored Electrical Energy Emergency and Standby Power Systems
120-15 Fire Prevention and Control in Coal Mines ~~Fire Prevention and Control in Coal Mines~~
211-13 43 Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances
259-13 43 Test Method for Potential Heat of Building Materials
275-13 43 Standard Method of Fire Tests for the Evaluation of Thermal Barriers Used Over Foam Plastic Insulation
285-12 42 Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-Bearing Wall Assemblies Containing Combustible Components
289-13 43 Standard Method of Fire Test for Individual Fuel Packages
409-11 16 Aircraft Hangars
654-13 43 Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids
720-15 42 Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment
2001-15 42 Clean Agent Fire Extinguishing Systems

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[38. The SFM proposes to not adopt Appendix A and B.]

APPENDIX A
EMPLOYEE QUALIFICATIONS

APPENDIX B
BOARD OF APPEALS

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[39. The SFM proposes to adopt Appendix C without amendment.]

APPENDIX C
GROUP U – AGRICULTURAL BUILDINGS

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[40. The SFM proposes to not adopt Appendices D through H.]

APPENDIX D
FIRE DISTRICTS

APPENDIX E
SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

APPENDIX F
RODENT PROOFING

APPENDIX G
FLOOD RESISTANT CONSTRUCTION

APPENDIX H
SIGNS

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[41. The SFM proposes to only adopt Sections I101, I102 and I103 of Appendix I without amendment.]

APPENDIX I
PATIO COVERS

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[42. The SFM proposes to not adopt Appendix J through M.]

APPENDIX J
EXCAVATION AND GRADING

APPENDIX K
GROUP R-3 AND GROUP R-3.1 OCCUPANCIES PROTECTED BY THE
FACILITIES OF THE CENTRAL VALLEY FLOOD PROTECTION PLAN

APPENDIX L
EARTHQUAKE RECORDING INSTRUMENTATION

APPENDIX M
TSUNAMI-GENERATED FLOOD HAZARD

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[43. Incorporation and correlation of NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems into the California Codes]

SECTION 433443
FIXED GUIDEWAY TRANSIT AND PASSENGER RAIL SYSTEMS [SFM]

433.1443.1 General.

433.1.1443.1.1 Scope. *The provisions of this section and NFPA 130 shall apply to buildings or structures defined as stations for fixed guideway transit and passenger rail systems and shall supersede other similar requirements in other sections of this code.*

Note: *See Chapter 35 for California Amendments to NFPA 130.*

433.1.2 Definitions. *For the purpose of this section, certain terms are defined as follows:*

AT-GRADE STATION. *Any at-grade or unroofed station other than an elevated or underground station.*

ELEVATED STATION. *A station greater than one story not otherwise defined as an at-grade or underground station.*

EMERGENCY MANAGEMENT PANEL (EMP). ~~The location where all necessary on-site control and communication facilities are consolidated for effective response to emergency situations.~~

ENCLOSED STATION. ~~A station or portion thereof that does not meet the definition of an open station.~~

ENGINEERING ANALYSIS (FIRE HAZARD/FIRE RISK ASSESSMENT). ~~An analysis that evaluates all various factors that affect the fire safety of the system or component. A written report of the analysis shall indicate the fire protection method(s) recommended that demonstrates a level of fire safety commensurate with this standard.~~

FIXED GUIDEWAY TRANSIT SYSTEM(the system). ~~An automated driverless or manually controlled electrified transportation system, utilizing a fixed guideway, operating on right-of-way for the mass movement of passengers and consisting of its fixed guideways, transit vehicles and other rolling stock; power system; buildings; maintenance facilities; stations; transit vehicle yard; and other stationary and movable apparatus, equipment, appurtenances and structures.~~

GUIDEWAY. ~~That portion of the system on which the transit vehicles operate.~~

OPEN STATION. ~~A station that is constructed in such a manner that it is open to the atmosphere, and smoke and heat are allowed to disperse directly into the atmosphere. The following enclosed areas in open stations are permitted but limited to:~~

- ~~1. Ticket/pass booths not exceeding 150 square foot (13.9 m²) in area.~~
- ~~2. Mechanical and electrical spaces typically not used for human occupancy and necessary for the operation of a fixed guideway transit system. Such spaces shall be limited to two per level.~~
- ~~3. Restrooms not exceeding 150 square foot (13.9 m²) in area. A maximum of four restrooms are permitted per level.~~

OPERATIONS CONTROL CENTER (OCC) (CENTRAL CONTROL). ~~The operation center where the authority controls and coordinates the system-wide movement of passengers and trains from which communication is maintained with supervisory and operating personnel of the authority, and with participating agencies when required.~~

POINT OF SAFETY. ~~An enclosed fire exit that leads to a public way or safe location outside the structure, or an at-grade point beyond any enclosing structure, or other area that affords adequate protection for passengers.~~

POWER SUBSTATION. ~~The location of electric equipment that does not generate electricity but receives and converts or transforms generated energy to usable electric energy.~~

STATION. ~~A place designated for the purpose of loading and unloading passengers, including patron service areas and ancillary spaces associated with the same structure.~~

STATION PLATFORM. ~~The area of a station used primarily for loading and unloading transit vehicle passengers.~~

UNDERGROUND STATION. ~~A station or that part of a station located beneath the surface of the earth or of the water.~~

433.2 Types of Construction.

433.2.1 ~~Unless otherwise specified in this section, buildings or portions of buildings classed as stations of fixed guideway transit systems shall be minimum Type IA, Type IB or Type IIA construction and shall not exceed in area or height the limits specified in Table 503.~~

~~Underground stations shall be a minimum Type IA or Type IB constructions.~~

~~Open stations may be of Type IIB construction and shall not exceed in area or height as required by Table 503 for Type IIA.~~

Exception: ~~At grade structures of open stations with an occupancy load not exceeding 300 persons may be of any construction type permitted by this code.~~

433.2.2 Mixed occupancies.

~~433.2.2.1 Stations of fixed guideway transit systems shall be separated from other occupancies in accordance with Table 508.4 for Group A Occupancies.~~

~~433.2.2.2 The following areas shall be separated from public areas by a two-hour fire barrier:~~

- ~~1. Electrical control rooms, auxiliary electrical rooms and associated battery rooms~~
- ~~2. Trash rooms~~
- ~~3. Train control rooms and associated battery rooms~~
- ~~4. Fan rooms~~
- ~~5. Emergency generator rooms~~

~~433.2.2.3 Within station structures, all power substations shall be separated from all other areas by a three-hour fire barrier with no openings to public areas.~~

433.3 Access and exit facilities.

~~433.3.1 Occupant load. The occupant load for a transit station shall be based on the emergency condition requiring evacuation of that station to a point of safety. The station occupant load shall be the sum of the number of persons in the calculated train load of trains entering a station plus the entraining load of persons awaiting train(s), during a specified time period. Notwithstanding, the minimum occupant load shall not be less than the maximum capacity load of a train which would occupy the entire length of the station platform on a single track. Exiting shall be provided for occupant loads recalculated upon increase in service and/or every five years.~~

~~433.3.1.1 Calculated train load. The calculated train load is the number of passengers on trains simultaneously entering the station on all tracks in normal traffic direction during the peak 15-minute period. The following limitations to the calculated train load shall be applied: 1. No more than one train will unload at any one track to a platform during an emergency. 2. The load on any single train is limited to the maximum train capacity.~~

~~433.3.1.2 Entraining load (on platform awaiting train). The entraining load is equal to the number of passengers that would accumulate on the platform in the time period equivalent to two headways or 12 minutes during the peak 15-minute period, whichever time period is greater. This entraining load is constrained as stated as follows:~~

- ~~1. Special consideration shall be given to stations servicing areas where events occur that establish occupant loads not included in normal passenger loads. These would include such areas as civic centers, sports complexes and convention centers.~~
- ~~2. At multiplatform stations, each platform shall be considered separately. Arrival of trains from all normal traffic directions, plus their entraining loads, shall be considered.~~
- ~~3. At concourses, mezzanines or multilevel stations, simultaneous platform loads shall be considered for all exit lanes passing through that area.~~

433.3.2 Exits required.

~~433.3.2.1 Number of exits. Stations shall have at least two exits placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the station. Enclosed station platforms shall have a minimum of one exit within 20 feet (6096 mm) from each end. Underground station platforms shall have a minimum of one enclosed exit within 20 feet (6096 mm) from each end. Routes from platform ends into the underground guideway shall not be considered as exits for calculating exiting requirements.~~

433.3.2.2 Capacity of exits and station evacuation time.

~~433.3.2.2.1 Exit capacities shall be calculated on the basis of 22-inch-wide (559 mm) exit lanes at the clear and narrowest point except that individual handrails may project into the required width as permitted by Chapter 10. Fractional lanes shall not be counted in measuring exit capacities except that 12 inches (305 mm) added to one or more lanes shall be counted as one-half a lane. Escalators 32 inches (813 mm) in width may be considered as 1 1/2 lanes.~~

~~433.3.2.2.2 There shall be sufficient means of exit to evacuate the station occupant load from the station platforms in four minutes or less.~~

~~433.3.2.2.3 The station shall also be designed to permit evacuation from the most remote point on the platform to a point of safety in six minutes or less.~~

~~433.3.2.2.4 In at-grade or elevated structures so designed that the station platform is open to the elements and, when the concourse is below or protected from the platform by distance or materials as determined by an appropriate engineering analysis, that concourse may be defined as a point of safety, with Fire Code Official concurrence.~~

~~433.3.2.2.5 To calculate evacuation time, the walking travel time should be tabulated using the longest exit route and travel speeds. To this time should be added the following factors:~~

- ~~1. The waiting time at the vertical elements at platform level minus the longest walking travel time at platform level.~~
- ~~2. The waiting time at the fare collection barriers minus the waiting time at the platform vertical circulation elements.~~
- ~~3. The waiting time at the vertical or horizontal circulation elements from mezzanine to grade minus the waiting time at the platform vertical circulation elements or fare collection barrier, whichever is greater.~~
- ~~4. The waiting time, if any, at any additional constriction minus the greatest previous waiting time. (Repeat for all additional constrictions.)~~

~~Note: The total of any of the factors in Items 1 through 4 above cannot be less than zero.~~

~~433.3.3 Exit width and exit lanes.~~

~~433.3.3.1 The capacity in persons per minute (ppm), patron travel speeds in feet per minute (fpm) and requirements for exit lanes shall be as follows:~~

- ~~1. Platforms, corridors and ramps of 1 foot vertical for 20 feet horizontal (5 percent slope) or less: Exit corridors, platforms and ramps shall be a minimum clear width of 5 feet (1524 mm). In computing the number of exit lanes available, 1 foot 6 inches (457 mm) shall be deducted at each platform edge and 1 foot (305 mm) at each side wall.~~

~~Per exit lane:~~

~~Capacity—50 ppm~~

~~Travel speed—200 fpm~~

- ~~2. Stairs, stopped escalators and ramps of over 1 foot vertical for 20 feet horizontal (5 percent slope): Exit ramps shall be a minimum clear width of 6 feet (1829 mm). Stopped escalators may be considered as a means of egress, provided they are of nominal 2 feet 8 inches (813 mm) width.~~

~~Per exit lane "up" direction:~~

~~Capacity—35 ppm~~

~~Travel speed—50 fpm*~~

~~Per exit lane "down" direction:~~

~~Capacity—40 ppm~~

~~Travel speed—60 fpm*~~

- ~~3. Doors and gates: Gates fitted with approved panic hardware and opening in the direction of exit travel, with minimum nominal width of 3 feet (914 mm) shall be permitted in exit calculation.~~

~~Per doors and gate:~~

~~Capacity—50 ppm per exit lane~~

- ~~4. Fare collection gates: Fare collection gates, when deactivated, shall provide a minimum 20 inches (508 mm) clear unobstructed aisle. Console shall not exceed 40 inches (1016 mm) in height.~~

~~Per gate:~~

~~Capacity—50 ppm~~

~~Note: Examples of exiting analysis may be found in Appendix C of NFPA 130, 1995 edition, Standard for Fixed Guideway Transit Systems.~~

**Indicates vertical component of travel speed.*

433.3.4 Arrangement of exits.

~~433.3.4.1 Vertical circulation elements shall be comprised of stairs or stair/escalator combinations. Escalators shall not account for more than half of the units of exit at any one level in the public area. Escalators must be paired in combination with stairs to be included in exiting capacity calculations.~~

~~433.3.4.2 Because of the possibility of maintenance or malfunction, one escalator at each station shall be considered as being out of service in calculating egress requirements. The escalator chosen shall be that one having the most adverse effect on exiting capacities.~~

~~433.3.5 Distance to exits. No point of the station platform(s) or mezzanine(s) shall be more than 300 feet (91 440 mm) from a point of safety.~~

433.3.6 Other exits required/guideway access.

~~433.3.6.1 Access/egress between guideway and platforms shall be provided as follows: 1. Stairs or ramps, 2 feet 10 inches (864 mm) in width minimum, or other arrangement having equivalent capacity, shall be provided at each end of the platform, arranged to provide access/egress to guideway level. 2. Except in underground stations, the access points between the guideway and the platform, and the exit from the platform may be integrated.~~

~~433.3.6.2 In enclosed stations, escalator and stairway enclosures are not required in the public areas of multilevel transit stations among platform, mezzanine and concourse when the station is provided with an emergency ventilation system.~~

433.3.7 Emergency lighting and exit signs.

~~433.3.7.1 Emergency lighting and exit signs shall be provided in accordance with Chapter 10. Exception: Open stations at grade need not provide emergency lighting or exit signs.~~

433.4.2 Special provisions.

~~433.4.1~~ **433.2.1 Automatic sprinkler system.** See Section 903.2.17.1.

~~433.4.2~~ **433.2.2 Station guideway deluge system.** See Section 903.2.17.2.

~~433.4.3~~ **433.2.3 Standpipe systems.** See Section 905.3.11.

~~433.4.4 Emergency management panel (EMP). An EMP shall be required for enclosed and underground stations. Location of the EMP shall be determined by the Fire Code Official. The EMP shall include but not be limited to the following:~~

- ~~1. Indication of manual pull boxes and automatic smoke detectors~~
- ~~2. Indication of alarm signals from all suppression systems~~
- ~~3. Capabilities for using station paging system~~
- ~~4. Emergency telephone~~
- ~~5. Escalator controls~~
- ~~6. Emergency ventilation controls~~
- ~~7. Station schematics~~

433.4.5 Emergency ventilation systems.

~~433.4.5.1 General. Emergency ventilation shall be provided for enclosed and underground stations for the protection of passengers, employees and emergency personnel.~~

~~433.4.5.2 These systems shall be designed as follows:~~

- ~~1. A stream of noncontaminated air is provided to passengers in a path(s) of egress away from a train fire; and~~
- ~~2. Airflow rates produced toward a train fire in a path of egress are sufficient to prevent back layering of smoke; and~~
- ~~3. The temperature in a path of egress away from a train fire is limited to 140°F (60°C), or less; and~~

~~4. The design heat release rate produced by a train fire shall be used to design the emergency ventilation system.~~

~~433.4.5.3 Ventilation shaft terminals at grade shall be located to prevent recirculation as follows:~~

- ~~1. Openings for blast relief shafts, and under platform and smoke exhaust shafts at grade shall be separated by a minimum horizontal distance of 40 feet (12 192 mm) from any station entrance, elevator hoistway enclosure, surface emergency stair doorway, unprotected outside air intake or other opening, or from each other. Exhaust outlets that are not used for intakes may be adjacent to each other.~~
- ~~2. Where this distance is not practical, the horizontal distance may be reduced to 15 feet (4572 mm) if the closest blast relief or under platform and smoke exhaust shaft terminal is raised a minimum of 10 feet (3048 mm) above the station entrance, emergency stair doorway and unprotected outside air intake or other opening, or the underplatform and smoke exhaust shaft terminal is raised a minimum of 10 feet (3048 mm) above the blast relief shaft terminal.~~
- ~~3. Ventilation of stations shall not terminate at grade on any vehicle roadway.~~

~~433.4.5.4 Emergency ventilation fans.~~

~~433.4.5.4.1 Ventilation fans used for emergency service, their motors, dampers and all related components exposed to the ventilation airflow shall be designed to operate in an ambient atmosphere of 482°F (250°C) for a period of at least one hour. Ventilation fans and related components shall be capable of withstanding the maximum anticipated plus/minus pressure transients induced by train operations.~~

~~433.4.5.4.2 Local fan motor starters and related operating control devices for emergency ventilation equipment shall be isolated from the ventilation airflow by a separation having a fire resistance rating of at least one hour.~~

~~433.4.5.4.3 Thermal overload protective devices shall not be provided on motor controls of fans used for emergency ventilation.~~

~~433.4.5.4.4 The power supply for fans essential for emergency ventilation service shall consist of two separate electrical feeders. Each feeder shall originate from a different source (substation) and shall be separated physically to the extent possible. Automatic transfer shall be provided in the event the normal supply source fails.~~

~~433.4.5.4.5 Operation and fail safe verification for proper operation of emergency fans shall be affected from the operation control center with indication provided for all modes of operation for each fan.~~

~~433.4.5.5~~433.2.5 **Emergency ventilation control.** Emergency ventilation systems shall comply with this section and NFPA 130.

~~433.4.5.5.1 Local controls shall override remote control.~~ Local control shall be capable of operating the fans in all modes in the event the remote controls become inoperative.

~~433.4.5.5.2~~433.2.5.1 Emergency ventilation systems shall be supervised and/or controlled in all operating modes locally (motor control center and/or fan unit) and remotely at both the OGC Operations Control Center and the station EMPFire Command Center.

~~433.4.5.5.3~~433.2.5.2 Fan running shall be provided by sensing devices for each fan for operation in both the supply and exhaust directions.

~~433.4.5.5.4~~433.2.5.3 Trouble status signals shall be annunciated in the local control room. A summarized trouble signal shall be annunciated at OGC Operations Control Center and EMPFire Command Center.

~~433.4.5.6 Ventilation systems and ancillary areas.~~ Ancillary area ventilation systems shall be arranged so that air is not exhausted into station public occupancy areas.

~~433.5~~433.2.4 **Fire Alarm and Communication Systems.** See Section 907.2.26.

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

903.2.17 Fixed guideway and passenger rail transit systems.

SECTION 905
STANDPIPE SYSTEMS

905.3.11 Fixed guideway and passenger rail transit systems. *Fixed-guideway and passenger rail transit systems shall be provided with a Class 1 standpipe system in accordance with this section.*

~~905.3.11~~**905.3.11.1 Fixed guideway transit systems**~~Underground Stations.~~ *Underground stations shall be provided with an automatic class III**Class I**~~standpipe system, designed to comply with the following:~~*

~~1. Automatically supply 65 pounds per square inch (psi) for each outlet.~~

~~2. Supply a 250 gpm (946 L/m) flow to each of the two most remote 2 1/2 inch (64 mm) outlets when pressurized through the fire department connection(s).~~

~~905.3.11~~**905.3.11.2 All other Stations.** *All other stations shall be provided with a class Class I manual wet standpipe system; a manual dry class I standpipe system may be allowed in areas subject to freezing.*

Exception: *Open at-grade stations with unrestricted fire department access need not be provided with a standpipe system.*

SECTION 907
FIRE ALARM AND DETECTION SYSTEMS

907.2.26 Fixed guideway and passenger rail transits systems fire alarm and communication systems.

CHAPTER 35
REFERENCED STANDARDS

130-14 Standard for Fixed Guideway Transit and Passenger Rail Systems.....443
***NFPA 130, Amended Sections as follows:**

Amend Section 2.2 and amend publications to read as follows:

2.2 NFPA Publications.

NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2014**2013**
California edition.

Amend Section 3.3.44.2 and amend publications to read as follows:

3.3.44.2* Open Station. *A station that is constructed such that it is directly open to the atmosphere and smoke and heat are allowed to disperse directly into the atmosphere.*

The following enclosed areas in open stations are permitted:

1. Ticket/pass booths not exceeding 150 square feet (13.9 m2) in area.

2. Mechanical and electrical spaces typically not used for human occupancy and necessary for the operation of a fixed guideway transit system. Such spaces shall be limited to two per level.

3. Restrooms not exceeding 150 square feet (13.9 m2) in area. A maximum of four restrooms are permitted per level.

Add a new definition as 3.3.44.3 to read as follows:

3.3.44.1.1 Underground Station. *A station or portion thereof that is located beneath the surface of the earth or of the water.*

Amend Section 5.2.2.1 to read as follows:

5.2.2.1 *Building construction for all new enclosed stations shall be not less than Type I or Type II or combinations of Type I and Type II noncombustible construction as defined in NFPA 220, in accordance with the requirements of NFPA 401, Chapter 12 Type IA, Type IB or Type IIA construction and shall not exceed in area or height the limits specified in the California Building Code Table 503, for the station configuration or as determined by fire hazard analysis of potential fire exposure hazards to the structure.*

Add Section 5.2.2.1.1 – 5.2.2.1.3 to read as follows:

5.2.2.1.1 *Underground stations shall be a minimum Type IA or Type IB constructions.*

5.2.2.1.2 *Open stations may be of Type IIB construction and shall not exceed in area or height as required by Table 503 for Type IIA.*

5.2.2.1.3 *Open at grade stations may be of any construction type allowed by the California Building Code.*

Delete Section 5.2.2.2.

~~5.2.2.2 Other types of construction as defined in NFPA 220 shall be permitted for open stations in accordance with the provisions of NFPA 101, Chapter 12, for corresponding station configurations.~~

Amend Section 5.2.4.3 to read as follows:

5.2.4.3 Ancillary Spaces. Fire resistance ratings of separations between ancillary occupancies shall be established as required by the California Building Code NFPA 101 and in accordance with ASTM E 119 and ANSI/UL 263.

Amend Section 5.2.4.3.1 to read as follows:

5.2.4.3.1 *The following areas shall be separated by a two-hour fire barrier:*

- 1. Electrical control rooms, auxiliary electrical rooms and associated battery rooms*
- 2. Trash rooms*
- 3. Train control rooms and associated battery rooms*
- 4. Fan rooms*
- 5. Emergency generator rooms*

Amend Section 5.2.4.5 to read as follows:

5.2.4.5* Separation Between System and Nonsystem Occupancies. All station public areas shall be fire separated from adjacent non-system occupancies by a one hour fire barrier, unless otherwise required by other provisions of the California Building Code.

Amend Section 5.3.1.1 to read as follows:

5.3.1.1 The provisions for means of egress for a station shall comply with Chapters 7 and 12 of NFPA 101 ~~101~~ of the California Building Code, except as herein modified.

Amend Section 5.3.2.1 to read as follows:

5.3.2.1* The occupant load for a station shall be based on the train load of trains simultaneously entering the station on all tracks in normal traffic direction plus the simultaneous entraining load awaiting trains.

- (1) The train load shall consider only one train at any one track.
- (2) The basis for calculating train and entraining loads shall be the peak period ridership figures as projected for design of a new system or as updated for an operating system.
- (3) Exiting shall be provided for occupant loads recalculated upon increase in service and/ or every five years.

Amend Section 5.3.3.5 to read as follows:

5.3.3.5 Travel Distance. The maximum travel distance on the platform to a point at which a means of egress route leaves the platform shall not exceed ~~400 m (325 ft)~~ 91 440 mm (300 feet).

Amend Section 5.3.3.7 to read as follows:

5.3.3.7 Alternate Egress. At least two means of egress remote from each other shall be provided from each station platform as follows:

- (1)*A means of egress used as a public circulation route shall be permitted to provide more than 50 percent of the required egress capacity from a station platform or other location.
- (2) Means of egress from separate platforms shall be permitted to converge.
- (3) Where means of egress routes from separate platforms converge, the subsequent capacity of the egress route shall be sufficient to maintain the required evacuation time from the incident platform.
- (4) Enclosed station platforms shall have a minimum of one exit within 2.5 times the least width of the enclosed station platform up to a maximum of 50 feet (insert mm) from each end.
- (5) Routes from platform ends into the underground guideway shall not be considered as exits for calculating exiting requirements.

Amend Section 5.3.11.1 to read as follows:

5.3.11.1 Illumination of the means of egress in stations, including escalators that are considered a means of egress, shall be in accordance with ~~Section 7.8 of NFPA 104~~ Chapter 10 of the California Building Code.

Amend Section 5.3.11.2 to read as follows:

5.3.11.2 Means of egress, including escalators considered as means of egress, shall be provided with a system of emergency lighting in accordance with ~~Section 7.9 of NFPA 104~~ Chapter 10 of the California Building Code.

Amend Section 5.4.1.1 to read as follows:

5.4.1.1 Enclosed stations shall be provided with a fire command center in accordance with ~~NFPA 72~~ Section 911.1.1 through 911.5 of the California Building Code.

Amend Section 5.4.4.1 to read as follows:

5.4.4.1* An automatic sprinkler protection system shall be provided in areas of stations used for concessions, in storage areas, in trash rooms, and other similar areas with combustible loadings, except trainways ~~where required by Section 903 of the California Building Code~~.

Delete Section 5.4.4.2.

~~5.4.4.2 Sprinkler protection shall be permitted to be omitted in areas of open stations remotely located from public spaces.~~

Amend Section 5.4.5.1 to read as follows:

5.4.5.1* Class I standpipes shall be installed in enclosed stations ~~where required by Chapter 9 of the California Building Code~~ in accordance with NFPA 14 except as modified herein.

Amend Section 7.3.2.1 to read as follows:

7.3.2.1 The fan inlet airflow hot temperature shall be determined by an engineering analysis, however, this temperature shall not be less than ~~450~~ 482°C (302250°F). Ventilation fans and related components shall be capable of withstanding the maximum anticipated plus/minus pressure transients induced by train operations.

Add Section 7.6.1.1 to read as follows:

7.6.1.1 Ventilation of stations shall not terminate at grade on any vehicle roadway.

Amend Section 7.7.1 to read as follows:

7.7.1 Operation of the emergency ventilation system components shall be capable of automatic and manual initiation initiated from the operations control center in accordance with 909.12.3 of the California Building Code.

Amend Section 7.8.1 to read as follows:

7.8.1 The design of the power for the emergency ventilation system shall comply with the requirements of Article 700 of ~~NFPA 70~~ the California Electrical Code and Section 909 of the California Building Code.

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[44. Group I-3 Separation]

SECTION 508 MIXED USE AND OCCUPANCY

508.2.4 Separation of occupancies. No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4, and H-5, ~~I-2, I-2.1, I-3 and L~~ occupancies shall be separated from all other occupancies in accordance with Section 508.4.

2. Group I-1, R-1, R-2, R-2.1 and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.

3. No separation is required between Group B, E, R-2 sleeping units and S-2 occupancies accessory to Group I-2, I-2.1 and I-3 of Type I Construction.

508.3.3 Separation. No separation is required between nonseparated occupancies.

Exceptions:

1. Group H-2, H-3, H-4, and H-5, ~~I-2, I-2.1, I-3~~ and L occupancies shall be separated from all other occupancies in accordance with Section 508.4.

2. Group R-1, R-2, R-2.1 and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from other occupancies contiguous to them in accordance with the requirements of Section 420.

3. No separation is required between Group B, E, R-2 sleeping units and S-2 occupancies accessory to Group I-2, I-2.1 and I-3 of Type I Construction.

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

[45. OSHPD/SFM I-2 Updates]

407.2.1 Waiting and similar areas. Waiting areas and similar spaces constructed as required for corridors shall be permitted to be open to a corridor, only where all of the following criteria are met:

1. The spaces are not occupied as care recipient's sleeping rooms, treatment rooms, incidental uses ~~in accordance with Section 509 listed in Table 509~~, or hazardous uses.
2. The open space is protected by an automatic ~~fire~~smoke detection system installed in accordance with Section 907.
3. The ~~corridors~~ onto which the spaces open, in the same ~~smoke compartment~~, are protected by an automatic ~~fire~~smoke detection system installed in accordance with Section 907, ~~and~~ the ~~smoke compartment~~ in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required exits.
5. ~~Each space is located to permit direct visual supervision by the facility staff.~~

407.2.3 Psychiatric treatment areas. Areas wherein psychiatric care recipients who are not capable of self-preservation are housed, or group meeting or multipurpose therapeutic spaces other than incidental uses in accordance with Section 509, under continuous supervision by facility staff, shall be permitted to be open to the corridor, where the following criteria are met:

1. Each area does not exceed 1,500 square feet (140 m²).
2. The area is located to permit supervision by the facility staff.
3. The area is arranged so as not to obstruct any access to the required exits.
4. The area is equipped with an automatic ~~fire~~smoke detection system installed in accordance with Section 907.2.
5. Not more than one such space is permitted in any one smoke compartment.
6. The walls and ceilings of the space are constructed as required for corridors.

407.2.5 Nursing home housing units. In Group I-2, ~~Condition 4~~, occupancies, in areas where nursing home residents are housed, shared living spaces, group meeting or multipurpose therapeutic spaces shall be permitted to be open to the corridor, where all of the following criteria are met:

1. The walls and ceilings of the space are constructed as required for corridors.
2. The spaces are not occupied as resident sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.
3. The open space is protected by an automatic ~~fire~~smoke detection system installed in accordance with Section 907.

4. The corridors onto which the spaces open, in the same smoke compartment, are protected by an automatic fire ~~smoke~~ detection system installed in accordance with Section 907, ~~and~~ the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
5. The space is arranged so as not to obstruct access to the required exits.
6. Each space is located to permit direct visual supervision by the facility staff.

407.2.6 Nursing home cooking facilities. In Group I-2, ~~Condition 4,~~ occupancies, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted ~~to be open to the corridor~~ in fully sprinklered buildings where all of the following criteria are met:

1. The number of care recipients housed in the smoke compartment is not greater than 30.
2. The number of care recipients served by the cooking facility is not greater than 30.
3. Only one cooking facility area is permitted in a smoke compartment.
4. The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.
5. ~~The corridor is a clearly identified space delineated by construction or floor pattern, material or color.~~
6. ~~The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.~~
7. ~~5.~~ A domestic cooking range hood installed and constructed in accordance with Section 505 of the International California Mechanical Code is provided over the cooktop or range.
8. ~~The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.~~
9. ~~A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.~~
10. ~~An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.~~
11. ~~A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.~~
12. ~~A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.~~
13. ~~6.~~ A portable fire extinguisher shall be installed in accordance with Section 906 of the International California Fire Code.

407.3.1 Corridor doors. In fully sprinklered buildings, ~~Corridor doors, other than those in a wall required to be rated by Section 509.4 or for the enclosure of a vertical opening or an exit, shall not have a required fire protection rating and shall not be required to be equipped with self-closing or automatic-closing devices, but shall provide an effective barrier to limit the transfer of smoke and shall be equipped with positive latching. In Group I-2 Occupancies, self-closing or automatic-closing devices are not required on corridor doors to patient sleeping rooms and treatment rooms, and offices located in areas specified in Sections 1224 and 1225, excluding offices specified in Sections 1224.21 and 1225.8. Roller latches are not permitted. Other doors shall conform to Section 716.5.~~

407.3.2 Glazing. In fully sprinklered buildings, fixed fully tempered or laminated glass in wood or metal frames may be used in corridor walls, provided the glazed area does not exceed 25 percent of the areas of the corridor wall of the room. The total area of glass in corridor walls is not limited when the glazing is fixed 1/4-inch-thick (6.4 mm) wired glass 1/3-hour fire-protection-rated glazing in steel approved frames and the size of individual glazed panel does not exceed 1,296 square inches (0.836 m²).

407.4.1.1 Locking devices. Locking devices that restrict access to a care recipient's room from the corridor and that are operable only by staff from the corridor side shall not restrict the means of egress from the care recipient's room.

Exceptions:

1. This section shall not apply to rooms in psychiatric treatment and similar care areas.
2. ~~Locking arrangements in accordance with Section 1010.1.9.6.~~

407.4.4.3 Access to corridor. Movement from habitable rooms shall be in accordance with Sections 407.4.4.3.1, 407.4.4.3.2 and 407.4.4.5.3.

407.4.4.3.1 One intervening room. Movement from habitable rooms shall not require passage through more than ~~three doors~~one intervening room and 100 feet (30 480 mm) distance of travel within the care suite.

Exception: The distance of travel shall be permitted to be increased to 125 feet (38 100 mm) where an automatic smoke detection system is provided throughout the care suite and installed in accordance with NFPA 72.

407.4.4.3.2 Two intervening rooms. Movement from habitable rooms other than sleeping rooms located within a care suite, shall not require passage through more than two intervening rooms and 50 (15 240 mm) feet distance of exit access travel within the care suite.

Exception: The distance of travel shall be permitted to be increased to 100 feet (38 100 mm) where an automatic fire sprinkler system is provided throughout the Group I-2 fire area and an automatic smoke detection system is provided throughout the care suite and installed in accordance with NFPA 72.

407.4.4.5 Care suites containing sleeping room areas. Sleeping rooms shall be permitted to be grouped into care suites where one of the following criteria is met:

1. The care suite is not used as an exit access for more than eight care recipient beds.
2. The arrangement of the care suite allows for direct and constant visual supervision into the sleeping rooms by care providers.
3. ~~An automatic smoke detection system is provided in the sleeping rooms and installed in accordance with NFPA 72.~~

407.4.4.5.1 Area. Care suites containing sleeping rooms shall be not greater than ~~7,500~~5,000 square feet (~~696~~465 m²) in area.

Exceptions:

1. Care suites containing sleeping rooms shall be permitted to be not greater than 7,500 square feet (696 m²) in area where an automatic fire sprinkler system is provided throughout the Group I-2 fire area.

2. Care suites containing sleeping rooms shall be permitted to be not greater than 10,000 square feet (929 m²) in area ~~an automatic fire sprinkler system is provided throughout the Group I-2 fire area and~~ where an automatic smoke detection system is provided throughout the care suite and installed in accordance with NFPA 72Section 907.

407.4.4.5.3 Travel distance. The travel distance between any point in a care suite containing sleeping rooms and an exit access door from that care suite shall be not greater than 100 feet (30 480 mm).

407.4.4.6.1 Area. Care suites of rooms, other than sleeping rooms, shall have an area not greater than ~~42,500~~10,000 square feet (~~1161~~929 m²).

Exception: ~~Care suites not containing sleeping rooms shall be permitted to be not greater than 15,000 square feet (1394 m²) in area where an automatic smoke detection system is provided throughout the care suite in accordance with Section 907.~~

407.4.4.6.2 Exit access. ~~Any room or care suite~~Care suites, other than sleeping rooms, with an area of more than 2,500 square feet (232 m²) shall have no fewer than two exit access doors from the room or care suite located in accordance with Section 1007.1.

407.5 Smoke barriers. Smoke barriers shall be provided to subdivide every story used by persons receiving care, treatment or sleeping and to divide other stories with an occupant load of 50 or more persons, regardless of occupancy or use, into no fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m²) in Group I-2, Condition 1, and not more than 40,000 square feet (3716 m²) in Group I-2, Condition 2, and the distance of travel from any point in a smoke compartment to a smoke barrier door shall be not greater than 200 feet (60 960 mm). The smoke barrier shall be in accordance with Sections 709 and 909.5.

Exceptions:

1. This requirement shall not apply to Group I-2.1 less than 10,000 ft² (929 m²).
2. An area in an adjoining occupancy shall be permitted to serve as a smoke compartment for a Group I-2.1 facility if the following criteria are met:
 - 2.1. The separating wall and both compartments meet the requirements of 407.5.

2.2. The Group I-2.1 is less than 22,500 ft² (2100 m²).

2.3. Access from the Group I-2.1 to the other occupancy is unrestricted.

3. This requirement shall not apply to the following:

3.1. Any story, not containing a Group I-2 or I-2.1 occupancy, that is located above a story containing a Group I-2 or I-2.1 occupancy.

3.2. Areas that do not contain a Group I-2 or I-2.1 occupancy, where such areas are separated from the Group I-2 or I-2.1 occupancy by a horizontal exit in accordance with Section 1025.2.

3.3. Any story, not containing a Group I-2 or I-2.1 occupancy, that is located more than one story below a story containing a Group I-2 or I-2.1 occupancy.

3.4. Any story housing only mechanical equipment where such story is located below a story containing a Group I-2 or I-2.1 occupancy and is separated from the story above by a horizontal assembly having not less than a 2 hour fire resistance-rating.

**TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)**

OCCUPANCY	A, E		I-4, R-2.1		I-2, I-2.1		I-3		R-1, R-2, R-3, R-3.1, R-4		F-2, S-2 ^b , U		B ^f , F-1 ^{ef} , M ^e M, S-1		L		H-1		H-2		H-3, H-4,		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A, E	N	N	2	2	2	NP	2	NP	1	2	N	1	1	2	2	NP	NP	NP	3	4	2	3 ^a	2	NP
I-4, R-2.1	—	—	1 ^e	NP	2	NP	2	NP	1	NP	2 ¹	2	2 ¹	2	2	NP	NP	NP	4	NP	4	NP	4	NP
I-2, I-2.1	—	—	—	—	N	NP	2	NP	2	NP	2	NP	2	NP	2	NP	NP	NP	4	NP	4	NP	4	NP
I-3	—	—	—	—	—	—	N	NP	2	NP	2	2	2	2	2	NP	NP	NP	4	NP	4	NP	4	NP
R-1, R-2, R-3, R-3.1, R-4	—	—	—	—	—	—	—	—	N	N	1 ^c	2 ^c	1	2	4	NP	NP	NP	3	NP	2	NP	2	NP
F-2, S-2 ^b , U	—	—	—	—	—	—	—	—	—	—	N	N	1	2	1	NP	NP	NP	3	4	2	3 ^a	2	NP
B, F-1, M, S-1	—	—	—	—	—	—	—	—	—	—	—	—	N	N	1	NP	NP	NP	2	3	1	2 ^a	1	NP
L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	NP	NP	NP	2	NP	1	NP	1	NP
H-1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP	1	NP
H-3, H-4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 ^d	NP	1	NP
H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

N = No separation requirement.

NP = Not permitted.

a See Section 420.

b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.

c. See Section 406.3.4.

d. Separation is not required between occupancies of the same classification.

ge. [SFM] Group I and F1 occupancies and Group R-2.1 and F-1 occupancies shall have a 3 hour separation.

f. [SFM] Commercial kitchens not associated with cafeterias and similar dining facilities in Group I-2, and Group R-2.1 shall have a 2-hour separation and shall be protected by an automatic sprinkler system.

509.3 Area limitations. *The aggregate floor area of incidental uses shall not occupy more than 10 percent of the building area of the story in which they are located.*

905.7.2 Locking cabinet doors. Cabinets shall be unlocked.

Exceptions:

1. Visual identification panels of glass or other approved transparent frangible material that is easily broken and allows access.
2. Approved locking arrangements.
3. Group I-3 and in mental health areas of Group I-2 occupancies.

906.1 Where required. Portable fire extinguishers shall be installed in all of the following locations:

1. In Group A, B, E, F, H, I, L, M, R-1, R-2, R-2.1, R-3.1, R-4 and S occupancies.

Exception: In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or combustible liquids are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 3315.1 of the *International California Fire Code*.
5. Where required by the *International California Fire Code* sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.
7. *Large and small family day-care homes shall be equipped with a portable fire extinguisher having a minimum 2A10BC rating.*
8. *Where required by California Code of Regulations, Title 19, Division 1.*
9. *Within 30 feet (9144 mm) of domestic cooking equipment located in a Group I-2.*

906.2 General requirements. Portable fire extinguishers shall be selected and installed in accordance with this section and NFPA-10-*California Code of Regulations, Title 19, Division 1, Chapter 3.*

Exceptions:

1. The distance of travel to reach an extinguisher shall not apply to the spectator seating portions of Group A-5 occupancies.
2. In Group I-3 and in mental health areas of Group I-2, portable fire extinguishers shall be permitted to be located at staff locations.

907.5.2.3 Visible alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through ~~907.5.2.3.3~~ 907.5.2.3.4.

Exceptions:

1. *In other than Group I-2 and I-2.1, visible alarm notification appliances are not required in alterations, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.*
2. Visible alarm notification appliances shall not be required in ~~exits as defined in Chapter 2~~ enclosed exit stairways, enclosed exit ramps, exterior exit stairs and exterior exit ramps.
3. Visible alarm notification appliances shall not be required in elevator cars.
4. ~~Visual alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.~~

909.5.3 Opening protection. Openings in smoke barriers shall be protected by *self-closing devices or automatic-closing devices actuated by the required controls for the mechanical smoke control system.* Door openings shall be protected by fire door assemblies complying with Section 716.5.3.

Exceptions:

1. Passive smoke control systems with automatic-closing devices actuated by spot-type smoke detectors *listed* for releasing service installed in accordance with Section 907.3. When used in a Group I-2 or a I-2.1, such detectors shall activate the fire alarm system and shall close all the smoke barrier doors within the effected zone.
2. Fixed openings between smoke zones that are protected utilizing the airflow method in other than Group I-2 or I-2.1.
3. In ~~Group I-1 Condition 2, Group I-2, I-2.1, R-2.1~~ and ambulatory care facilities, where a pair of opposite swinging doors are installed across a corridor in accordance with Section 909.5.3.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be closefitting within operational tolerances and shall not have a center mullion or undercuts in excess of ¾ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops and astragals or rabbets at meeting edges and, ~~where permitted by the door manufacturer's listing, positive latching devices are not required.~~ Positive latching devices are required. Doors installed across corridors shall comply with Section 1010.1.1.
4. In Group I-2, I-2.1, and ambulatory care facilities, where such doors are special-purpose horizontal sliding, accordion or folding door assemblies installed in accordance with Section 1010.1.4.3 and are automatic closing by smoke detection in accordance with Section 716.5.9.3. The doors shall be close fitting within operational tolerances, and shall not have undercuts in excess of ¾-inch (19.1 mm), louvers or grilles. Where permitted by the manufacturer's listing, positive-latching devices are not required. Doors installed across corridors shall comply with Section 1010.1.1.
5. Group I-3.
6. Openings between smoke zones with clear ceiling heights of 14 feet (4267 mm) or greater and bank-down capacity of greater than 20 minutes as determined by the design fire size.
7. *In Group I-2 or I-2.1, smoke damper activation may be accomplished by a fire alarm control unit provided that an open area smoke detection system is provided within all areas served by an HVAC system.*

909.5.3.1 ~~Group I-1 Condition 2; Group I-2, I-2.1, R-2.1~~, and ambulatory care facilities. In ~~Group I-1 Condition 2, Group I-2, I-2.1, R-2.1~~, and ambulatory care facilities, where doors are installed across a corridor, the doors shall be automatic-closing by smoke detection in accordance with Section 716.5.9.3 and ~~shall have a vision panel with fire protection-rated glazing materials in fire protection-rated frames, the area of which shall not exceed that tested.~~ Vision panels consisting of fire-rated glazing in approved frames shall be provided in each cross-corridor swinging door and at each cross-corridor horizontal-sliding door in a smoke barrier.

1003.3.1 Headroom. Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 provided a minimum headroom of 80 inches (2032 mm) shall be provided for any walking surface, including walks, corridors, aisles and passageways. In other than Group I-2 and Group I-2.1 occupancies, Not more than 50 percent of the ceiling area of a means of egress shall be permitted to be reduced in height by protruding objects.

Exception: Door closers and stops shall not reduce headroom to less than 78 inches (1981 mm).

A barrier shall be provided where the vertical clearance is less than 80 inches (2032 mm) high. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the floor.

~~1008.4.4~~**1010.1.1 Size of doors.** The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 or I-2.1 occupancy used for the movement of beds and ~~litter-stretcher~~ patients shall provide a clear width not less than ~~44.5~~ 44 inches (1154 mm). The height of door openings shall be not less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m²) in area shall not be limited by the minimum width.
4. Width of door leafs in revolving doors that comply with Section 1010.1.4.1 shall not be limited.

5. Door openings within a dwelling unit or sleeping unit shall be not less than 78 inches (1981 mm) in height.
6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall be not less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.
8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).
9. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m²) in area shall have a maximum width of 60 inches (1524 mm).
10. In Group R-1 dwelling units or sleeping units not required to be Accessible units, the minimum width shall not apply to doors for showers or saunas.

[Editorial Note: Relocate existing amendments from Section 1010.1.2 to 1010.1.2.1 due to section split.]

1010.1.2 Door swing. Egress doors shall be of the pivoted or side-hinged swinging type.

Exceptions:

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1010.1.4.1.
6. In other than Group H occupancies, special purpose horizontal sliding, accordion or folding door assemblies complying with Section 1010.1.4.3.
7. Power-operated doors in accordance with Section 1010.1.4.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.
10. *In I-2 and I-2.1 occupancies, exit doors serving an occupant load of 4050 or more, may shall not be of the pivoted or balanced type.*

~~Doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy. For Group L occupancies, see Section 443.6.2.~~

~~In a Group I-2 occupancy, all required exterior egress doors shall open in the direction of egress regardless of the occupant load served.~~

~~1008.1.10~~ **1010.1.10 Panic and fire exit hardware.** Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy, assembly area not classified as an assembly occupancy, E, I-2 or I-2.1 occupancies shall not be provided with a latch or lock other than panic hardware or fire exit hardware. ~~For Group L occupancies see Section 443.6.3.~~

Exceptions:

1. A main exit of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

Electrical rooms with equipment rated 4,200800-amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.

~~1009.4~~ **1011.2 Width and capacity.** The required capacity of stairways shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm). See Section 1009.3 for accessible means of egress stairways.

Exceptions:

1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1011.10.
3. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be

provided. Where the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

Means of egress stairs in a Group I-2 or I-2.1 occupancy used for the movement of beds and ~~litter~~stretcher patients shall provide a clear width not less than 44 inches (1118 mm).

4044.21016.2 Egress through intervening spaces. Egress through intervening spaces shall comply with this section.

1. Exit access through an enclosed elevator lobby is permitted *in other than a Group I-2 and I-2.1*. Access to not less than one of the required exits shall be provided without travel through the enclosed elevator lobbies required by Section 3006. Where the path of exit access travel passes through an enclosed elevator lobby, the level of protection required for the enclosed elevator lobby is not required to be extended to the exit unless direct access to an exit is required by other sections of this code.

2. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.

Exception: Means of egress are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy where the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

3. An exit access shall not pass through a room that can be locked to prevent egress.

4. Means of egress from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.

5. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

Exceptions:

1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.

2. Means of egress are not prohibited through stockrooms in Group M occupancies where all of the following are met:

2.1. The stock is of the same hazard classification as that found in the main retail area.

2.2. Not more than 50 percent of the exit access is through the stockroom.

2.3. The stockroom is not subject to locking from the egress side.

2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) aisle defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

~~5.6. Exits shall not pass through any room subject to locking except in Group I-3 occupancies classified as detention facilities.~~

4048.41020.1 Construction. Corridors shall be fire-resistance rated in accordance with Table 1020.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.

Exceptions:

1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has not less than one door opening directly to the exterior and rooms for assembly purposes have not less than one-half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.

2. A fire-resistance rating is not required for corridors contained within a dwelling unit or sleeping unit in an occupancy in Groups I-4 and R.

3. A fire-resistance rating is not required for corridors in open parking garages.

4. A fire-resistance rating is not required for corridors in an occupancy in Group B that is a space requiring only a single means of egress complying with Section 1006.2.

5. Corridors adjacent to the exterior walls of buildings shall be permitted to have unprotected openings on unrated exterior walls where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

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6. A fire-resistance rating is not required for corridors within suites in a Group I-2 or I-2.1 occupancy provided with an automatic sprinkler system throughout and constructed in accordance with Section ~~407.4.3.5~~407.4.4.5 or ~~407.4.3.6~~407.4.4.6.

Notation:

Authority: Health and Safety Code Sections 13108, 13143, 13143.9, 13146, 17921, 18949.2

References: Health and Safety Code Sections 13143, 18949.2

****PART 2****

[46. The SFM proposes to bring forward previously existing California building standards or amendments, which represent no change in their effect from the 2013 California Building Code and is displayed for context and for the convenience of code users. Furthermore, the SFM proposes to codify non-substantive editorial and formatting amendments from the format based upon the 2012 International Building Code to the format of the 2015 International Building Code.]

CHAPTER 1

SCOPE AND ADMINISTRATION

DIVISION I CALIFORNIA ADMINISTRATION

SECTION 1.1 GENERAL

1.1.2 Purpose. *The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation, and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.*

1.1.3 Scope. *The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California.*

1.1.3.1 Nonstate-regulated buildings, structures, and applications. *Except as modified by local ordinance pursuant to Section 1.1.8, the following standards in the California Code of Regulations, Title 24, Parts 2, 2.5, 3, 4, 5, 6, 9, 10 and 11 shall apply to all occupancies and applications not regulated by a state agency.*

1.1.4 Appendices. *Provisions contained in the appendices of this code shall not apply unless specifically adopted by a state agency or adopted by a local enforcing agency in compliance with Health and Safety Code Section 18901 et. seq. for Building Standards Law, Health and Safety Code Section 17950 for State Housing Law and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 1.1.8 of this code.*

1.1.5 Referenced codes. *The codes, standards and publications adopted and set forth in this code, including other codes, standards and publications referred to therein are, by title and date of publication, hereby adopted as standard reference documents of this code. When this code does not specifically cover any subject related to building design and construction, recognized architectural or engineering practices shall be employed. The National Fire Codes, standards, and the Fire Protection Handbook of the National Fire Protection Association are permitted to be used as authoritative guides in determining recognized fire prevention engineering practices.*

1.1.6 Nonbuilding standards, orders and regulations. *Requirements contained in the Uniform Mechanical Code or in any other referenced standard, code or document, which are not building standards as defined in Health and Safety Code Section 18909, shall not be construed as part of the provisions of this code. For nonbuilding standards, orders, and regulations, see other titles of the California Code of Regulations.*

1.1.7 Order of precedence and use.

1.1.7.1 Differences. In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.

1.1.7.2 Specific provisions. Where a specific provision varies from a general provision, the specific provision shall apply.

1.1.8 City, County, or City and County amendments, additions or deletions. The provisions of this code do not limit the authority of city, county, or city and county governments to establish more restrictive and reasonably necessary differences to the provisions contained in this code pursuant to complying with Section 1.1.8.1. The effective date of amendments, additions, or deletions to this code by a city, county, or city and county filed pursuant to Section 1.1.8.1 shall be the date filed. However, in no case shall the amendments, additions, or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.

1.1.9 Effective date of this code. Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.

1.1.11 Format. This part fundamentally adopts the International Building Code by reference on a chapter-by-chapter basis. When a specific chapter of the International Building Code is not printed in the code and is marked "Reserved" such chapter of the International Building Code is not adopted as a portion of this code. When a specific chapter of the International Building Code is marked "Not adopted by the State of California" but appears in the code, it may be available for adoption by local ordinance.

Note: Matrix Adoption Tables at the front of each chapter may aid the code user in determining which chapter or sections within a chapter are applicable to buildings under the authority of a specific state agency, but they are not to be considered regulatory.

1.1.12 Validity. If any chapter, section, subsection, sentence, clause, or phrase of this code is for any reason held to be unconstitutional, contrary to statute, exceeding the authority of the state as stipulated by statutes or otherwise inoperative, such decision shall not affect the validity of the remaining portion of this code.

SECTION 1.11 OFFICE OF THE STATE FIRE MARSHAL

1.11.1 SFM—Office of the State Fire Marshal. Specific scope of application of the agency responsible for enforcement, the enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application:

Institutional, educational or any similar occupancy. Any building or structure used or intended for use as an asylum, jail, mental hospital, hospital, sanitarium, home for the aged, children's nursery, children's home, school or any similar occupancy of any capacity.

Authority cited—Health and Safety Code Section 13143.

Reference—Health and Safety Code Section 13143.

Assembly or similar place of assemblage. Any theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.

Authority cited—Health and Safety Code Section 13143.

Reference—Health and Safety Code Section 13143.

Small family day-care homes.

Authority cited—Health and Safety Code Sections 1597.45, 1597.54, 13143 and 17921.

Reference—Health and Safety Code Section 13143.

Large family day-care homes.

Authority cited—Health and Safety Code Sections 1597.46, 1597.54 and 17921.

Reference—Health and Safety Code Section 13143.

Residential facilities and residential facilities for the elderly.

Authority cited—Health and Safety Code Section 13133.

Reference—Health and Safety Code Section 13143.

Any state institution or other state-owned or state-occupied building.

Authority cited—Health and Safety Code Section 13108.

Reference—Health and Safety Code Section 13143.

High-rise structures.

Authority cited—Health and Safety Code Section 13211.

Reference—Health and Safety Code Section 13143.

Motion picture production studios.

Authority cited—Health and Safety Code Section 13143.1.

Reference—Health and Safety Code Section 13143.

Organized camps.

Authority cited—Health and Safety Code Section 18897.3.

Reference—Health and Safety Code Section 13143.

Residential. All hotels, motels, lodging houses, apartment houses and dwellings, including congregate residences and buildings and structures accessory thereto. Multiple-story structures existing on January 1, 1975, let for human habitation, including and limited to, hotels, motels and apartment houses, less than 75 feet (22 860 mm) above the lowest floor level having building access, wherein rooms used for sleeping are let above the ground floor.

Authority cited—Health and Safety Code Sections 13143.2 and 17921.

Reference—Health and Safety Code Section 13143.

Residential care facilities. Certified family care homes, out-of-home placement facilities, halfway houses, drug and/or alcohol rehabilitation facilities and any building or structure used or intended for use as a home or institution for the housing of any person of any age when such person is referred to or placed within such home or institution for protective social care and supervision services by any governmental agency.

Authority cited—Health and Safety Code Section 13143.6.

Reference—Health and Safety Code Section 13143.

Tents, awnings or other fabric enclosures used in connection with any occupancy.

Authority cited—Health and Safety Code Section 13116.

Reference—Health and Safety Code Section 13143.

Fire alarm devices, equipment and systems in connection with any occupancy.

Authority cited—Health and Safety Code Section 13114.

Reference—Health and Safety Code Section 13143.

Hazardous materials.

Authority cited—Health and Safety Code Section 13143.9.

Reference—Health and Safety Code Section 13143.

Flammable and combustible liquids.

Authority cited—Health and Safety Code Section 13143.6.

Reference—Health and Safety Code Section 13143.

Public school automatic fire detection, alarm and sprinkler systems.

Authority cited—Health and Safety Code Section 13143 and California Education Code Article 7.5, Sections 17074.50, 17074.52 and 17074.54.

Reference—Government Code Section 11152.5, Health and Safety Code Section 13143 and California Education Code Chapter 12.5, Leroy F. Greene School Facilities Act of 1998, Article 1.

Wildland-Urban interface fire area.

Authority cited—Health and Safety Code Sections 13143, 13108.5(a) and 18949.2(b) and (c) and Government Code Section 51189.

Reference—Health and Safety Code Sections 13143, Government Code Sections 51176, 51177, 51178 and 51179 and Public Resources Code Sections 4201 through 4204.

1.11.2 Duties and powers of the enforcing agency.

1.11.2.1 Enforcement.

1.11.2.1.1 The responsibility for enforcement of building standards adopted by the State Fire Marshal and published in the California Building Standards Code relating to fire and panic safety and other regulations of the State Fire Marshal shall except as provided in Section 1.11.2.1.2 be as follows:

1. The city, county, or city and county with jurisdiction in the area affected by the standard or regulation shall delegate the enforcement of the building standards relating to fire and panic safety and other regulations of the State Fire Marshal as they relate to Group R-3 occupancies, as described in Section 1.1.3.1 or CCR, Part 2 California Building Code,, Section 310.1, to either of the following:

1.1. The chief of the fire authority of the city, county or city and county, or an authorized representative.

1.2. The chief building official of the city, county or city and county, or an authorized representative.

2. The chief of any city or county fire department or of any fire protection district, and authorized representatives, shall enforce within the jurisdiction the building standards and other regulations of the State Fire Marshal, except those described in Item 1 or 4.

3. The State Fire Marshal shall have authority to enforce the building standards and other regulations of the State Fire Marshal in areas outside of corporate cities and districts providing fire protection services.

4. The State Fire Marshal shall have authority to enforce the building standards and other regulations of the State Fire Marshal in corporate cities and districts providing fire protection services on request of the chief fire official or the governing body.

5. Any fee charged pursuant to the enforcement authority of this section shall not exceed the estimated reasonable cost of providing the service for which the fee is charged pursuant to Section 66014 of the Government Code.

1.11.2.1.2 Pursuant to Health and Safety Code Section 13108, and except as otherwise provided in this section, building standards adopted by the State Fire Marshal published in the California Building Standards Code relating to fire and panic safety shall be enforced by the State Fire Marshal in all state-owned buildings, state-occupied buildings and state institutions throughout the state. Upon the written request of the chief fire official of any city, county, or fire

protection district, the State Fire Marshal may authorize such chief fire official and his or her authorized representatives, in their geographical area of responsibility, to make fire prevention inspections of state-owned or state-occupied buildings, other than state institutions, for the purpose of enforcing the regulations relating to fire and panic safety adopted by the State Fire Marshal pursuant to this section and building standards relating to fire and panic safety published in the California Building Standards Code. Authorization from the State Fire Marshal shall be limited to those fire departments or fire districts which maintain a fire prevention bureau staffed by paid personnel.

Pursuant to Health and Safety Code Section 13108, any requirement or order made by any chief fire official who is authorized by the State Fire Marshal to make fire prevention inspections of state-owned or state-occupied buildings, other than state institutions, may be appealed to the State Fire Marshal. The State Fire Marshal shall, upon receiving an appeal and subject to the provisions of Chapter 5 (commencing with Section 18945) of Part 2.5 of Division 13 of the Health and Safety Code, determine if the requirement or order made is reasonably consistent with the fire and panic safety regulations adopted by the State Fire Marshal and building standards relating to fire and panic safety published in the California Building Code.

Any person may request a code interpretation from the State Fire Marshal relative to the intent of any regulation or provision adopted by the State Fire Marshal. When the request relates to a specific project, occupancy or building, the State Fire Marshal shall review the issue with the appropriate local enforcing agency prior to rendering such code interpretation.

1.11.2.1.3 Pursuant to Health and Safety Code Section 13112, any person who violates any order, rule or regulation of the State Fire Marshal is guilty of a misdemeanor punishable by a fine of not less than \$100.00 or more than \$500.00, or by imprisonment for not less than six months, or by both. A person is guilty of a separate offense each day during which he or she commits, continues or permits a violation of any provision of, or any order, rule or regulation of, the State Fire Marshal as contained in this code.

Any inspection authority who, in the exercise of his or her authority as a deputy State Fire Marshal, causes any legal complaints to be filed or any arrest to be made shall notify the State Fire Marshal immediately following such action.

1.11.2.2 Right of entry. The fire chief of any city, county or fire protection district, or such person's authorized representative, may enter any state institution or any other state-owned or state-occupied building for the purpose of preparing a fire suppression preplanning program or for the purpose of investigating any fire in a state-occupied building.

The State Fire Marshal, his or her deputies or salaried assistants, the chief of any city or county fire department or fire protection district and his or her authorized representatives may enter any building or premises not used for dwelling purposes at any reasonable hour for the purpose of enforcing this chapter. The owner, lessee, manager or operator of any such building or premises shall permit the State Fire Marshal, his or her deputies or salaried assistants and the chief of any city or county fire department or fire protection district and his or her authorized representatives to enter and inspect them at the time and for the purpose stated in this section.

1.11.2.3 More restrictive fire and panic safety building standards.

1.11.2.3.1 Any fire protection district organized pursuant to Health and Safety Code Part 2.7 (commencing with Section 13800) of Division 12 may adopt building standards relating to fire and panic safety that are more stringent than those building standards adopted by the State Fire Marshal and contained in the California Building Standards Code. For these purposes, the district board shall be deemed a legislative body and the district shall be deemed a local agency. Any changes or modifications that are more stringent than the requirements published in the California Building Standards Code relating to fire and panic safety shall be subject to Section 1.1.8.1.

1.11.2.3.2 Any fire protection district that proposes to adopt an ordinance pursuant to this section shall, not less than 30 days prior to noticing a proposed ordinance for public hearing, provide a copy of that ordinance, together with the adopted findings made pursuant to Section 1.11.2.3.1, to the city, county, or city and county where the ordinance will apply. The city, county, or city and county may provide the district with written comments, which shall become part of the fire protection district's public hearing record.

1.11.2.3.3 The fire protection district shall transmit the adopted ordinance to the city, county, or city and county where the ordinance will apply. The legislative body of the city, county, or city and county may ratify, modify or deny an adopted ordinance and transmit its determination to the district within 15 days of the determination. Any modification

or denial of an adopted ordinance shall include a written statement describing the reasons for any modifications or denial. No ordinance adopted by the district shall be effective until ratification by the city, county, or city and county where the ordinance will apply. Upon ratification of an adopted ordinance, the city, county, or city and county shall file a copy of the findings of the district, and any findings of the city, county, or city and county, together with the adopted ordinance expressly marked and identified to which each finding refers, in accordance with Section 1.1.8.1:3.

1.11.2.4 Request for alternate means of protection. Requests for approval to use an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment or means of protection shall be made in writing to the enforcing agency by the owner or the owner's authorized representative and shall be accompanied by a full statement of the conditions. Sufficient evidence or proof shall be submitted to substantiate any claim that may be made regarding its conformance. The enforcing agency may require tests and the submission of a test report from an approved testing organization as set forth in Title 19, California Code of Regulation, to substantiate the equivalency of the proposed alternative means of protection.

When a request for alternate means of protection involves hazardous materials, the authority having jurisdiction may consider implementation of the findings and recommendations identified in a Risk Management Plan (RMP) developed in accordance with Title 19, Division 2, Chapter 4.5, Article 3.

Approval of a request for use of an alternative material, assembly of materials, equipment, method of construction, method of installation of equipment or means of protection made pursuant to these provisions shall be limited to the particular case covered by request and shall not be construed as establishing any precedent for any future request.

1.11.2.5 Appeals. When a request for an alternate means of protection has been denied by the enforcing agency, the applicant may file a written appeal to the State Fire Marshal for consideration of the applicant's proposal. In considering such appeal, the State Fire Marshal may seek the advice of the State Board of Fire Services. The State Fire Marshal shall, after considering all of the facts presented, including any recommendations of the State Board of Fire Services, determine if the proposal is for the purposes intended, at least equivalent to that specified in these regulations in quality, strength, effectiveness, fire resistance, durability and safety, and shall transmit such findings and any recommendations to the applicant and to the enforcing agency.

1.11.3 Construction documents.

1.11.3.1 Public schools. Plans and specifications for the construction, alteration or addition to any building owned, leased or rented by any public school district shall be submitted to the Division of the State Architect.

1.11.3.2 Movable walls and partitions. Plans or diagrams shall be submitted to the enforcing agency for approval before the installation of, or rearrangement of, any movable wall or partition in any occupancy. Approval shall be granted only if there is no increase in the fire hazard.

1.11.3.3 New construction high-rise buildings.

1. Complete plans or specifications, or both, shall be prepared covering all work required to comply with new construction high-rise buildings. Such plans and specifications shall be submitted to the enforcing agency having jurisdiction.

2. All plans and specifications shall be prepared under the responsible charge of an architect or a civil or structural engineer authorized by law to develop construction plans and specifications, or by both such architect and engineer. Plans and specifications shall be prepared by an engineer duly qualified in that branch of engineering necessary to perform such services. Administration of the work of construction shall be under the charge of the responsible architect or engineer except that where plans and specifications involve alterations or repairs, such work of construction may be administered by an engineer duly qualified to perform such services and holding a valid certificate under Chapter 7 (commencing with Section 65700) of Division 3 of the Business and Professions Code for performance of services in that branch of engineering in which said plans, specifications and estimates and work of construction are applicable.

This section shall not be construed as preventing the design of fire-extinguishing systems by persons holding a C-16 license issued pursuant to Division 3, Chapter 9, Business and Professions Code. In such instances, however, the responsibility charge of this section shall prevail.

1.11.3.4 Existing high-rise buildings.

1. Complete plans or specifications, or both, shall be prepared covering all work required by ~~Section 3412~~ California Fire Code Chapter 11 and California Existing Building Code for existing high-rise buildings. Such plans or specifications shall be submitted to the enforcing agency having jurisdiction.

2. When new construction is required to conform with the provisions of these regulations, complete plans or specifications, or both, shall be prepared in accordance with the provisions of this subsection. As used in this section, "new construction" is not intended to include repairs, replacements or minor alterations which do not disrupt or appreciably add to or affect the structural aspects of the building.

1.11.3.5 Retention of plans. Refer to Building Standards Law, Health and Safety Code Sections 19850 and 19851 for permanent retention of plans.

1.11.4 Fees. 1.11.4.1 Other fees. Pursuant to Health and Safety Code Section 13146.2, a city, county or district which inspects a hotel, motel, lodging house or apartment house may charge and collect a fee for the inspection from the owner of the structure in an amount, as determined by the city, county or district, sufficient to pay its costs of that inspection.

1.11.4.2 Large family day-care. Pursuant to Health and Safety Code Section 1597.46, Large Family Day-Care Homes, the local government shall process any required permit as economically as possible, and fees charged for review shall not exceed the costs of the review and permit process.

1.11.4.3 High-rise. Pursuant to Health and Safety Code Section 13217, High-rise Structure Inspection: Fees and costs, a local agency which inspects a high-rise structure pursuant to Health and Safety Code Section 13217 may charge and collect a fee for the inspection from the owner of the high-rise structure in an amount, as determined by the local agency, sufficient to pay its costs of that inspection.

1.11.4.4 Fire clearance preinspection. Pursuant to Health and Safety Code Section 13235, Fire Clearance Preinspection, fee, upon receipt of a request from a prospective licensee of a community care facility, as defined in Section 1502, of a residential care facility for the elderly, as defined in Section 1569.2, or of a child day-care facility, as defined in Section 1596.750, the local fire enforcing agency, as defined in Section 13244, or State Fire Marshal, whichever has primary jurisdiction, shall conduct a preinspection of the facility prior to the final fire clearance approval. At the time of the preinspection, the primary fire enforcing agency shall price consultation and interpretation of the fire safety regulations and shall notify the prospective licensee of the facility in writing of the specific fire safety regulations which shall be enforced in order to obtain fire clearance approval. A fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for the preinspection of a facility with a capacity to serve 25 or fewer persons. A fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for a preinspection of a facility with a capacity to serve 26 or more persons.

1.11.4.5 Care facilities. The primary fire enforcing agency shall complete the final fire clearance inspection for a community care facility, residential care facility for the elderly, or child day-care facility within 30 days of receipt of the request for the final inspection, or as of the date the prospective facility requests the final prelicensure inspection by the State Department of Social Services, whichever is later.

Pursuant to Health and Safety Code Section 13235, a preinspection fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for a facility with a capacity to serve 25 or less clients. A fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for a preinspection of a facility with a capacity to serve 26 or more clients.

Pursuant to Health and Safety Code Section 13131.5, a reasonable final inspection fee, not to exceed the actual cost of inspection services necessary to complete a final inspection may be charged for occupancies classified as residential care facilities for the elderly (RCFE).

Pursuant to Health and Safety Code Section 1569.84, neither the State Fire Marshal nor any local public entity shall charge any fee for enforcing fire inspection regulations pursuant to state law or regulation or local ordinance, with respect to residential care facilities for the elderly (RCFE) which service six or fewer persons.

1.11.4.6 Requests of the Office of the State Fire Marshal. Whenever a local authority having jurisdiction requests that the State Fire Marshal perform plan review and/or inspection services related to a building permit, the applicable fees for such shall be payable to the Office of the State Fire Marshal.

1.11.5 Inspections. Work performed subject to the provisions of this code shall comply with the inspection requirements of Sections ~~109.1, 109.3, 109.3.4, 109.3.5, 109.3.6, 109.3.8, 109.3.9, 109.3.10, 109.5 and 109.6~~ 110.1, 110.3, 110.3.4, 110.3.5, 110.3.6, 110.3.8, 110.3.9, 110.3.10, 110.5 and 110.6 as adopted by the Office of the State Fire Marshal.

1.11.5.1 Existing Group I-1 or R occupancies. Licensed 24-hour care in a Group I-1 or R occupancy in existence and originally classified under previously adopted state codes shall be reinspected under the appropriate previous code, provided there is no change in the use or character which would place the facility in a different occupancy group.

1.11.6 Certificate of Occupancy. A Certificate of Occupancy shall be issued as specified in Section 111.

Exception: Group R, Division 3 and Group U occupancies.

1.11.7 Temporary structures and uses. See Section ~~407~~108.

1.11.8 Service utilities. See Section 112.

1.11.9 Stop work order. See Section 115.

1.11.10 Unsafe buildings, structures and equipment. See Section 116.

DIVISION II SCOPE AND ADMINISTRATION

Note: Sections adopted or amended by state agencies are specifically indicated by an agency banner or indicated in the Matrix Adoption Table.

101.2 Scope. The provisions of this code shall apply to the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with the ~~International~~ California Residential Code.

101.4.1 Gas. The provisions of the ~~International Fuel Gas~~ California Mechanical Code shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 Mechanical. The provisions of the ~~International~~ California Mechanical Code shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.4.3 Plumbing. The provisions of the ~~International~~ California Plumbing Code shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system. The provisions of the International Private Sewage Disposal Code shall apply to private sewage disposal systems.

101.4.5 Fire prevention. The provisions of the ~~International~~ California Fire Code shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression, automatic sprinkler systems and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

101.4.6 Energy. The provisions of the ~~InternationalCalifornia Energy Conservation Code~~, Title 24, Part 6 shall apply to all matters governing the design and construction of buildings for energy efficiency.

101.4.7 Existing buildings. The provisions of the ~~InternationalCalifornia~~ Existing Building Code shall apply to matters governing the repair, alteration, change of occupancy, addition to and relocation of existing buildings.

102.6 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as otherwise specifically provided in this code, the ~~InternationalCalifornia~~ Existing Building Code, the International Property Maintenance Code or the ~~InternationalCalifornia~~ Fire Code.

102.6.1 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the ~~InternationalCalifornia~~ Building Code or ~~InternationalCalifornia~~ Residential Code, as applicable, for new construction or with any current permit for such occupancy.

102.6.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as otherwise specifically provided in this code, the ~~InternationalCalifornia~~ Fire Code or International Property Maintenance Code, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

116.5 Restoration. Where the structure or equipment determined to be unsafe by the building official is restored to a safe condition, to the extent that repairs, alterations or additions are made or a change of occupancy occurs during the restoration of the structure, such repairs, alterations, additions and change of occupancy shall comply with the requirements of Section 105.2.2 and the ~~InternationalCalifornia~~ Existing Building Code.

CHAPTER 2 DEFINITIONS

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the ~~InternationalCalifornia~~ Energy Conservation Code, ~~International Fuel Gas Code~~, ~~InternationalCalifornia~~ Fire Code, ~~InternationalCalifornia~~ Mechanical Code or ~~InternationalCalifornia~~ Plumbing Code, such terms shall have the meanings ascribed to them as in those codes.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

For applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies. Webster's Third New International Dictionary of the English Language, Unabridged, shall be considered as providing ordinarily accepted meanings.

AGED HOME OR INSTITUTION. A facility used for the housing of persons 65 years of age or older in need of care and supervision. (See definition of "care and supervision")

BEDRIDDEN PERSON. A person, requiring assistance in turning and repositioning in bed, or being unable to independently transfer to and from bed, except in facilities with appropriate and sufficient care staff, mechanical devices if necessary, and safety precautions as determined in Title 22 regulations, by the Director of Social Services or his or her designated representative. Persons who are unable to independently transfer to and from bed, but who do not need assistance to turn or reposition in bed, shall be considered nonambulatory.

The Director of Social Services or his or her designated representative shall make the determination of the bedridden status of persons with developmental disabilities, in consultation with the Director of Developmental Services or his or her designated representative.

The Director of Social Services or his or her designated representative shall make the determination of the bedridden status of all other persons with disabilities who are not developmentally disabled.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

Note: Building shall have the same meaning as defined in Health and Safety Code Section 17920 and 18908 for the applications specified in Section 1.11.

CARE AND SUPERVISION. Any one or more of the following activities provided by a person or facility to meet the needs of the clients:

Assistance in dressing, grooming, bathing and other personal hygiene.

Assistance with taking medication.

Central storing and/or distribution of medications.

Arrangement of and assistance with medical and dental care.

Maintenance of house rules for the protection of clients.

Supervision of client schedules and activities.

Maintenance and/or supervision of client cash resources or property.

Monitoring food intake or special diets.

Providing basic services required by applicable law and regulation to be provided by the licensee in order to obtain and maintain a community-care facility license.

CATASTROPHICALLY INJURED. As termed, means a person whose origin of disability was acquired through trauma or nondegenerative neurologic illness, for whom it has been determined by the Department of Health Services Certification and Licensing that active rehabilitation would be beneficial.

CELL (~~Group 1-3 occupancy~~ **Detention or correctional facility**) ~~A room within a housing unit in a detention or correctional facility used to confine inmates or prisoners. [SFM].~~ A sleeping or housing unit in a detention or correctional facility for the confinement of not more than two inmates or prisoners.

CELL COMPLEX. A cluster or group of cells or dormitories in a jail, prison or other detention facility, together with rooms used for accessory purposes, all of which open into the cell complex, and are used for functions such as dining, counseling, exercise, classrooms, sick call, visiting, storage, staff offices, control rooms or similar functions, and interconnecting corridors all within the cell complex.

CELL TIERS. Cells, dormitories and accessory spaces. Cell tiers are located one level above the other, and do not exceed two levels per floor. A cell tier shall not be considered a story or mezzanine.

CENTRAL CONTROL BUILDING. A secure building within a prison where the fire and life safety systems, communication systems, security systems and exterior lighting systems are monitored and where security operations necessitate the remote locking of required means of egress or at the door with a key to maintain a high security area.

CHARTER SCHOOL A Charter School is a public school providing instruction from kindergarten through 12th grade, established pursuant to Education Code, Title 2, Division 4, Part 26.8, section 47600, et seq.

CHILD CARE CENTER. Any facility of any capacity other than a large or small family day-care home as defined in these regulations in which less than 24-hour-per-day nonmedical supervision is provided for children in a group setting.

CHILD OR CHILDREN. A person or persons under the age of 18 years.

CHRONICALLY ILL. See "Terminally ill."

CLIMATE ZONE. A geographical region that has been assigned climatic criteria as specified in Chapters 3CE and 3RE of the ~~International~~ California Energy Conservation Code.

CLINIC, OUTPATIENT. Buildings or portions thereof used to provide medical care on less than a 24-hour basis to persons who are not classified as nonambulatory or bedridden or rendered incapable of self-preservation by the services provided.

COMMUNITY CARE FACILITY. Community care facility means any facility, place, or building that is maintained and operated to provide nonmedical residential care, day treatment, adult day care, or foster family agency services for children, adults, or children and adults, including, but not limited to, the physically handicapped, mentally impaired,

incompetent persons, and abused or neglected children, and includes the following as defined in Health and Safety Code Section 1502:

1. Residential facility
2. Adult day program
3. Therapeutic day services facility
4. Foster family agency
5. Foster family home
6. Small family home
7. Social rehabilitation facility
8. Community treatment facility
9. Full-service adoption agency
10. Noncustodial adoption agency
11. Transitional shelter care facility
12. Transitional housing placement facility

CONGREGATE LIVING FACILITIES. ~~A building or part thereof that contains sleeping units where residents share bathroom or kitchen facilities.~~

CONGREGATE RESIDENCE. *Any building or portion thereof that contains facilities for living, sleeping and sanitation, as required by this code, and may include facilities for eating and cooking, for occupancy by other than a family. A congregate residence may be a shelter, convent, monastery, dormitory, fraternity or sorority house, but does not include jails, hospitals, nursing homes, hotels or lodging houses.*

CONTROL AREA. Spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled. See the definition of "Outdoor control area" in the ~~International~~California Fire Code.

COURTROOM DOCK. *Courtroom Dock shall mean an area within a courtroom where persons may be restrained and are awaiting court proceedings.*

COURTHOUSE HOLDING FACILITY [SFM]. *Courthouse Holding Facility shall mean a room, cell, cell complex or building for the confinement of persons for the purpose of a court appearance for a period not to exceed 12 hours.*

DAY BOX. A portable magazine designed to hold explosive materials constructed in accordance with the requirements for a Type 3 magazine as defined and classified in Chapter 56 of the ~~International~~California Fire Code.

DAY-CARE. *For the purposes of these regulations, means the care of persons during any period of a 24-hour day where permanent sleeping accommodations are not provided.*

Note: "Daycare" shall not be construed to preclude the use of cots or mats for napping purposes, provided all employees, attendants and staff personnel are awake and on duty in the area where napping occurs.

DAY-CARE HOME, FAMILY. *A home that regularly provides care, protection and supervision for 14 or fewer children, in the provider's own home, for periods of less than 24 hours per day, while the parents or guardians are away, and is either a large family day-care home or a small family day-care home.*

DAY-CARE HOME, LARGE FAMILY. *A provider's own home which is licensed to provide day care for periods less than 24 hours per day for nine to 14 persons, including children under the age of 10 years who reside at the home.*

DAY-CARE HOME, SMALL FAMILY. *A home which provides family day-care to eight or fewer children, including children under the age of 10 years who reside at the home, in the provider's own home, for periods of less than 24 hours per day. Small family day-care homes are exempted from state fire and life safety regulations other than those state and local standards applicable to Group R-3 occupancies. (See Health and Safety Code, Section 13143 (b).)*

DAY ROOM. *A room which is adjacent to a cell, or cell tier, or dormitory and which is used as a dining, exercise or other activity room for inmates.*

DETENTION ELEVATOR [SFM]. *Detention Elevator shall mean an elevator which moves in-custody individuals within a secure and restrained environment.*

DETENTION TREATMENT ROOM. [SFM]. *Detention Treatment Room shall mean a lockable room or rooms within Group I-3 occupancies used for recreational therapy, group rooms, interdisciplinary treatment team rooms, and interview rooms not classified solely as an Group I-2 occupancy*

DETOXIFICATION FACILITIES. Facilities that provide treatment for substance abuse serving care recipients who are incapable of self-preservation or classified as non-ambulatory or bedridden or who are harmful to themselves or others.

DORMITORY. A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

[SFM] *For Group I-3 occupancies "Dormitory" is an area occupied by no less than three inmates.*

[Editorial Note: Definition relocated from 2013 CBC 406.9.1]

ELECTRIC VEHICLE. ~~See Section 406.7.~~ *An automotive-type vehicle for highway use, such as passenger automobiles, buses, trucks, vans and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array or other source of electric current. For the purpose of this chapter, electric motorcycles and similar type vehicles and off-road self-propelled electric vehicles such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats and the like, are not included.*

ENFORCING AGENCY. *Enforcing Agency is the designated department or agency as specified by statute or regulation.*

FIRE APPLIANCE. [SFM] *The apparatus or equipment provided or installed for use in the event of an emergency.*

FIRE-SMOKE BARRIER. [SFM] *A fire-resistance-rated wall assembly of materials designed to restrict the spread of fire in which continuity is maintained in accordance with Section 707 and that is designed and constructed to restrict the movement of smoke in accordance with Section 710.*

FIRE-RETARDANT TREATED WOOD. [SFM] *See Section 2303.2.*

FOSTER CARE FACILITIES. ~~Facilities that provide care to more than five children, 2½ years of age or less. See Foster family home.~~

FOSTER FAMILY HOME. *Foster family home means any residential facility providing 24-hour care for six or fewer foster children that is owned, leased, or rented and is the residence of the foster parent or parents, including their family, in whose care the foster children have been placed. The placement may be by a public or private child placement agency or by a court order, or by voluntary placement by a parent, parents, or guardian. It also means a foster family home described in Section 1505.2.*

FULL-TIME CARE. *Shall mean the establishment and routine care of persons on an hourly, daily, weekly, monthly, yearly or permanent basis, whether for 24-hours per day or less, and where sleeping accommodations are provided.*

GROUP HOME. ~~A facility for social rehabilitation, substance abuse or mental health problems that contains a group housing arrangement that provides custodial care but does not provide acute care.~~ *Group Home means a facility which provides 24-hour care and supervision to children, provides services specified in this chapter to a specific client group, and maintains a structured environment, with such services provided at least in part by staff employed by the licensee. The care and supervision provided by a group home shall be nonmedical except as permitted by Welfare and Institutions Code Section 17736(b). Since small family and foster family homes, by definition, care for six or fewer children only, any facility providing 24-hour care for seven or more children must be licensed as a group home.*

HAZARDOUS MATERIALS. Those chemicals or substances that are physical hazards or health hazards as classified in Section 307 and the ~~International~~California Fire Code, whether the materials are in usable or waste condition.

HAZARDOUS SUBSTANCE. [SFM] Hazardous Substance is a substance which, by reason of being explosive, flammable, toxic, poisonous, corrosive, oxidizing, irritant or otherwise harmful, is likely to cause injury.

HIGH-RISE BUILDING. ~~A building with an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access. In other than Group I-2 occupancies "high-rise buildings" as used in this code:~~

Existing high-rise structure. A high-rise structure, the construction of which is commenced or completed prior to July 1, 1974.

High-rise structure. Every building of any type of construction or occupancy having floors used for human occupancy located more than 75 feet above the lowest floor level having building access (see Section 403.4.2), except buildings used as hospitals as defined in Health and Safety Code Section 1250.

New High-rise Building. A high-rise structure, the construction of which is commenced on or after July 1, 1974. For the purpose of this section, construction shall be deemed to have commenced when plans and specifications are more than 50 percent complete and have been presented to the local jurisdiction prior to July 1, 1974. Unless all provisions of this section have been met, the construction of such buildings shall commence on or before January 1, 1976.

New high-rise structure. A high-rise structure, the construction of which is commenced on or after July 1, 1974.

HIGH-RISE BUILDING ACCESS. An exterior door opening conforming to all of the following:

1. Suitable and available for fire department use.
2. Located not more than 2 feet (610 mm) above the adjacent ground level.
3. Leading to a space, room or area having foot traffic communication capabilities with the remainder of the building.
4. Designed to permit penetration through the use of fire department forcible-entry tools and equipment unless other approved arrangements have been made with the fire authority having jurisdiction.

HOLDING FACILITY. A detention or correctional facility or area where inmates, staff and public are not housed but are restrained.

HOSPITALS AND PSYCHIATRIC HOSPITALS. Facilities that provide care or treatment for the medical, psychiatric, obstetrical, or surgical treatment of care recipients who are incapable of self-preservation or classified as nonambulatory or bedridden.

HOUSING UNIT. ~~A dormitory or a group of cells with a common dayroom in Group I-3.~~ An area intended to lodge inmates on a 24-hour basis where accommodations are provided for sleeping.

INFANT. For the purpose of these regulations, shall mean any child who because of age only, is unable to walk and requires the aid of another person to evacuate the building. In no case shall the term "infant" mean a child 2 years of age or older.

LABORATORY. [SFM] A room, building or area where the use and storage of hazardous materials are utilized for testing, analysis, instruction, research or developmental activities.

LABORATORY SUITE. [SFM] A laboratory suite is a space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms or similar support functions, where the aggregate quantities of hazardous materials stored and used do not exceed the quantities set forth in Table 443.7.3-1453.7.3.1.

LIQUID TIGHT FLOOR. [SFM] A nonpermeable barrier capable of containing hazardous material liquids without degradation.

LISTED. Equipment, materials, products or services included in a list published by an organization acceptable to the building official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

For applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, "listed" shall also mean equipment or materials accepted by the state fire marshal as conforming to the provisions of the State Fire Marshal's regulations and which are included in a list published by the State Fire Marshal.

LOBBY. [SFM] An area not defined as a waiting room at the entrance of a building through which persons must pass.

MOTION PICTURE AND TELEVISION PRODUCTION STUDIO SOUND STAGES, APPROVED PRODUCTION FACILITIES AND PRODUCTION LOCATIONS. See Chapter 46, California Fire Code.

NONAMBULATORY PERSONS. Persons unable to leave a building unassisted under emergency conditions. It includes, but is not limited to, persons who depend on mechanical aids such as crutches, walkers and wheelchairs and any person who is unable to physically and mentally respond to a sensory signal approved by the state fire marshal or an oral instruction relating to fire danger.

The determination of ambulatory or nonambulatory status of persons with developmental disabilities shall be made by the Director of Social Services or his or her designated representative, in consultation with the director of Developmental Services or his or her designated representative. The determination of ambulatory or nonambulatory status of all other disabled persons placed after January 1, 1984, who are not developmentally disabled shall be made by the Director of Social Services or his or her designated representative.

NONCOMBUSTIBLE. [SFM] Noncombustible as applied to building construction material means a material which, in the form in which it is used, is either one of the following:

1. Material of which no part will ignite and burn when subjected to fire. Any material passing ASTM E 136 shall be considered noncombustible.
2. Material having a structural base of noncombustible material as defined in Item 1 above, with a surfacing material not over 1/8 inch (3.2 mm) thick which has a flame-spread index of 50 or less.

"Noncombustible" does not apply to surface finish materials. Material required to be noncombustible for reduced clearances to flues, heating appliances or other sources of high temperature shall refer to material conforming to Item 1. No material shall be classed as noncombustible which is subject to increase in combustibility or flame-spread index, beyond the limits herein established, through the effects of age, moisture or other atmospheric condition.

NURSING HOMES. Facilities that provide care, including both intermediate care facilities and skilled nursing facilities where any of the persons are incapable of self-preservation or classified as nonambulatory or bedridden.

ORGANIZED CAMPS. See Section 440450.

PERMANENT PORTABLE BUILDING. [SFM] A portable building that is used to serve or house students and is certified as a permanent building on a new public school campus by the public school administration shall comply with the requirements of new campus buildings.

~~**PERSONAL CARE SERVICE.** The care of persons who do not require medical care. Personal care involves responsibility for the safety of the persons while inside the building.~~

PHYSIOLOGICAL WARNING THRESHOLD LEVEL. A concentration of air-borne contaminants, normally expressed in parts per million (ppm) or milligrams per cubic meter (mg/m³), that represents the concentration at which persons can sense the presence of the contaminant due to odor, irritation or other quick-acting physiological response. When used in conjunction with the permissible exposure limit (PEL) the physiological warning threshold levels are those consistent with the classification system used to establish the PEL. See the definition of "Permissible exposure limit (PEL)" in the ~~International~~ California Fire Code.

PROTECTIVE SOCIAL CARE FACILITY. [SFM] A facility housing persons, who are referred, placed or caused to be placed in the facility, by any governmental agency and for whom the services, or a portion thereof, are paid for by any governmental agency. These occupancies shall include, but are not limited to, those commonly referred to as "assisted living facilities," "social rehabilitation facilities," "certified family care homes," "out-of-home placement facilities," and "halfway houses."

RELOCATABLE BUILDING (PUBLIC SCHOOL), is any building with an integral floor structure which is capable of being readily moved. (See Education Code Section 17350.) Relocatable buildings that are to be placed on substandard foundations not complying with the requirements of Part 2, Title 24, C.C.R., require a statement from the school district stating that the durability requirements for those foundations may be waived and acknowledging the temporary nature of the foundations.

RESIDENTIAL CARE FACILITY FOR THE CHRONICALLY ILL (RCF/CI). As termed, means a housing arrangement with a maximum capacity of 25 residents that provides a range of services to residents who have chronic, life-threatening illnesses.

RESIDENTIAL CARE FACILITY FOR THE ELDERLY (RCFE). As defined in Health and Safety Code Section 1569.2, shall mean a facility with a housing arrangement chosen voluntarily by persons 60 years of age or over, or their authorized representative, where varying levels and intensities of care and supervision, protective supervision or personal care are provided, based on their varying needs, as determined in order to be admitted and to remain in the facility. Persons under 60 years of age with compatible needs, as determined by the Department of Social Services in regulations, may be allowed to be admitted or retained in a residential-care facility for the elderly.

Pursuant to Health and Safety Code Section 13133, regulations of the state fire marshal pertaining to Group R, Division 2 Occupancies classified as residential facilities (RF) and residential-care facilities for the elderly (RCFE) shall apply uniformly throughout the state and no city, county, city and county, including a charter city or charter county, or fire protection district shall adopt or enforce any ordinance or local rule or regulation relating to fire and panic safety which is inconsistent with these regulations. A city, county, city and county, including a charter city or charter county may pursuant to Health and Safety Code Section 13143.5, or a fire protection district may pursuant to Health and Safety Code Section 13869.7, adopt standards more stringent than those adopted by the state fire marshal that are reasonably necessary to accommodate local climate, geological, or topographical conditions relating to roof coverings for residential-care facilities for the elderly.

RESIDENTIAL FACILITY (RF). As defined in Section 1502 of the Health and Safety Code, shall mean any family home, group care facility or similar facility determined by the director of Social Services, for 24-hour nonmedical care of persons in need of personal services, supervision, or assistance essential for sustaining the activities of daily living or for the protection of the individual. Such facilities include small family homes and social rehabilitation facilities.

Pursuant to Health and Safety Code Section 13133, regulations of the state fire marshal pertaining to Group R Occupancies classified as residential facilities (RF) and residential-care facilities for the elderly (RCFE) shall apply uniformly throughout the state and no city, county, city and county, including a charter city or charter county, or fire protection district shall adopt or enforce any ordinance or local rule or regulation relating to fire and panic safety which is inconsistent with these regulations. A city, county, city and county, including a charter city or charter county may pursuant to Health and Safety Code Section 13143.5, or a fire protection district may pursuant to Health and Safety Code Section 13869.7, adopt standards more stringent than those adopted by the state fire marshal that are reasonably necessary to accommodate local climate, geological, or topographical conditions relating to roof coverings for residential-care facilities for the elderly.

RESTRAINT. [SFM] shall mean the physical retention of a person within a room, cell or cell block, holding cells, temporary holding cell, rooms or area, holding facility, secure interview rooms, courthouse holding facilities, courtroom docks, or similar buildings or portions thereof by any means, or within the exterior walls of a building by means of locked doors inoperable by the person restrained. Restraint shall also mean the physical binding, strapping or similar restriction of any person in a chair, walker, bed or other contrivance for the purpose of deliberately restricting the free movement of ambulatory persons.

Restraint shall not be construed to include nonambulatory persons nor shall it include the use of bandage material, strip sheeting or other fabrics or materials (soft ties) used to restrain persons in hospital-type beds or wheelchairs to prevent injury, provided an approved method of quick release is maintained.

Facilities employing the use of soft ties, however, shall be classified as a building used to house nonambulatory persons. Restraint shall not be practiced in licensed facilities classified as Group R-2.1, R-3.1 and R-4 occupancies unless constructed as a Group I-3 occupancy. For Group I-3 Occupancies see Section 408.1.1.

SECURE INTERVIEW ROOMS: A lockable room used to hold and interview detainees for further processing.

SMALL MANAGEMENT YARD. *An exterior exercise yard within a Group I-3 prison used for inmate exercise for a maximum of 2 hours per day, constructed in accordance with Section 408.1.2.3.*

STATE-OWNED/LEASED BUILDING. [SFM] *State-Owned/Leased Building is a building or portion of a building that is owned, leased or rented by the state. State-leased buildings shall include all required exits to a public way serving such leased area or space. Portions of state- leased buildings that are not leased or rented by the state shall not be included within the scope of this section unless such portions present an exposure hazard to the state-leased area or space.*

TEMPORARY HOLDING CELL, ROOM or AREA. [CSA and SFM] *Temporary Holding cell, room or area shall mean a room for temporary holding of inmates, detainees, or in-custody individuals for less than 24 hours.*

TEMPORARY HOLDING FACILITY [SFM] *A building or portion of a building, operated by law enforcement personnel, with one or more temporary holding cells or rooms.*

TENABLE ENVIRONMENT [SFM] *Tenable environment shall mean an environment in which the products of combustion, toxic gases, smoke and heat are limited or otherwise restricted to maintain the impact on occupants to a level that is not life threatening.*

TERMINALLY ILL. *As termed for an individual, means the individual has a life expectancy of six months or less as stated in writing by his or her attending physician and surgeon.*

WAITING ROOM. [SFM] *Waiting room is a room or area normally provided with seating and used for persons waiting.*

WINERY CAVES. *See Section 436446.*

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATIONS

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-2.1, I-3 and I-4.
7. Laboratory (see Section 202): Group B, unless classified as Group L (see Section 443453) or Group H (see Section 307).
8. Mercantile (see Section 309): Group M.
9. [SFM] Organized Camps (see Section 440450): Group C.
10. [SFM] Research Laboratories (see Section 443453): Group L.
11. Residential (see Section 310): Groups R-1, R-2, R-2.1, R-3, R-3.1 and R-4.
12. Storage (see Section 311): Groups S-1 and S-2.
13. Utility and Miscellaneous (see Section 312): Group U.

[SFM] Existing buildings housing existing protective social care homes or facilities established prior to 1972 (see Section 3413 California Fire Code Chapter 11 and California Existing Building Code).

303.1 Assembly Group A. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption or awaiting transportation or motion picture and television production studio sound stages, approved production facilities and production locations. Any building or structure or portion thereof used or intended

to be used for the showing of motion pictures when an admission fee is charged and when such building or structure is open to the public and has a capacity of 10 or more persons.

303.2 Assembly Group A-1. Group A-1 occupancy includes assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to:

Motion picture and television production studio sound stages, approved production facilities and production locations. (with live audiences).

Motion picture theaters

Symphony and concert halls

Television and radio studios admitting an audience

Theaters

303.7 Fixed guideway transit systems. [SFM] Fixed guideway transit system buildings shall conform to the requirements of this code for their occupancy classification in addition to the provisions set forth in Section ~~433~~443.

303.8 Subterranean spaces for winery facilities in natural or manmade caves. [SFM] For fire and life safety requirements, see Section ~~436~~446.

305.1 Educational Group E. Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by ~~six or more~~ *more than six* persons at any one time for educational purposes through the 12th grade.

Exception: [SFM] A residence used as a home school for the children who normally reside at the residence. Such residences shall remain classified as Group R-2, or Group R-3 occupancies.

305.2 Group E, day care facilities. This group includes buildings and structures or portions thereof occupied by more than ~~five-six~~ children ~~older than 2½~~ years of age *and older* who receive educational, supervision or personal care services for fewer than 24 hours per day.

Exception: [SFM] A Day-care facility not otherwise classified as an R-3 occupancy, where occupants are not capable of responding to an emergency situation without physical assistance from the staff shall be classified as Group I-4.

~~**305.2.2 Five or fewer children.** A facility having five or fewer children receiving such day care shall be classified as part of the primary occupancy.~~

~~**305.2.3 Five or fewer children in a dwelling unit.** A facility such as the above within a dwelling unit and having five or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the International Residential Code.~~

306.2 Moderate-hazard factory industrial, Group F-1. Factory industrial uses that are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Aircraft (manufacturing, not to include repair)

Appliances

Athletic equipment

Automobiles and other motor vehicles

Bakeries

Beverages: over 16-percent alcohol content

Bicycles

Boats

Brooms or brushes

Business machines

Cameras and photo equipment

Canvas or similar fabric

Carpets and rugs (includes cleaning)

Clothing

Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Engines (including rebuilding)
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232 m²) in area.
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Metals
Millwork (sash and door)
[SFM] Motion picture and television production studio Sound Stages, Approved Production Facilities and production locations (without live audiences)
~~Motion pictures and television filming (without spectators)~~
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Wood; distillation
Woodworking (cabinet)

[Editorial Note: 2013 CBC Section 307.1 was split into two Sections (307.1 and 307.1.1).]

307.1 High-hazard Group H. High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed in control areas complying with Section 414, based on the maximum allowable quantity limits for control areas set forth in Tables 307.1(1) and 307.1(2). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the requirements of Section 415 and the ~~International~~ California Fire Code. Hazardous materials stored, or used on top of roofs or canopies, shall be classified as outdoor storage or use and shall comply with the ~~International~~ California Fire Code.

Table 307.1(2)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD

[Table not shown for clarity]

For SI: 1 cubic foot = 0.028 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

- a. For use of control areas, see Section 414.2.
- b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.
- c. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

- d. *[SFM]* In other than Group L occupancies, Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied cumulatively.
- e. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the *InternationalCalifornia Fire Code*. Where Note d also applies, the increase for both notes shall be applied cumulatively.
- f. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 414.2.5, see Tables 414.2.5(1) and 414.2.5(2).
- g. Allowed only where stored in approved exhausted gas cabinets or exhausted enclosures as specified in the *InternationalCalifornia Fire Code*.
- h. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.
- i. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 5003.1.2 of the *InternationalCalifornia Fire Code*.

307.1.1 Uses other than Group H. An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

- 1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *InternationalCalifornia Fire Code*.
 - 2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *InternationalCalifornia Fire Code*.
 - 3. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.
 - 4. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment listed by an approved testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour fire barriers constructed in accordance with Section 707 or 1-hour horizontal assemblies constructed in accordance with Section 711, or both.
 - 5. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).
 - 6. Liquor stores and distributors without bulk storage.
 - 7. Refrigeration systems.
 - 8. The storage or utilization of materials for agricultural purposes on the premises.
 - 9. Stationary batteries utilized for facility emergency power, uninterruptable power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and ventilation is provided in accordance with the *InternationalCalifornia Mechanical Code*.
 - 10. Corrosive personal or household products in their original packaging used in retail display.
 - 11. Commonly used corrosive building materials.
 - 12. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *InternationalCalifornia Fire Code*.
 - 13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per *control area* in Group M or S occupancies complying with Section 414.2.5.
 - 14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *InternationalCalifornia Fire Code*.
- ~~4415.~~ *[SFM]* Group L occupancies as defined in section 443-4453.1.

~~307.1.1~~ **307.1.2 Hazardous materials.** Hazardous materials in any quantity shall conform to the requirements of this code, including Section 414, and the *InternationalCalifornia Fire Code*.

308.1 Institutional Group I. Institutional Group I occupancy includes, among others, the use of a building or structure, or a portion thereof, in which care or supervision is provided to persons who are or are not capable of self-preservation without physical assistance or in which persons are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-2.1, I-3 or I-4. *Restraint shall not be permitted in any building except in Group I-3 occupancies constructed for such use, see Section 408.1.2.*

Where occupancies house both ambulatory and nonambulatory persons, the more restrictive requirements shall apply.

308.3 Institutional Group I-1. *Not used. (See Group R-2.1 Section 310.1)*

~~Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.3.1 or 308.3.2. This group shall include, but not be limited to, the following:~~

~~Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities~~

~~**308.3.1 Condition 1.** This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.~~

~~**308.3.2 Condition 2.** This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.~~

~~**308.3.3 Six to 16 persons receiving custodial care.** A facility housing not fewer than six and not more than 16 persons receiving custodial care shall be classified as Group R-4.~~

~~**308.3.4 Five or fewer persons receiving custodial care.** A facility with five or fewer persons receiving custodial care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.~~

308.4 Institutional Group I-2. Institutional Group I-2 occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than five persons who are incapable of self-preservation or classified as nonambulatory or bedridden. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospitals
Nursing homes
Psychiatric hospitals

~~**308.4.2 Five or fewer persons receiving medical care.** A facility with five or fewer persons receiving medical care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.~~

~~**308.4.2 Institutional Group I-2.1 Ambulatory health care facility.** A healthcare facility that receives persons for outpatient medical care that may render the patient incapable of unassisted self-preservation and where each tenant space accommodates more than five such patients.~~

308.5 Institutional Group I-3. Institutional Group I-3 occupancy shall include buildings or portions of buildings and structures that are inhabited by one or more than five persons who are under restraint or security. A Group I-3 facility is occupied by persons who are generally incapable of self-preservation due to security measures not under the occupants' control which includes persons restrained. This group shall include, but not be limited to, the following:

Correctional Centers
Courthouse Holding Facility
Detention centers
Detention Treatment Room
Jails
Juvenile Halls

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

Prerelease Centers
Prisons
Reformatories
Secure Interview Rooms
Temporary Holding Facility

Buildings of Group I-3 shall be classified as one of the occupancy conditions specified in Sections 308.5.1 through 308.5.5 308.5.8 (see Section 408.1).

308.5.6 Condition 6. *This occupancy condition shall include buildings containing only one temporary holding facility with five or less persons under restraint or security where the building is protected throughout with a monitored automatic sprinkler system installed in accordance with Section 903.3.1.1 and where the temporary holding facility is protected throughout with an automatic fire alarm system with notification appliances. A Condition 6 building shall be permitted to be classified as a Group B occupancy.*

308.5.7 Condition 7. *This occupancy condition shall include buildings containing only one temporary holding facility with nine or less persons under restraint or security where limited to the first or second story, provided the building complies with Section 408.1.2.6. A Condition 7 building shall be permitted to be classified as a Group B occupancy.*

308.5.8 Condition 8. *This occupancy condition shall include buildings containing not more than four secure interview rooms located within the same fire area where not more than ~~6~~ six occupants under restraint are located in the same fire area. A Condition 8 building shall be permitted to be classified as a Group B occupancy, provided the requirements in Section 408.1.2.7 are met.*

308.6 Institutional Group I-4, day care facilities. Institutional Group I-4 occupancy shall include buildings and structures occupied by more than ~~five~~six ~~persons~~clients of any age who receive custodial care for fewer than 24 hours per day by persons other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the ~~person~~clients cared for. This group shall include, but not be limited to, the following:

Adult day care
Child day care

308.6.1 Classification as Group E. A child day care facility that provides care for more than ~~five~~six but not more than 100 children *under 2½ years of age*, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.

308.6.1.1 Special provisions. *See Section ~~442.1.4~~452.1.4 for daycares located above or below the first story.*

~~**308.6.2 Within a place of religious worship.** Rooms and spaces within places of religious worship providing such care during religious functions shall be classified as part of the primary occupancy.~~

~~**308.6.3 Five or fewer persons receiving care.** A facility having five or fewer persons receiving custodial care shall be classified as part of the primary occupancy.~~

~~**308.6.4 Five or fewer persons receiving care in a dwelling unit.** A facility such as the above within a dwelling unit and having five or fewer persons receiving custodial care shall be classified as a Group R-3 occupancy or shall comply with the International Residential Code.~~

310.1 Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International California Residential Code*.

310.2 Definitions. The following terms are defined in Chapter 2:

AGED HOME OR INSTITUTION.
BEDRIDDEN PERSON.
BOARDING HOUSE.
CARE AND SUPERVISION.

CATASTROPHICALLY INJURED.
CHILD-CARE CENTER.
CHILD OR CHILDREN.
CHRONICALLY ILL.
CONGREGATE LIVING FACILITIES.
CONGREGATE LIVING HEALTH FACILITY (CLHF).
CONGREGATE RESIDENCE.
DAY CARE.
DAY-CARE HOME, FAMILY.
DAY-CARE HOME, LARGE FAMILY.
DAY-CARE HOME, SMALL FAMILY.
DORMITORY.
FULL-TIME CARE.
GROUP HOME.
GUEST ROOM.
INFANT.
LODGING HOUSE.
~~MENTALLY RETARDED PERSONS, PROFOUNDLY OR SEVERELY.~~
NONAMBULATORY PERSONS.
~~PERSONAL CARE SERVICE.~~
PERSONS WITH INTELLECTUAL DISABILITIES, PROFOUNDLY OR SEVERELY.
RESIDENTIAL CARE FACILITY FOR THE CHRONICALLY ILL (RCF/CI).
RESIDENTIAL CARE FACILITY FOR THE ELDERLY (RCFE).
RESIDENTIAL FACILITY (RF).
TERMINALLY ILL.
TRANSIENT.

310.3 Residential Group R-1. Residential Group R-1 occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants
~~Congregate living facilities~~ *Congregate residences* (transient) with more than 10 occupants
Hotels (transient)
Motels (transient)

310.4 Residential Group R-2. Residential Group R-2 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Apartment houses
Boarding houses (nontransient) with more than 16 occupants
~~Congregate living facilities~~ *Congregate residences* (nontransient) with more than 16 occupants
Convents
Dormitories
Fraternities and sororities
Hotels (nontransient)
Live/work units
Monasteries
Motels (nontransient)
Vacation timeshare properties

310.4.1 Residential Group R-2.1 Residential Group R-2.1 occupancies ~~This occupancy shall include buildings, structures or parts thereof housing clients, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services.~~

This occupancy may contain more than six nonambulatory and/or bedridden clients. (See Section 425435 Special Provisions for Licensed 24-Hour Care Facilities in a Group R-2.1, R-3.1 or R-4 Occupancy). This group shall include, but not be limited to, the following:

Assisted living facilities such as:

*Residential care facilities,
Residential care facilities for the elderly (RCFEs),
Adult residential facilities,
Congregate living health facilities,
Group homes,
Residential care facilities for the chronically ill,
Congregate living health facilities for the terminally ill.*

*Social rehabilitation facilities such as:
Halfway houses,
Community correctional centers,
Community correction reentry centers,
Community treatment programs,
Work furlough programs,
Alcoholism or drug abuse recovery or treatment facilities.*

[Editorial Note: Order change to CA armaments.]

310.5 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-2.1, R-3.1, R-4 or I, including:

*Buildings that do not contain more than two dwelling units.
Boarding houses (nontransient) with 16 or fewer occupants
Boarding houses (transient) with 10 or fewer occupants
~~Congregate living facilities~~ Congregate residences (nontransient) with 16 or fewer occupants.
~~Congregate living facilities~~ Congregate residences (transient) with 10 or fewer occupants.
Lodging houses with five or fewer guest rooms
~~Care facilities that provide accommodations for five or fewer persons receiving care~~
Adult care facilities that provide accommodations for six or fewer clients of any age for less than 24 hours. Licensing categories that may use this classification include, but are not limited to: Adult Day Programs.*

Alcoholism or drug abuse recovery homes (ambulatory only)

*Child care facilities that provide accommodations for six or fewer clients of any age for less than 24 hours. Licensing categories that may use this classification include, but are not limited to:
Day-Care Center for Mildly Ill Children,
Infant Care Center,
School Age Child Day-Care Center.*

*Family Day-Care Homes that provide accommodations for 14 or fewer children, in the provider's own home for less than 24-hours.
Foster family homes (ambulatory only)*

Adult care and child care facilities that are within a single-family home are permitted to comply with the California Residential Code.

~~**310.5.1 Care facilities within a dwelling.** Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to comply with the International Residential Code provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the International Residential Code.~~

310.5.1 Residential Group R-3.1 This occupancy group may include facilities licensed by a governmental agency for a residentially based 24-hour care facility providing accommodations for six or fewer clients of any age. Clients may be classified as ambulatory, nonambulatory or bedridden. A Group R-3.1 occupancy shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in Section 425435 Special Provisions For Licensed 24-Hour Care Facilities in a Group R-2.1, R-3.1 or R-4 Occupancy. This group may include:

*Adult residential facilities
Congregate living health facilities
Foster family homes
Group homes*

*Intermediate care facilities for the developmentally disabled habilitative
Intermediate care facilities for the developmentally disabled nursing
Nurseries for the full-time care of children under the age of six, but not including "infants" as defined in Section 310
Residential care facilities for the elderly
Small family homes and residential care facilities for the chronically ill*

Exception: Group Homes licensed by the Department of Social Services which provide nonmedical board, room and care for six or fewer ambulatory children or children two years of age or younger, and which do not have any nonambulatory clients shall not be subject to regulations found in Section ~~4254~~435.

Pursuant to Health and Safety Code Section 13143 with respect to these exempted facilities, no city, county or public district shall adopt or enforce any requirement for the prevention of fire or for the protection of life and property against fire and panic unless the requirement would be applicable to a structure regardless of the special occupancy. Nothing shall restrict the application of state or local housing standards to such facilities if the standards are applicable to residential occupancies and are not based on the use of the structure as a facility for ambulatory children. For the purpose of this exception, ambulatory children does not include relatives of the licensee or the licensee's spouse.

310.5.2 Lodging houses. Owner-occupied lodging houses with five or fewer guest rooms shall be permitted to be constructed in accordance with the ~~International~~ California Residential Code.

310.6 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than ~~five~~six ambulatory clients, but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive custodial care. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. The persons receiving care are capable of self-preservation. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

This occupancy classification may include a maximum six nonambulatory or bedridden clients (see Section ~~4254~~435 Special Provisions for Licensed 24-Hour Care Facilities in a Group R-2.1, R-3.1 or R-4 Occupancy). Group R-4 occupancies shall include the following:

*Assisted living facilities such as:
Residential care facilities,
Residential care facilities for the elderly (RCFEs),
Adult residential facilities,
Congregate living health facilities,
Group homes.*

*Social rehabilitation facilities such as:
Halfway houses,
Community correctional centers,
Community correction reentry centers,
Community treatment programs,
Work furlough programs,
Alcoholism or drug abuse recovery or treatment facilities.*

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

310.7 Large Family Day-Care Homes. See Section ~~4454~~55.

**SECTION 313
LABORATORIES GROUP L [SFM]**

313.1 Laboratories Group L. [SFM] Group L occupancy includes the use of a building or structure, or a portion thereof, containing one or more laboratory suites as defined in Section 443.453.

**SECTION 314
ORGANIZED CAMPS GROUP C [SFM]**

314.1 Organized Camps Group C. [SFM] An organized camp is a site with programs and facilities established for the primary purpose of providing an outdoor group living experience with social, spiritual, educational or recreational objectives, for five days or more during one or more seasons of the year.

**CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY**

**SECTION 403
HIGH-RISE BUILDINGS AND GROUP I-2 OCCUPANCIES HAVING OCCUPIED FLOORS LOCATED MORE
THAN 75 FEET ABOVE THE LOWEST LEVEL OF FIRE DEPARTMENT VEHICLE ACCESS**

403.1 Applicability. New ~~H~~high-rise buildings and new Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access shall comply with Sections 403.2 through 403.6 403.7.

Exception: The provisions of Sections 403.2 through ~~403.6~~403.7 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. Open parking garages in accordance with Section 406.3.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6.
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with:
 - 5.1. A Group H-1 occupancy;
 - 5.2. A Group H-2 occupancy in accordance with Section 415.8, 415.9.2, 415.9.3 or 426.1; or,
 - 5.3. A Group H-3 occupancy in accordance with Section 415.8.
5. Buildings such as power plants, lookout towers, steeples, grain houses and similar structures with noncontinuous human occupancy, when so determined by the enforcing agency.

~~For existing high-rise buildings, see Section 3414 and for existing Group R occupancies, see Section 3413.13~~California Fire Code Chapter 11 and California Existing Building Code.

For the purpose of this section, in determining the level from which the highest occupied floor is to be measured, the enforcing agency should exercise reasonable judgment, including consideration of overall accessibility to the building by fire department personnel and vehicular equipment. When a building is located on sloping terrain and there is building access on more than one level, the enforcing agency may select the level that provides the most logical and adequate fire department access.

403.1.1 Definitions. The following terms are defined in Chapter 2.

**HIGH-RISE BUILDING.
HIGH-RISE BUILDING ACCESS.
NEW HIGH-RISE BUILDING.**

403.2.1 Reduction in fire-resistance rating. The fire-resistance-rating reductions listed in Sections 403.2.1.1 and 403.2.1.2 shall be allowed in buildings that have sprinkler control valves equipped with supervisory initiating devices and water-flow initiating devices for each floor.

Exception: Buildings, or portions of buildings, classified as a Group H-1, H-2 or H-3 occupancy.

403.2.1.1 Type of construction. The following reductions in the minimum fire-resistance rating of the building elements in Table 601 shall be permitted as follows:

1. For buildings not greater than 420 feet (128 000 mm) in building height, the fire-resistance rating of the building elements in Type IA construction shall be permitted to be reduced to the minimum fire-resistance ratings for the building elements in Type IB.

Exception: The required fire-resistance rating of ~~columns supporting floors~~ *the Structural Frame* shall not be reduced.

2. In other than Group F-1, M and S-1 occupancies, the fire-resistance rating of the building elements in Type IB construction shall be permitted to be reduced to the fire-resistance ratings in Type IIA.

Exception: *The required fire-resistance rating of the structural frame shall not be permitted to be reduced.*

3. The building height and building area limitations of a building containing building elements with reduced fire-resistance ratings shall be permitted to be the same as the building without such reductions.

403.3 Automatic sprinkler system. Buildings and structures shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and a secondary water supply where required by Section 403.3.3. *A sprinkler water-flow alarm-initiating device and a control valve with a supervisory signal-initiating device shall be provided at the lateral connection to the riser for each floor.*

Exception: An automatic sprinkler system shall not be required in ~~spaces or areas of:~~

1. Open parking garages in accordance with Section 406.5.

2. ~~Telecommunications equipment buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided that these spaces or areas are equipped throughout with an automatic fire detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour fire barriers constructed in accordance with Section 707 or not less than 2-hour horizontal assemblies constructed in accordance with Section 711, or both.~~

403.3.1 Number of sprinkler system risers and system design. Each sprinkler system zone *serving a floor* in buildings that are more than 420 feet (128 000 mm) in building height shall be ~~supplied by no fewer than~~ *connected to a minimum of two sprinkler risers or combination standpipe system risers located in separate shafts. Each sprinkler system shall be hydraulically designed so that when one connection is shut-down, the other connection shall be capable of supplying the sprinkler system design demand. Each riser shall supply sprinklers on alternate floors. If more than two risers are provided for a zone, sprinklers on adjacent floors shall not be supplied from the same riser.*

403.3.2 Water supply to required fire pumps. In buildings *having an occupied floor* that are more than ~~420~~ *120* feet (428 000 mm ~~36 576 mm~~) *above the lowest level of fire department vehicle access* in building height, required fire pumps shall be supplied by connections to no fewer than two water mains located in different streets. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.

Exceptions:

~~1. Two connections to the same main shall be permitted provided the main is valved such that an interruption can be isolated so that the water supply will continue without interruption through no fewer than one of the connections.~~

~~2. High-rise buildings not having an occupied floor more than 120 feet above the lowest level of fire department vehicle access where a secondary water supply is provided in accordance with Section 903.3.5.2403.3.3.~~

403.3.2.1 Fire Pumps: *Redundant fire pump systems shall be required for high-rise buildings having an occupied floor more than 200 feet above the lowest level of fire department vehicle access. Each fire pump system shall be capable of automatically supplying the required demand for the automatic sprinkler and standpipe systems.*

403.3.3 Secondary water supply. An automatic secondary on-site water supply having a *usable capacity of* not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings and Group I-2 occupancies having occupied floors located more than 75 ft above the lowest level of fire department vehicle access assigned to Seismic Design Category C, D, E or F as determined by Section 1613. An

additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a useable capacity of not less than the hydraulically calculated sprinkler demand plus 100 GPM for the inside hose stream, allowance, for a duration of not less than 30 minutes or as determined by the occupancy hazard classification in accordance with NFPA 13, whichever is greater. The Class I standpipe system demand shall not be required to be included in the secondary on-site water supply calculations. In no case shall the secondary on-site water supply be less than 15,000 gallons.

403.3.4403.3.5 Fire pumps. See Section 913.6.

403.4.5 Emergency responder radio coverage. Emergency responder radio coverage shall be provided in accordance with Section 510 of the *International California Fire Code*.

403.4.7 Smoke removal. ~~To facilitate smoke removal in post-fire salvage and overhaul operations, buildings and structures shall be equipped with natural or mechanical ventilation for removal of products of combustion in accordance with one of the following:~~

~~1. Easily identifiable, manually operable windows or panels shall be distributed around the perimeter of each floor at not more than 50-foot (15 240 mm) intervals. The area of operable windows or panels shall be not less than 40 square feet (3.7 m²) per 50 linear feet (15 240 mm) of perimeter.~~

Exceptions:

~~1. In Group R-1 occupancies, each sleeping unit or suite having an exterior wall shall be permitted to be provided with 2 square feet (0.19 m²) of venting area in lieu of the area specified in Item 1.~~
~~2. Windows shall be permitted to be fixed provided that glazing can be cleared by fire fighters.~~

~~2. Mechanical air handling equipment providing one exhaust air change every 15 minutes for the area involved. Return and exhaust air shall be moved directly to the outside without recirculation to other portions of the building.~~

~~3. Any other approved design that will produce equivalent results.~~

403.4.7 Smoke control.

403.4.7.1 Smoke control system. All portions of high-rise buildings shall be provided with a smoke control system or in accordance with Section 909.

403.5.3 Stairway door operation. Stairway doors other than the exit discharge doors shall be permitted to be locked from the stairway side. Stairway doors that are locked from the stairway side shall be capable of being unlocked simultaneously without unlatching upon a signal from the fire command center. *Upon failure of electrical power to the locking mechanism the door shall unlock.*

403.5.4 Smokeproof enclosures. Every exit enclosure in high-rise buildings shall comply with Sections 909.20 and ~~4023.40~~1023.11. Every required interior exit stairway in Group I-2 occupancies serving floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be a smokeproof enclosure in accordance with Sections 909.20 and ~~4023.40~~1023.11.

Exception: In high-rise buildings, exit enclosures serving three or less adjacent floors where one of the adjacent floors is the level of exit discharge.

403.6 Elevators. Elevator installation and operation in high-rise buildings shall comply with Chapter 30 and Sections 403.6.1 and 403.6.2.

Enclosed elevator lobbies shall be provided in accordance with Section ~~713.14.1~~3006. Exceptions ~~3, 5, 6 and 82, 3, 4, and 5 of 3006.3~~ shall only be permitted where approved by the Fire Chief in accordance with Section 1.11.2.1.1 or in accordance with Section 1.11.2.1.2 for all state-owned buildings, state-occupied buildings, and state institutions throughout the state.

403.7 Existing high-rise buildings. For existing high-rise buildings, see ~~Section 3414~~ California Fire Code Chapter 11 and California Existing Building Code.

404.2 Use. The floor of the atrium shall not be used for other than low fire hazard uses and only approved materials and decorations in accordance with the ~~International~~California Fire Code shall be used in the atrium space.

Exception: The atrium floor area is permitted to be used for any approved use where the individual space is provided with an automatic sprinkler system in accordance with Section 903.3.1.1.

404.6 Enclosure of atriums. Atrium spaces shall be separated from adjacent spaces by a 1-hour fire barrier constructed in accordance with Section 707 or a horizontal assembly constructed in accordance with Section 711, or both.

Exceptions:

1. A fire barrier is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
 - 1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the atrium side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
 - 1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
 - 1.3. Where glass doors are provided in the glass wall, they shall be either self-closing or automatic-closing.
2. A fire barrier is not required where a glass-block wall assembly complying with Section 2110 and having a 3/4-hour fire protection rating is provided.
3. *In other than Group I and R-2.1 occupancies*, Aa fire barrier is not required between the atrium and the adjoining spaces of any three floors of the atrium provided such spaces are accounted for in the design of the smoke control system.

~~404.10~~**404.11 Group I and R-2.1 occupancy means of egress.** Required means of egress from sleeping rooms in Group I and R-2.1 occupancies shall not pass through the atrium.

406.7 Motor fuel-dispensing facilities. Motor fuel-dispensing facilities shall comply with the ~~International~~California Fire Code and Sections 406.7.1 and 406.7.2.

406.8 Repair garages. Repair garages shall be constructed in accordance with the ~~International~~California Fire Code and Sections 406.8.1 through 406.8.6. This occupancy shall not include motor fuel-dispensing facilities, as regulated in Section 406.7.

406.8.2 Ventilation. Repair garages shall be mechanically ventilated in accordance with the ~~International~~California Mechanical Code. The ventilation system shall be controlled at the entrance to the garage.

406.8.4 Heating equipment. Heating equipment shall be installed in accordance with the ~~International~~California Mechanical Code.

406.9 Electric Vehicle. [SFM]

[Editorial Note: Electric Vehicle definition relocated to Chapter 2]

~~**406.9.1 Electric Vehicle.** An automotive type vehicle for highway use, such as passenger automobiles, buses, trucks, vans and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array or other source of electric current. For the purpose of this chapter, electric motorcycles and similar type vehicles and off-road self-propelled electric vehicles such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats and the like, are not included.~~

~~406.9.2~~**406.9.1 Charging.** In any building or interior area used for charging electric vehicles, electrical equipment shall be installed in accordance with the California Electrical Code.

~~406.9.3~~**406.9.2 Ventilation.** Mechanical exhaust ventilation, when required by the California Electrical Code shall be provided at a rate as required by Article 625 or as required by Section 1203 of the California Building Code whichever is greater. The ventilation system shall include both the supply and exhaust equipment and shall be permanently

installed and located to intake supply air from the outdoors, and vent the exhaust directly to, the outdoors without conducting the exhaust air through other spaces within the building.

Exception: Positive pressure ventilation systems shall only be allowed in buildings or areas that have been designed and approved for that application.

406.9.4406.9.3 Electrical Interface. *The electrical supply circuit to electrically powered mechanical ventilation equipment shall be interlocked with the recharging equipment used to supply the vehicle(s) being charged, and shall remain energized during the entire charging cycle. Electric vehicle recharging equipment shall be marked or labeled in accordance with the California Electrical Code.*

Exceptions:

1. Exhaust ventilation shall not be required in areas with an approved engineered ventilation system, which maintains a hydrogen gas concentration at less than 25 percent of the lower flammability limit.
2. Mechanical exhaust ventilation for hydrogen shall not be required where the charging equipment utilized is installed and listed for indoor charging of electric vehicles without ventilation.

407.1 General. Occupancies in Group I-2 and I-2.1 shall comply with the provisions of Sections 407.1 through 407.10 and other applicable provisions of this code.

407.2 Corridors continuity and separation. Corridors in occupancies in Group I-2 and I-2.1 shall be continuous to the exits and shall be separated from other areas in accordance with Section 407.3 except spaces conforming to Sections 407.2.1 through 407.2.4.

407.2.2 Care providers' Nurses' stations. *Spaces for care providers', supervisory staff, doctors' and nurses' charting, communications and related clerical areas shall be permitted to be open to, or located within the corridor provided the required construction along the perimeter of the corridor is maintained when such spaces are constructed as required for corridors. Construction of nurses' stations or portions of nurses' stations, within the envelope of the corridor is not required to be fire-resistive rated. Nurses' stations in new and existing facilities see the California Code of Regulations, Title 19, Division 1, Chapter 1, Subchapter 1, Article 3, Section 3.11(d) for storage and equipment requirements.*

In detention or secure mental health facilities, the provisions above applies to enclosed nurses' stations within the corridor.

407.3 Corridor wall construction. Corridor walls shall be constructed as smokefire partitions in accordance with Section 710708.

407.4 Means of egress. Group I-2 and I-2.1 occupancies shall be provided with means of egress complying with Chapter 10 and Sections 407.4.1 through 407.4.4. The fire safety and evacuation plans provided in accordance with Section 1001.4 shall identify the building components necessary to support a defend-in-place emergency response in accordance with Sections 404 and 408 of the International California Fire Code.

407.4.1.2 Basement exits. *All rooms below grade shall have not less than one exit access that leads directly to an exterior exit door opening directly to an exit discharge at grade plane or the public way.*

407.4.2 Distance of travel. The distance of travel between any point in a Group I-2 or I-2.1 occupancy sleeping room, not located in a care suite, and an exit access door in that room shall be not greater than 50 feet (15 240 mm).

407.4.4 Group I-2 care suites. Care suites in Group I-2 or I-2.1 shall comply with Sections 407.4.4.1 through 407.4.4.4 and either Section 407.4.4.5 or 407.4.4.6.

407.4.4.2 Separation. Care suites shall be separated from other portions of the building, including other care suites, by a ~~smoke partition~~ *not less than a one-hour fire barrier* complying with Section 710707 *Each suite of rooms shall be separated from the remainder of the building by not less than a one-hour fire barrier.*

407.5.2 Independent egress. *At least two means of egress shall be provided from each smoke compartment created by smoke barriers. without having to* Means of egress may pass through adjacent compartments provided it does not return through the smoke compartment from which means of egress originated.

407.6 Automatic sprinkler system. ~~Smoke compartments containing sleeping rooms shall be equipped throughout with an automatic sprinkler system in accordance with Sections 903.3.1.1 and 903.3.2.~~ Every facility as specified herein wherein more than six clients or patients are housed or cared for on the premises on a 24-hour per-day-basis shall have installed and maintained in an operable condition in every building or portion thereof where clients or patients are housed, an automatic sprinkler system of a type approved by the state fire marshal. The provisions of this subsection shall apply to every person, firm or corporation establishing, maintaining or operating a hospital, children's home, children's nursery or institution, or a home or institution for the care of aged or persons with dementia or other cognitive impairments, or any institution for persons with mental illness or persons with developmental disabilities and any nursing or convalescent home, and to any state-owned or state-occupied building used for any of the types of facilities specified herein.

Exceptions:

1. This section shall not apply to homes or institutions for the 24-hour-per-day care of ambulatory children if all of the following conditions are satisfied:

1.1. The buildings or portions thereof in which children are housed are not more than two stories in height and are constructed and maintained in accordance with regulations adopted by the state fire marshal.

1.2. The buildings or portions thereof housing more than six such children shall have installed and maintained in an operable condition therein, a fire alarm system of a type approved by the state fire marshal. Such system shall be activated by detectors responding to invisible particles of combustion other than heat, except that detectors used in closets, usable under-floor areas, storage rooms, bathrooms, attached garages, attics, plenums, laundry rooms and rooms of similar use, may be heat-responsive devices.

1.3. The building or portions thereof do not house persons with mental illness or children with developmental disabilities.

2. This section shall not apply to any one-story building or structure of an institution or home for the care of the aged providing 24-hour-per-day care if such building or structure is used or intended to be used for the housing of no more than six ambulatory aged persons. Such buildings or institutions shall have installed and maintained in an operable condition herein a fire alarm system of a type approved by the state fire marshal. Such system shall be activated by detectors responding to either visible or invisible particles of combustion other than heat, except that detectors used in closets, usable under-floor areas, storage rooms, bathrooms, attached garages, attics, plenums, laundry rooms and rooms of similar use, may be heat-responsive devices.

3. This section shall not apply to occupancies or any alterations thereto conforming to the construction provisions of this exception which were under construction or in existence on March 4, 1972. "Under construction" as used in this exception shall mean that actual work had been performed on the construction site and shall not be construed to mean that the hospital, home, nursery, institution, sanitarium or any portion thereof, was or is in the planning stage. The provisions of this exception shall apply to those buildings or structures having bearing walls and structural frame protected in accordance with the provisions of Column Type 1A of Table 601.

4. In detention facilities where inmates are not restrained.

The provisions of this section shall not apply to any facility used to house six or less persons on the premises.

407.6.1 When a new addition is to be made to an unsprinklered building or structure as permitted by this subsection, such new addition shall be sprinklered as required by this section and shall be separated from the existing building or structures by not less than a two-hour fire-resistive fire barrier.

When a sprinkler system is added to an existing unsprinklered building or structure, the sprinklered area(s) shall be separated from the remainder of the building by not less than a one-hour fire-resistive fire barrier. The provisions of this section do not apply to any facility used to house six or less persons on the premises.

407.8 Automatic fire detection. ~~Corridors in Group I-2, Condition 1, occupancies, long term care facilities, detoxification facilities and spaces permitted to be open to the corridors by Section 407.2 shall be equipped with an automatic fire detection system. Group I-2, Condition 2, occupancies shall be equipped with smoke detection as required in Section 407.2.~~

Exceptions:

1. ~~Corridor smoke detection is not required where sleeping rooms are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the corridor side of each sleeping room and an audible and visual alarm at the care provider's station attending each unit.~~

~~2. Corridor smoke detection is not required where sleeping room doors are equipped with automatic door closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function. See Section 907.2.6.2.~~

407.9 Secured yards. Grounds are permitted to be fenced and gates therein are permitted to be equipped with locks, provided that safe dispersal areas having 30 net square feet (2.8 m²) for bed and stretcher care recipients and 6 net square feet (0.56 m²) for ambulatory care recipients and other occupants are located between the building and the fence. Such provided safe dispersal areas shall be located not less than 50 feet (15 240 mm) from the building they serve. Each safe dispersal area shall have a minimum of two exits. The aggregate clear width of exits from a safe dispersal area shall be determined on the basis of not less than one exit unit of 22 inches (559 mm) for each 500 persons to be accommodated, and no exit shall be less than 44 inches (1118 mm) in width. Gates shall not be installed across corridors or passageways leading to such dispersal areas unless they comply with egress requirements. Keys to gate locks shall be provided in accordance with the California Fire Code.

407.11 Special Hazards.

407.11.1 Storage and handling of flammable, combustible liquids and hazardous materials shall be in accordance with the California Fire Code.

407.11.2 All exterior openings in a boiler room or room containing central heating equipment, if located below openings in another story, or if less than 10 feet (3048 mm) from other doors or windows of the same building, shall be protected by a fire assembly having a three-fourths-hour fire protection rating.

407.11.3 Safety padding. See Sections 308.1 and 408.14.

407.11.4 Floor Surfaces. Rooms occupied by patients whose personal liberties are restrained shall have noncombustible floor surfaces see Sections 308.1 and ~~804.4.2~~804.4.3.

408.1.1 Definitions. The following terms are defined in Chapter 2:

CELL.

CELL COMPLEX.

CELL TIERS.

CENTRAL CONTROL BUILDING.

COURTROOM DOCK.

COURTHOUSE HOLDING FACILITY.

DAY ROOM.

DETENTION ELEVATOR.

DETENTION TREATMENT ROOM.

DORMITORY.

HOLDING FACILITY.

HOUSING UNIT.

RESTRAINT.

SALLYPORT.

SMALL MANAGEMENT YARD.

SECURE INTERVIEW ROOMS.

TEMPORARY HOLDING CELL, ROOM OR AREA.

TEMPORARY HOLDING FACILITY.

408.1.2 Construction. Group I-3 Occupancies shall be housed in buildings of Type IA or Type IB.

Exception: Such occupancies may be housed in one-story buildings of Type IIA, Type IIIA or Type VA construction provided the floor area does not exceed 5,200 square feet (483m²) between fire walls of two-hour fire-resistive construction with openings protected by fire assemblies having 1- and 1 1/2-hour fire-protection rating.

408.1.2.1 Nonbearing walls and partitions interior. Nonbearing cell or dormitory walls within cell complexes shall be of noncombustible construction.

408.1.2.2 Intervening spaces. Common rooms and spaces within Group I-3 occupancies can be considered an intervening space in accordance with Section 1014.2, and not considered a corridor, when they meet any of the following:

1. The inmate and/or staff movement within cell complexes, medical housing wings, and mental health housing wings of Type I construction.
2. Areas within any temporary holding area of non-combustible construction.
3. Areas within secure mental health treatment facilities of non-combustible construction.

408.1.2.3 Courthouse Holding Facilities. Group I-3 courthouse holding facilities shall be considered a separate and distinct building from the remaining courthouse building for the purpose of determining the type of construction where all of the following conditions are met:

1. 2-hour fire barriers in accordance with Section 707 and 2-hour horizontal assemblies in accordance with Section 711 are provided to separate the courthouse holding facility from all other portions of the courthouse building.
2. Any of the structure used to support courthouse holding facilities meets the requirements for the Group I-3 portion of the building
3. Each courthouse holding facility located above the first story is less than 1,000 square feet in area, and is designed to hold 10 or less in-custody defendants
4. Courthouse holding facilities located above the first story containing an internal stairway discharging to the main courthouse holding facility at the first story or basement
5. Additional exits from the courthouse holding facility located above the first story shall be permitted to exit through the courtrooms
6. The main courthouse holding facility located on the first story or basement has at least one exit directly to the exterior and additional means of egress shall be permitted to pass through a 1-hour corridor or lobby in the courthouse building

408.1.2.4 Horizontal building separation for combined Group I-3/Group B occupancy.

A Group B Administration building one story in height shall be permitted to be located above a Group I-3 (or Group I-3/I-2) housing/treatment building which is one story above grade and shall be classified as a separate and distinct building for the purpose of determining the type of construction, and shall be considered a separate fire area, where all of the following conditions are met:

1. A 3-hour floor-ceiling assembly below the administration building is constructed as a horizontal assembly in accordance with Section 711.
2. Interior shafts for stairs, elevators, and mechanical systems complete the 3-hour separation between the Group B and Group I-3 (or Group I-3/I-2)
3. The Group I-3 occupancy (or Group I-3/I-2 occupancies, correctional medical and mental health uses) below is minimum Type I-B construction with 2-hour fire resistive rated exterior walls
4. No unprotected openings are allowed in lower roofs within 10 feet of unprotected windows in the upper floor
5. The Group B building above is of non-combustible construction and equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1
6. The Group B occupancy building above has all required means of egress capable of discharging directly to the exterior to a safe dispersal area

408.1.2.5 Temporary Holding Area. In buildings protected with automatic sprinklers, corridor serving temporary holding rooms shall be one hour fire resistance rated when the temporary holding occupant load is greater than 20.

408.1.2.6 Temporary Holding Facilities. Temporary holding facilities with nine or fewer persons under restraint may be classified as Group B when located in a buildings complying with all of the following conditions:

1. The building shall be protected throughout with a monitored automatic sprinkler system installed in accordance with Section 903.3.1.1
2. The building shall be protected with a automatic fire alarm system with notification appliances throughout the holding facility in accordance with Section 907.2
3. The building shall be constructed of Type I, IIA, IIIA or VA construction.

408.1.2.7 Secure Interview Rooms. Secure Interview Rooms used for law enforcement shall be permitted to be locked, and shall not be classified as Group I-3 occupancies where all of the following conditions are met:

1. A monitored automatic sprinkler system shall be provided throughout buildings and portions thereof including Secure Interview Rooms. The automatic sprinkler system shall comply with Section 903.1.1.
2. Secure Interview Rooms shall be located in non-combustible construction.
3. Secure Interview Rooms have glazed or barred openings with direct, continuous observation from law enforcement personnel who have a means to open the secure interview room.
4. Not more than 6 occupants in Secure Interview Rooms shall be located in the same fire area.
5. An automatic smoke detection system shall be installed within Secure Interview Rooms and mechanical and electrical rooms.

408.2 Other occupancies. Buildings or portions of buildings in Group I-3 occupancies where security operations necessitate the locking of required means of egress shall be permitted to be classified as a different occupancy. Occupancies classified as other than Group I-3 shall meet the applicable requirements of this code for that occupancy where provisions are made for the release of occupants at all times.

Means of egress from detention and correctional occupancies that traverse other use areas shall, as a minimum, conform to requirements for detention and correctional occupancies.

Exceptions:

1. It is permissible to exit through a horizontal exit into other contiguous occupancies that do not conform to detention and correctional occupancy egress provisions but that do comply with requirements set forth in the appropriate occupancy, as long as the occupancy is not a Group H use.
2. Regardless of the provisions of Section 508, laundry areas and kitchens including associated dining areas, where commercial/institutional equipment is used shall be separated from the remainder of the building by construction capable of resisting the passage of smoke.
3. For the purpose of occupancy separation only courtroom docks that are directly accessory to courtrooms need not be separated from a courtroom.

408.2.1 Correctional medical and mental health uses. Where a Group I-2 occupancy in accordance with Section 308.4 and a Group I-3 occupancy occur together in building or portions of buildings, the following Subsections of Sections of 407 shall apply: 407.2.1; 407.2.2; 407.2.3; 407.3.1; 407.3.1.1; 407.4; 407.10.

408.3.1.1 Cell doors shall open outwardly or slide laterally.

408.3.6 Exit discharge. ~~Exits are permitted to discharge into a fenced or walled courtyard. Enclosed yards or courts shall be of a size to accommodate all occupants, be located not less than 50 feet (15 240 mm) from the building and have an area of not less than 15 square feet (1.4 m²) per person.~~

408.3.6.1 Exits are permitted to discharge into a fenced or walled courtyard. Enclosed yards or courts shall be of a size to accommodate all occupants, a minimum of 50 feet (15 240 mm) from the building with a net area of 3 square feet (4.0 m²) per person. A gate shall be provided from the safe dispersal area to allow for the necessary relocation of occupants.

408.3.6.2 Exterior fenced enclosures and fenced enclosures utilized for recreational or activity purposes, used for exit termination for more than 20 persons, and which do not provide a safe dispersal area, shall have not less than two exits.

408.3.6.3 Fenced enclosure utilized for recreational or activity purposes only, for more than 49 people, and which do not provide a safe dispersal area, shall be provided with not less than two exits.

408.3.6.4 Fenced enclosures located on roofs of buildings one or more stories in height shall be provided with not less than two exits regardless of occupant load.

408.3.6.5 Fenced enclosures utilized for Central Control Buildings not normally occupied and not accessed by inmates or the general public are permitted to have only one exit from the fenced enclosure. These fenced enclosures shall only be occupied during emergency response conditions by not more than 29 prison staff occupants. Access to the fenced area shall be controlled remotely or at the gate with a key.

408.3.8.1 Where the number and arrangement of exits complies with the requirements of Chapter 10, other stairways which occur within the secure area of the detention facility and are not used for required exiting but are used primarily for the movement of inmates and security staff need not extend to the exterior.

408.3.9 Dead-end balconies. Exit balconies serving cell tiers shall not extend more than 50 feet (15 240 mm) beyond an exit stairway.

408.3.10 Travel Distance. The travel distance may be increased to 300 feet for portions of Group I-3 occupancies open only to staff or where inmates are escorted at all times by staff.

408.3.11 Number of exits required. In temporary holding areas of non-combustible construction, a second means of egress is required when the occupant load is greater than 20.

408.4 Locks. Egress doors are permitted to be locked in accordance with the applicable use condition. Doors from a refuge area to the outside are permitted to be locked with a key in lieu of locking methods described in Section 408.4.1. The keys to unlock the exterior doors shall be available at all times and the locks shall be operable from both sides of the door. Security hardware may be used on any fire-rated door.

408.4.3 Redundant operation. ~~Remote release, m~~Mechanically operated sliding doors or ~~remote release,~~ mechanically operated locks shall be provided with a mechanically operated release mechanism at each door, ~~or and~~ shall be provided with a ~~redundant~~ remote release control.

408.5.1 Floor openings. ~~Openings in floors within a housing unit are permitted without a shaft enclosure, provided all of the following conditions are met: The open space in front of a cell tier and connected chases, not exceeding two tiers in height, shall not be considered a vertical shaft and need not meet the fire-resistive shaft enclosure requirements of Section 708 713.~~

- ~~1. The entire normally occupied areas so interconnected are open and unobstructed so as to enable observation of the areas by supervisory personnel;~~
- ~~2. Means of egress capacity is sufficient for all occupants from all interconnected cell tiers and areas;~~
- ~~3. The height difference between the floor levels of the highest and lowest cell tiers shall not exceed 23 feet (7010 mm); and~~
- ~~4. Egress from any portion of the cell tier to an exit or exit access door shall not require travel on more than one additional floor level within the housing unit.~~

408.6 Smoke barrier. Occupancies in Group I-3 shall have smoke barriers complying with Sections 408.7 and 709 to divide every story occupied by residents for sleeping, or any other story having an occupant load of 50 or more persons, into no fewer than two smoke compartments.

Exception: Spaces having a direct exit to one of the following, provided that the locking arrangement of the doors involved complies with the requirements for doors at the smoke barrier for the use condition involved:

1. A public way.
2. A building separated from the resident housing area by a 2-hour fire-resistance-rated assembly or 50 feet (15 240 mm) of open space.
3. A secured yard or court having a holding space 50 feet (15 240 mm) from the housing area that provides 6 square feet (0.56 m²) or more of refuge area per occupant, including residents, staff and visitors.
4. Holding facility.

408.6.1 Smoke compartments. The number of residents in any smoke compartment shall be not more than 200. The distance of travel to a door in a smoke barrier from any room door required as exit access shall be not greater than 150 feet (45 720 mm). The distance of travel to a door in a smoke barrier from any point in a room shall be not greater than 200 feet (60 960 mm).

Exception: The travel distance may be increased by 50 feet from areas open only to the staff.

408.8 Subdivision of resident housing areas. ~~Sleeping areas and any contiguous day room, group activity space or other common spaces where residents are housed Each cell complex shall be separated from other cell complexes or other spaces in accordance with Sections 408.8.1 through 408.8.4 by a smoke-tight partition.~~

~~408.8.1 Occupancy Conditions 3 and 4.~~ Each sleeping area in Occupancy Conditions 3 and 4 shall be separated from the adjacent common spaces by a smoke-tight partition where the distance of travel from the sleeping area through the common space to the corridor exceeds 50 feet (15 240 mm).

~~408.8.2 Occupancy Condition 5.~~ Each sleeping area in Occupancy Condition 5 shall be separated from adjacent sleeping areas, corridors and common spaces by a smoke-tight partition. Additionally, common spaces shall be separated from the corridor by a smoke-tight partition.

~~408.8.3 Openings in room face.~~ The aggregate area of openings in a solid sleeping room face in Occupancy Conditions 2, 3, 4 and 5 shall not exceed 120 square inches (0.77 m²). The aggregate area shall include all openings including door undercuts, food passes and grilles. Openings shall be not more than 36 inches (914 mm) above the floor. In Occupancy Condition 5, the openings shall be closeable from the room side.

~~408.8.4~~**408.8.1 Smoke-tight doors.** Doors in openings in partitions required to be smoke tight by Section 408.8 shall be substantial doors, of construction that will resist the passage of smoke. Latches and door closures are not required on cell doors.

408.9 Windowless buildings. For the purposes of this section, a windowless building or portion of a building is one with nonopenable windows, windows not readily breakable or without windows. ~~Windowless buildings shall be provided with an engineered smoke control system to provide a tenable environment for exiting from the smoke compartment in the area of fire origin in accordance with Section 909 for each windowless smoke compartment.~~

408.9.1 Smoke venting. Windowless buildings containing use conditions 3, 4 or 5 shall be provided with an engineered smoke control system in accordance with Section 909, windows or doors, smoke vents, or equivalent means to provide a tenable environment for exiting from the smoke compartment in the area of fire origin. If windows or doors are used to meet this section, at least two windows or doors to the exterior must be provided at or above the highest occupied level in each smoke compartment, and the windows or doors must be operable or readily breakable and arranged to manually vent smoke.

Exceptions:

1. Local adult detention facilities, CDCR and CDCR mental health housing facilities shall be exempt from this section when they meet each of the following criteria:

- 1.1. Are Type IA or IB construction
 - 1.2. Are protected with sprinklers throughout in accordance with Section 903.3.1.1
 - 1.3. Include a fire alarm system with smoke detection in accordance with NFPA 72 in the dayroom and/or corridor serving as exit access from the cells, reporting to a 24 hour central control at the institution
 - 1.4. Include at least one exit from each housing unit that discharges directly to the exterior
 - 1.5. The building is divided into at least two smoke compartments per Section 408.6.1
 - 1.6. Staffing in the institution is sufficient to evacuate inmates from the smoke compartment 24 hours per day, as approved by the enforcing
2. No venting or smoke control is required when an engineering analysis shows an acceptable safe egress time compared to the onset of untenable conditions within a windowless building or portion of a windowless building and approved by the enforcing agency.

408.12 Emergency and standby power systems. Special electrical systems, exit illumination, power installations and alternate on-site electrical supplies shall be provided for every building or portion of a building housing 10 or more inmates in a detention or correctional facility in accordance with the provisions of the California Electrical Code. There shall be a source of emergency power in all detention facilities capable of providing minimal lighting in all housing units, activity areas, corridors, stairs and central control points, and to maintain fire and life safety, security, communications and alarm systems.

408.13 Windows. In security areas within cell complexes sprinklered throughout, the area of glazing in one-hour corridor walls and smoke barrier walls shall not be restricted, provided:

1. All openings are protected by fixed glazing listed and labeled for a fire-protection of at least 3/4 hour; or
2. Fixed security glazing set in noncombustible frames. Shall comply with the minimum requirements of one of the following test standards: ASTM F 1233-98, Class III glass, or; California Department of Corrections, CDC 860-94d, or H.P. White Laboratory, Inc., HPW-TP- 0500.02, Forced Entry Level III.

3. In lieu of the sizes set forth in CBC, the size and area of glazed assemblies shall conform to the following: Windows required to have a three-fourths-hour fire-resistive rating or windows protected by fixed security glazing, as delineated in Items 1 and 2 above, may have an area not greater than 84 square feet (7.8 m²) with neither width nor height exceeding 12 feet (3658 mm).

408.14 Safety padding. Padding material used on walls, floors and ceilings in Group I and R-2.1 occupancies shall be of an approved type tested in accordance with the procedures established by State Fire Marshal Standard 12-8-100, Room Fire Test for Wall and Ceiling Materials, California Code of Regulations, Title 24, Part 12.

408.15 Small management yards.

408.15.1 General. The provisions of Sections 408.15.1 through 408.15.5 shall apply to small management yards. Small management yards may be used by a maximum of two occupants at any one time for a maximum of 2 hours per day.

408.15.2 Construction. Small management yards shall be constructed in accordance with all of the following:

1. Constructed of Type IB noncombustible materials.
2. Fence material shall be noncombustible.
3. Have a maximum area of 150 square feet (14 m²).
4. Yard area covering shall not exceed 75 square feet (7 m²) or a maximum of 50 percent of the fenced enclosure.
5. Electrical lighting or devices of any type shall not be permitted within the yard.

Exception: Low voltage devices dedicated for the operation of toilets.

408.15.3 Fire protection system provisions.

408.15.3.1 Automatic sprinkler systems. An automatic sprinkler system shall be provided in accordance with Section 903.3.1.1

Exception: Small management yards where a distance of 10 feet (3048 mm) is maintained from all buildings or structures and 4 feet (1220 mm) is maintained from containment fencing.

408.15.3.2 Fire alarm systems. An approved fire alarm system shall be provided in accordance with Section 907.

Exception: Small management yards where a distance of 10 feet (3048 mm) is maintained from all buildings or structures and 4 feet (1220 mm) is maintained from containment fencing.

408.15.4 Means of egress. Except as modified or as provided for in this section, the provisions of Section 408.3 and Chapter 10 shall apply. Small management yards shall comply with all of the following:

1. Staff-controlled manual released locks shall be provided.
2. Staff escorting inmates to and from small management yards shall be equipped with radios and personal alarms to notify central control in case of a fire.
3. The safe dispersal area as defined by Section 1027.5 shall not be reduced due to placement of these yards.
4. An exit, remote from the main entrance is required in the containment fencing.

408.15.5 Special provisions. Inmate exercise clothing and toilet paper tissue shall be the only combustible materials permitted in small management yards.

409.3 Projection room and equipment ventilation. Ventilation shall be provided in accordance with the ~~International~~ California Mechanical Code.

411.1 General. Special amusement buildings having an occupant load of 50 or more shall comply with the requirements for the appropriate Group A occupancy and Sections 411.1 through 411.8. Special amusement buildings having an occupant load of less than 50 shall comply with the requirements for a Group B occupancy and Sections 411.1 through 411.8.

Exception: Special amusement buildings or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable decorative materials, see the *InternationalCalifornia* Fire Code.

412.1 General. Aircraft-related occupancies shall comply with Sections 412.1 through 412.8 and the *InternationalCalifornia* Fire Code.

412.6.1 Occupancy group. Aircraft paint hangars shall be classified as Group H-2. Aircraft paint hangars shall comply with the applicable requirements of this code and the *InternationalCalifornia* Fire Code for such occupancy.

412.6.6 Ventilation. Aircraft paint hangars shall be provided with ventilation as required in the *InternationalCalifornia* Mechanical Code.

413.1 General. High-piled stock or rack storage in any occupancy group shall comply with the *InternationalCalifornia* Fire Code.

414.1.1 Other provisions. Buildings and structures with an occupancy in Group H shall comply with this section and the applicable provisions of Section 415 and the *InternationalCalifornia* Fire Code. For Group L occupancies see Section 443453.

414.1.2 Materials. The safe design of hazardous material occupancies is material dependent. Individual material requirements are also found in Sections 307 and 415, and in the *InternationalCalifornia* Mechanical Code and the *InternationalCalifornia* Fire Code.

414.1.2.1 Aerosols. Level 2 and 3 aerosol products shall be stored and displayed in accordance with the *InternationalCalifornia* Fire Code. See Section 311.2 and the *InternationalCalifornia* Fire Code for occupancy group requirements.

414.2 Control areas. Control areas shall comply with Sections 414.2.1 through 414.2.5 and the *InternationalCalifornia* Fire Code.

414.2.5 Hazardous material in Group M display and storage areas and in Group S storage areas. The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials permitted within a single control area of a Group M display and storage area, a Group S storage area or an outdoor control area is permitted to exceed the maximum allowable quantities per control area specified in Tables 307.1(1) and 307.1(2) without classifying the building or use as a Group H occupancy, provided that the materials are displayed and stored in accordance with the *InternationalCalifornia* Fire Code and quantities do not exceed the maximum allowable specified in Table 414.2.5(1).

In Group M occupancy wholesale and retail sales uses, indoor storage of flammable and combustible liquids shall not exceed the maximum allowable quantities per control area as indicated in Table 414.2.5(2), provided that the materials are displayed and stored in accordance with the *InternationalCalifornia* Fire Code.

The maximum quantity of aerosol products in Group M occupancy retail display areas, storage areas adjacent to retail display areas and retail storage areas shall be in accordance with the *InternationalCalifornia* Fire Code.

TABLE 414.2.5(1)
MAXIMUM ALLOWABLE QUANTITY PER INDOOR AND OUTDOOR CONTROL AREA IN GROUP M AND S
OCCUPANCIES NONFLAMMABLE SOLIDS AND NONFLAMMABLE AND NONCOMBUSTIBLE LIQUIDS^{d,e,f}

[Table not shown for clarity]

- a. Hazard categories are as specified in the *InternationalCalifornia* Fire Code.
- b. Maximum allowable quantities shall be increased 100 percent in buildings that are sprinklered in accordance with Section 903.3.1.1. When Note c also applies, the increase for both notes shall be applied accumulatively.
- c. Maximum allowable quantities shall be increased 100 percent when stored in approved storage cabinets, in accordance with the *InternationalCalifornia* Fire Code. When Note b also applies, the increase for both notes shall be applied accumulatively.
- d. See Table 414.2.2 for design and number of control areas.
- e. Allowable quantities for other hazardous material categories shall be in accordance with Section 307.
- f. Maximum quantities shall be increased 100 percent in outdoor control areas.

- g. Maximum amounts shall be increased to 2,250 pounds when individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.
- h. Maximum amounts shall be increased to 4,500 pounds when individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.
- i. The permitted quantities shall not be limited in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- j. Quantities are unlimited in an outdoor control area.

TABLE 414.2.5(2)
MAXIMUM ALLOWABLE QUANTITY OF FLAMMABLE AND COMBUSTIBLE LIQUIDS IN WHOLESALE AND RETAIL SALES OCCUPANCIES PER CONTROL AREA^a

TYPE OF LIQUID	MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA (gallons)		
	Sprinklered in accordance with note b densities and arrangements	Sprinklered in accordance with Tables 5704.3.6.3(4) through 5704.3.6.3(8) and 5704.3.7.5.1 of the <i>InternationalCalifornia</i> Fire Code	Nonsprinklered
Class IA	60	60	30
Class IB, IC, II and IIIA	7,500 ^c	15,000 ^c	1,600
Class IIIB	Unlimited	Unlimited	13,200

[Table Notes not shown for clarity]

414.3 Ventilation. Rooms, areas or spaces in which explosive, corrosive, combustible, flammable or highly toxic dusts, mists, fumes, vapors or gases are or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated where required by this code, the *InternationalCalifornia* Fire Code or the *InternationalCalifornia* Mechanical Code.

Emissions generated at workstations shall be confined to the area in which they are generated as specified in the *InternationalCalifornia* Fire Code and the *InternationalCalifornia* Mechanical Code.

414.5 Inside storage, dispensing, handling and use. The inside storage, dispensing and use of hazardous materials shall be in accordance with Sections 414.5.1 through ~~414.5.3~~**414.5.4** of this code and the *InternationalCalifornia* Fire Code.

414.5.1 Explosion control. Explosion control shall be provided in accordance with the *InternationalCalifornia* Fire Code as required by Table 414.5.1 where quantities of hazardous materials specified in that table exceed the maximum allowable quantities in Table 307.1(1) or where a structure, room or space is occupied for purposes involving explosion hazards as required by Section 415 or the *InternationalCalifornia* Fire Code.

TABLE 414.5.1
EXPLOSION CONTROL REQUIREMENTS^{a, h}

[Table not shown for clarity]

- a. See Section 414.1.3.
- b. See the *InternationalCalifornia* Fire Code.
- c. As generated during manufacturing or processing.
- d. Storage or use.
- e. In open use or dispensing.
- f. Rooms containing dispensing and use of hazardous materials when an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process.
- g. A method of explosion control shall be provided when Class 2 water-reactive materials can form potentially explosive mixtures.
- h. Explosion venting is not required for Group H-5 fabrication areas complying with Section 415.11.1 and the *InternationalCalifornia* Fire Code.

414.5.2 Emergency or standby power. Where required by the *InternationalCalifornia* Fire Code or this code, mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems shall be provided with emergency or standby power in accordance with Section 2702. For storage and use

areas for highly toxic or toxic materials, see Sections 6004.2.2.8 and 6004.3.4.2 of the *InternationalCalifornia Fire Code*.

414.5.3 Spill control, drainage and containment. Rooms, buildings or areas occupied for the storage of solid and liquid hazardous materials shall be provided with a means to control spillage and to contain or drain off spillage and fire protection water discharged in the storage area where required in the *InternationalCalifornia Fire Code*. The methods of spill control shall be in accordance with the *InternationalCalifornia Fire Code*.

~~414.5.5~~**414.5.4 Hazardous material handling.** The handling of hazardous materials shall be in accordance with *California Fire Code Section 27055003*.

414.6 Outdoor storage, dispensing and use. The outdoor storage, dispensing and use of hazardous materials shall be in accordance with the *InternationalCalifornia Fire Code*.

415.1 Scope. The provisions of Sections 415.1 through 415.11 shall apply to the storage and use of hazardous materials in excess of the maximum allowable quantities per control area listed in Section 307.1. Buildings and structures with an occupancy in Group H shall also comply with the applicable provisions of Section 414 and the *InternationalCalifornia Fire Code*.

415.6 Fire separation distance. Group H occupancies shall be located on property in accordance with the other provisions of this chapter. In Groups H-2 and H-3, not less than 25 percent of the perimeter wall of the occupancy shall be an exterior wall.

Exceptions:

1. Liquid use, dispensing and mixing rooms having a floor area of not more than 500 square feet (46.5 m²) need not be located on the outer perimeter of the building where they are in accordance with the *InternationalCalifornia Fire Code* and NFPA 30.
2. Liquid storage rooms having a floor area of not more than 1,000 square feet (93 m²) need not be located on the outer perimeter where they are in accordance with the *InternationalCalifornia Fire Code* and NFPA 30.
3. Spray paint booths that comply with the *InternationalCalifornia Fire Code* need not be located on the outer perimeter.

415.6.1 Group H occupancy minimum fire separation distance. Regardless of any other provisions, buildings containing Group H occupancies shall be set back to the minimum fire separation distance as set forth in Sections 415.6.1.1 through 415.6.1.4. Distances shall be measured from the walls enclosing the occupancy to lot lines, including those on a public way. Distances to assumed lot lines established for the purpose of determining exterior wall and opening protection are not to be used to establish the minimum fire separation distance for buildings on sites where explosives are manufactured or used when separation is provided in accordance with the quantity distance tables specified for explosive materials in the *InternationalCalifornia Fire Code*.

415.6.1.1 Group H-1. Group H-1 occupancies shall be set back not less than 75 feet (22 860 mm) and not less than required by the *InternationalCalifornia Fire Code*.

Exception: Fireworks manufacturing buildings separated in accordance with NFPA 1124.

415.6.1.4 Explosive materials. Group H-2 and H-3 occupancies containing materials with explosive characteristics shall be separated as required by the *InternationalCalifornia Fire Code*. Where separations are not specified, the distances required shall be determined by a technical report issued in accordance with Section 414.1.3.

TABLE 415.6.2
DETACHED BUILDING REQUIRED
[Table not shown for clarity]

For SI: 1 ton = 906 kg, 1 cubic foot = 0.02832 m³, 1 pound = 0.454 kg.

- a. For materials that are detonable, the distance to other buildings or lot lines shall be in accordance with Chapter 56 of the *InternationalCalifornia Fire Code* based on trinitrotoluene (TNT) equivalence of the material. For materials classified as explosives, see Chapter 56 of the *International Fire Code*.
- b. "Maximum Allowable Quantity" means the maximum allowable quantity per control area set forth in Table 307.1(1).

c. Limited to Division 1.4 materials and articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco, Firearms and Explosives (BATF) regulations or unpackaged articles used in process operations that do not propagate a detonation or deflagration between articles, provided the net explosive weight of individual articles does not exceed 1 pound.

415.9 Group H-2. Occupancies in Group H-2 shall be constructed in accordance with Sections 415.9.1 through 415.9.3 and the *InternationalCalifornia Fire Code*.

415.9.1 Flammable and combustible liquids. The storage, handling, processing and transporting of flammable and combustible liquids in Group H-2 and H-3 occupancies shall be in accordance with Sections 415.8.2.1 through 415.9.1.1, the *InternationalCalifornia Mechanical Code* and the *InternationalCalifornia Fire Code*.

415.9.1.3 Tanks. Storage tanks shall be approved tanks conforming to the requirements of the *InternationalCalifornia Fire Code*.

415.9.1.4 Leakage containment. A liquid-tight containment area compatible with the stored liquid shall be provided. The method of spill control, drainage control and secondary containment shall be in accordance with the *InternationalCalifornia Fire Code*.

Exception: Rooms where only double-wall storage tanks conforming to Section 415.9.1.3 are used to store Class I, II and IIIA flammable and combustible liquids shall not be required to have a leakage containment area.

415.9.1.6 Tank vent. Storage tank vents for Class I, II or IIIA liquids shall terminate to the outdoor air in accordance with the *InternationalCalifornia Fire Code*.

415.9.1.7 Room ventilation. Storage tank areas storing Class I, II or IIIA liquids shall be provided with mechanical ventilation. The mechanical ventilation system shall be in accordance with the *InternationalCalifornia Mechanical Code* and the *InternationalCalifornia Fire Code*.

415.9.1.8 Explosion venting. Where Class I liquids are being stored, explosion venting shall be provided in accordance with the *InternationalCalifornia Fire Code*.

415.9.2 Liquefied petroleum gas facilities. The construction and installation of liquefied petroleum gas facilities shall be in accordance with the requirements of this code, the *InternationalCalifornia Fire Code*, the *InternationalCalifornia Mechanical Code*, the ~~International Fuel Gas Code~~ *California Plumbing Code* and NFPA 58.

415.9.3 Dry cleaning plants. The construction and installation of dry cleaning plants shall be in accordance with the requirements of this code, the *InternationalCalifornia Mechanical Code*, the *InternationalCalifornia Plumbing Code* and NFPA 32. Dry cleaning solvents and systems shall be classified in accordance with the *InternationalCalifornia Fire Code*.

415.10 Groups H-3 and H-4. Groups H-3 and H-4 shall be constructed in accordance with the applicable provisions of this code and the *InternationalCalifornia Fire Code*.

415.11 Group H-5. In addition to the requirements set forth elsewhere in this code, Group H-5 shall comply with the provisions of Sections 415.11.1 through 415.10.11 and the *InternationalCalifornia Fire Code*.

415.11.1.7 Transporting hazardous production materials to fabrication areas. HPM shall be transported to fabrication areas through enclosed piping or tubing systems that comply with Section 415.11.6 through service corridors complying with Section 415.11.3, or in corridors as permitted in the exception to Section 415.11.2. The handling or transporting of HPM within service corridors shall comply with the *InternationalCalifornia Fire Code*.

415.11.4 Storage of hazardous production materials. Storage of hazardous production materials (HPM) in fabrication areas shall be within approved or listed storage cabinets or gas cabinets or within a workstation. The storage of HPM in quantities greater than those listed in Section 5004.2 of the *InternationalCalifornia Fire Code* shall be in liquid storage rooms, HPM rooms or gas rooms as appropriate for the materials stored. The storage of other hazardous materials shall be in accordance with other applicable provisions of this code and the *InternationalCalifornia Fire Code*.

415.11.7.2 Gas detection system operation. The continuous gas detection system shall be capable of monitoring the room, area or equipment in which the gas is located at or below all the following gas concentrations:

1. Immediately dangerous to life and health (IDLH) values where the monitoring point is within an exhausted enclosure, ventilated enclosure or gas cabinet.
2. Permissible exposure limit (PEL) levels when the monitoring point is in an area outside an exhausted enclosure, ventilated enclosure or gas cabinet.
3. For flammable gases, the monitoring detection threshold level shall be vapor concentrations in excess of 25 percent of the lower flammable limit (LFL) where the monitoring is within or outside an exhausted enclosure, ventilated enclosure or gas cabinet.
4. Except as noted in this section, monitoring for highly toxic and toxic gases shall also comply with Chapter 60 of the *International California Fire Code*.

415.11.9.3 Signals. The emergency control station shall receive signals from emergency equipment and alarm and detection systems. Such emergency equipment and alarm and detection systems shall include, but not be limited to, the following where such equipment or systems are required to be provided either in this chapter or elsewhere in this code:

1. Automatic sprinkler system alarm and monitoring systems.
2. Manual fire alarm systems.
3. Emergency alarm systems.
4. Continuous gas detection systems.
5. Smoke detection systems.
6. Emergency power system.
7. Automatic detection and alarm systems for pyrophoric liquids and Class 3 water-reactive liquids required in Section 2705.2.3.4 of the *International California Fire Code*.
8. Exhaust ventilation flow alarm devices for pyrophoric liquids and Class 3 water-reactive liquids cabinet exhaust ventilation systems required in Section 1805.2.3.4 of the *International California Fire Code*.

415.11.10.1 Required electrical systems. Emergency power shall be provided for electrically operated equipment and connected control circuits for the following systems:

1. HPM exhaust ventilation systems.
2. HPM gas cabinet ventilation systems.
3. HPM exhausted enclosure ventilation systems.
4. HPM gas room ventilation systems.
5. HPM gas detection systems.
6. Emergency alarm systems.
7. Manual and automatic fire alarm systems.
8. Automatic sprinkler system monitoring and alarm systems.
9. Automatic alarm and detection systems for pyrophoric liquids and Class 3 water-reactive liquids required in Section 2705.2.3.4 of the *International California Fire Code*.
10. Flow alarm switches for pyrophoric liquids and Class 3 water-reactive liquids cabinet exhaust ventilation systems required in Section 2705.2.3.4 of the *International California Fire Code*.
11. Electrically operated systems required elsewhere in this code or in the *International California Fire Code* applicable to the use, storage or handling of HPM.

415.11.11 Automatic sprinkler system protection in exhaust ducts for HPM. An approved automatic sprinkler system shall be provided in exhaust ducts conveying gases, vapors, fumes, mists or dusts generated from HPM in accordance with Sections 415.11.11.1 through 415.11.11.3 and the *International California Mechanical Code*.

~~415.11.11~~ 415.12 Group H occupancies located above the 10th story.

~~415.11.11~~ 415.12.1 Fire – smoke barrier. Any story containing a Group H occupancy above the 10th story shall be subdivided by a fire-smoke barrier constructed as a fire barrier having a fire resistance rating of not less than 2 hours and shall also comply with the smoke barrier requirements of Section 710. The 2-hour fire-smoke barrier shall be in accordance with Sections 415.11.1.1 through 415.11.1.5.

~~415.11.1.1~~ 415.12.1.1 The 2-hour fire-smoke barrier shall be continuous from exterior wall to exterior wall.

~~415.11.1.2~~**415.12.1.2** The fire-smoke barrier shall divide the story so that the square footage on each side of the 2-hour fire-smoke barrier is not less than 30 percent of the total floor area.

~~415.11.1.3~~**415.12.1.3** A minimum of one door opening shall be provided in the 2-hour fire-smoke barrier for emergency access.

~~415.11.1.4~~**415.12.1.4** Each side of the 2-hour fire-smoke barrier shall be designed as a separate smoke zone designed in accordance with Section 909.6.

~~415.11.1.5~~**415.12.1.5** The area on each side of the 2-hour fire-smoke barrier shall be served by a minimum of one exit enclosure in accordance with Section 1022.

~~415.12.1.3~~**415.13** Elevators and elevator lobbies above the 10th story. Any story containing a Group H occupancy above the 10th story shall be provided with elevators and elevator lobbies in accordance with Sections ~~415.12.1~~**415.13.1** through ~~415.12.3~~**415.13.3**.

~~415.12.1.3.1~~**415.13.1** An elevator that serves every story of the building shall be provided on each side of the 2-hour fire-smoke barrier.

~~415.12.2~~**415.13.2** An elevator lobby shall be provided on each side of the 2-hour fire-smoke barrier at each floor in accordance with Section 708.14.1. Exceptions to 708.14.1 shall not apply.

~~415.12.3~~**415.13.3** The elevator and its associated elevator lobbies and elevator machine rooms shall be pressurized in accordance with Section 909.6.

416.1 General. The provisions of this section shall apply to the construction, installation and use of buildings and structures, or parts thereof, for the application of flammable finishes. Such construction and equipment shall comply with the *InternationalCalifornia Fire Code*.

416.2.2 Ventilation. Mechanical ventilation and interlocks with the spraying operation shall be in accordance with the *InternationalCalifornia Mechanical Code*.

416.3 Spraying spaces. Spraying spaces shall be ventilated with an exhaust system to prevent the accumulation of flammable mist or vapors in accordance with the *InternationalCalifornia Mechanical Code*. Where such spaces are not separately enclosed, noncombustible spray curtains shall be provided to restrict the spread of flammable vapors.

416.4 Spray booths. Spray booths shall be designed, constructed and operated in accordance with the *InternationalCalifornia Fire Code*.

419.8 Ventilation. The applicable ventilation requirements of the *InternationalCalifornia Mechanical Code* shall apply to each area within the live/work unit for the function within that space.

SECTION 420 GROUPS ~~I-1, R-1, R-2, R-2.1, R-3, R-3.1~~ and R-4

420.1 General. Occupancies in Groups ~~I-1, R-1, R-2, R-2.1, R-3, R-3.1~~ and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.

420.4 Smoke barriers in Group ~~I-1, Condition 2~~R-2.1**.** Smoke barriers shall be provided in Group ~~I-1, Condition 2~~**R-2.1**, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m²) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

420.5 Automatic sprinkler system. Group R occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.2.8. Group ~~I-1~~**R-2.1** occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.2.6. Quick response or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

420.6 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarms shall be provided in Group I-1, R-1, R-2, R-2.1 and R-4 occupancies in accordance with Sections 907.2.6, 907.2.8, 907.2.9 and 907.2.10, respectively. Single or multiple-station smoke alarms shall be provided in Groups I-1, R-2, R-2.1, R-3 and R-4 in accordance with Section 907.2.11.

~~420.9~~**420.10 Licensed 24-hour care facilities in a Group R-2.1, R-3.1 or R-4 occupancy.** See Section ~~425.4~~**435** for Special Provisions for licensed 24-hour care facilities in a Group R-2.1, R-3.1, or R-4 occupancy.

~~420.10 Existing Group R Occupancies.~~ See Chapter 34.

SECTION [F] 426 COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE

426.1 Combustible dusts, grain processing and storage. The provisions of Sections 426.1.1 through 426.1.7 shall apply to buildings in which materials that produce combustible dusts are stored or handled. Buildings that store or handle combustible dusts shall comply with the applicable provisions of NFPA 61, NFPA 85, NFPA 120, NFPA 484, NFPA 654, NFPA 655 and NFPA 664 and the International California Fire Code.

426.1.4 Explosion control. Explosion control shall be provided as specified in the International California Fire Code, or spaces shall be equipped with the equivalent mechanical ventilation complying with the International California Mechanical Code.

SECTION ~~425.4~~**435** SPECIAL PROVISIONS FOR LICENSED 24-HOUR CARE FACILITIES IN A GROUP R-2.1, R-3.1, R-4 [SFM]

~~425.1~~**435.1 Scope.** The provisions of this section shall apply to 24-hour care facilities in a Group R-2.1, R-3.1 or R-4 occupancy licensed by a governmental agency.

~~425.2~~**435.2 General.** The provisions in this section shall apply in addition to general requirements in this code.

~~425.2.1~~**435.2.1 Restraint shall not be practiced in a Group R-2.1, R-3.1 or R-4 Occupancies.**

Exception: Occupancies which meet all the requirements for a Group I-3 Occupancy.

~~425.2.2~~**435.2.2 Pursuant to Health and Safety Code Section 13133, regulations of the state fire marshal pertaining to occupancies classified as Residential Facilities (RF) and Residential Care Facilities for the Elderly (RCFE) shall apply uniformly throughout the state and no city, county, city and county, including a charter city or charter county, or fire protection district shall adopt or enforce any ordinance or local rule or regulation relating to fire and panic safety which is inconsistent with these regulations. A city, county, city and county, including a charter city or charter county may pursuant to Health and Safety Code Section 13143.5, or a fire protection district may pursuant to Health and Safety Code Section 13869.7, adopt standards more stringent than those adopted by the state fire marshal that are reasonably necessary to accommodate local climate, geological or topographical conditions relating to roof coverings for Residential Care Facilities for the Elderly.**

Exception: Local regulations relating to roof coverings in facilities licensed as a residential care facility for the elderly (RCFE) per Health and Safety Code Section 13133.

~~425.3~~**435.3 Building height and area provisions.**

~~425.3.1~~**435.3.1 Group R-2.1, R-3.1 and R-4 shall be constructed in accordance with Table 503.**

~~425.3.2~~**435.3.2 Limitations six or less clients.** Group R-3.1 occupancies where nonambulatory clients are housed above the first story, having more than two stories in height or having more than 3,000 square feet (279 m²) of floor area above the first story shall not be of less than one-hour fire-resistance-rated construction throughout. In Group R-3.1 occupancies housing a bedridden client, the client sleeping room shall not be located above or below the first story.

Exception: Clients who become bedridden as a result of a temporary illness as defined in Health and Safety Code Sections 1566.45, 1568.0832 and 1569.72. A temporary illness is an illness, which persists for 14 days or less. A bedridden client may be retained in excess of the 14 days upon approval by the Department of Social Services and may continue to be housed on any story in a Group R-3.1 occupancy classified as a licensed residential facility. Every licensee admitting or retaining a bedridden resident shall, within 48 hours of the resident's admission or retention in the facility, notify the local fire authority with jurisdiction of the estimated length of time the resident will retain his or her bedridden status in the facility.

425.3.3435.3.3 Limitations seven or more clients. Group R-4 occupancies where nonambulatory clients are housed above the first story and there is more than 3,000 square feet (279 m²) of floor area above the first story or housing more than 16 clients above the first story shall be constructed of not less than one-hour fire-resistance-rated construction throughout.

425.3.4435.3.4 Nonambulatory elderly clients. Group R-4 occupancies housing nonambulatory elderly clients shall be of not less than one-hour fire-resistance-rated construction throughout.

425.4435.4 Type of construction provisions.

425.4.1435.4.1 Group R-2.1, occupancies are not permitted in nonfire-resistance-rated construction, see Health and Safety Code Section 13131.5.

425.5435.5 Fire-resistance-rated construction provisions.

425.5.1435.5.1 Smoke barriers required. Group R-2.1 and R-4 occupancies licensed as a Residential Care Facility (RCF) with individual floor areas over 6,000 square feet (557 m²) per floor, shall be provided with smoke barriers, constructed in accordance with Section 710. Group R-2.1 occupancies housing bedridden clients shall be provided with smoke barriers constructed in accordance with Section 710 regardless of the number of clients. When smoke barriers are required, the area within a smoke compartment shall not exceed 22,500 square feet (2090 m²) nor shall its travel distance exceed 200 feet (60 960 mm). Such smoke barriers shall divide the floor as equally as possible.

425.5.2435.5.2 Smoke partitions. Group R-2.1 occupancies where smoke partitions are required, framing shall be covered with noncombustible materials having an approved thermal barrier with an index of not less than 15 in accordance with FM 4880, UL 1040, NFPA 286 or UL 1715.

425.5.3435.5.3 Independent egress. At least two means of egress shall be provided from each smoke compartment created by smoke barriers. Means of egress may pass through adjacent compartments provided it does not return through the smoke compartment from which means of egress originated.

425.6435.6 Interior finish provisions.

425.6.1435.6.1 Interior wall and ceiling finish. Group R-3.1 occupancies housing a bedridden client shall comply with interior wall and ceiling finish requirements specified for Group I-2 occupancies in Table 803.9.

425.6.2435.6.2 Safety padding. Padding material used on walls, floors and ceilings in Group I and R-2.1 occupancies shall be of an approved type tested in accordance with the procedures established by State Fire Marshal Standard 12-8-100, Room Fire Test for Wall and Ceiling Materials, California Code of Regulations, Title 24, Part 12.

425.7435.7 Fire protection system provisions.

425.7.1435.7.1 Automatic sprinkler systems in Group R-2.1, R-3.1 and R-4 occupancies. An automatic sprinkler system shall be installed where required in Section 903.

425.7.2435.7.2 Fire alarm systems in Group R-2.1 and R-4 occupancies. An approved fire alarm system shall be installed where required in Section 907.

425.7.3435.7.3 Smoke alarms in Groups R-2.1, R-3.1 and R-4 occupancies. Smoke alarms shall be installed where required in Section 907.2.11.2.

425.7.4435.7.4 Hearing impaired. See Section 907.5.2.3.5.

425.8.435.8 Means of egress provisions.

425.8.1435.8.1 General. In addition to the general means of egress requirements of Chapter 10, this section shall apply to Group R-2.1, R-3.1 and R-4 occupancies.

425.8.2435.8.2 Number of exits.

425.8.2.1435.8.2.1 Group R-2.1, R-3.1 and R-4 occupancies shall have a minimum of two exits.

Exception: Ancillary use areas or occupancies shall have egress as required by Section 1021.

425.8.3435.8.3 Egress arrangements.

425.8.3.1435.8.3.1 Egress through adjoining dwelling units shall not be permitted.

425.8.3.2435.8.3.2 Group R-3.1 occupancies housing nonambulatory clients. In a Group R-3.1 occupancy, bedrooms used by nonambulatory clients shall have access to at least one of the required exits which shall conform to one of the following:

1. Egress through a hallway or area into a bedroom in the immediate area which has an exit directly to the exterior and the corridor/hallway is constructed consistent with the dwelling unit interior walls. The hallway shall be separated from common areas by a solid wood door not less than 1 3/8 inch (35 mm) in thickness, maintained self-closing or shall be automatic closing by actuation of a smoke detector installed in accordance with Section 716.5.9.
2. Egress through a hallway which has an exit directly to the exterior. The hallway shall be separated from the rest of the house by a wall constructed consistent with the dwelling unit interior walls and opening protected by a solid wood door not less than 1 3/8 inch (35 mm) in thickness, maintained self-closing or shall be automatic closing by actuation of a smoke detector installed in accordance with Section 716.5.9.
3. Direct exit from the bedroom to the exterior shall be of a size as to permit the installation of a door not less than 3 feet (914 mm) in width and not less than 6 feet 8 inches (2032 mm) in height. When installed, doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exit way is not less than 32 inches (813 mm).
4. Egress through an adjoining bedroom which exits to the exterior.

425.8.3.3435.8.3.3 Group R-3.1 occupancies housing only one bedridden client. In Group R-3.1 occupancies housing a bedridden client and not provided with an approved automatic sprinkler system, all of the following shall apply:

1. In Group R-3.1 occupancies housing a bedridden client, a direct exit to the exterior of the residence shall be provided from the client sleeping room.
2. Doors to a bedridden client's sleeping room shall be of a self-closing, positive latching 1-3/8 inch solid wood door. Such doors shall be provided with a gasket so installed as to provide a seal where the door meets the jam on both sides and across the top. Doors shall be maintained self-closing or shall be automatic closing by actuation of a smoke alarm in accordance with Section 716.5.9.
3. Group R-3.1 occupancies housing a bedridden client, shall not have a night latch, dead bolt, security chain or any similar locking device installed on any interior door leading from a bedridden client's sleeping room to any interior area such as a corridor, hallway and or general use areas of the residence in accordance with Chapter 10.
4. The exterior exit door to a bedridden client's sleeping room shall be operable from both the interior and exterior of the residence.
5. Every required exit doorway from a bedridden client sleeping room shall be of a size as to permit the installation of a door not less than 3 feet (914 mm) in width and not less than 6 feet 8 inches (2032 mm) in height. When installed in exit doorways, exit doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exit way is not less than 32 inches (813 mm).

Note: A sliding glass door can be used as an exterior exit doorway as long as it is operable from the inside and outside and the clear width of the exit way is not less than 32 inches (813 mm).

425.8.3.4435.8.3.4 Intervening rooms. A means of exit shall not pass through more than one intervening room. A means of egress shall not pass through kitchens, storerooms, closets, garages or spaces used for similar purposes.

Exception: Kitchens which do not form separate rooms by construction.

425.8.4435.8.4 Corridors.

425.8.4.1435.8.4.1 Unless specified by Section **425.8.4435.8.4**, corridors serving Group R-2.1 and Group R-4 occupancies shall comply with Section 1018.1.

In Group R-2.1 occupancies provided with fire sprinklers throughout and which are required to have rated corridors, door closers need not be installed on doors to client sleeping rooms.

425.8.4.3435.8.4.3 In a Group R-2.1 and Group R-4 occupancies having smoke barriers, cross-corridor doors in corridors 6 feet (1829 mm) or less in width shall have, as a minimum, a door 36 inches (914 mm) in width.

425.8.5435.8.5 Changes in level. In Group R-3.1 occupancies housing nonambulatory clients interior changes in level up to 0.25 inch (6 mm) may be vertical and without edge treatment. Changes in level between 0.25 inch (6 mm) and 0.5 inch (12.7 mm) shall be beveled with a slope no greater than 1 unit vertical in 2 units horizontal (50 percent slope). Changes in level greater than 0.5 inch (12.7 mm) shall be accomplished by means of a ramp.

425.8.6435.8.6 Stairways.

425.8.6.1435.8.6.1 Group R-2.1 and Group R-4 occupancies housing more than six nonambulatory clients above the first floor shall be provided with two vertical exit enclosures. Stairway enclosures shall be in compliance with Section 1022. Exceptions to Section 1022 shall not apply in facilities licensed as a 24-hour care facility

425.8.6.2435.8.6.2 Group R-3.1 occupancies may continue to use existing stairways (except for winding and spiral stairways which are not permitted as a required means of egress) provided the stairs have a maximum rise of 8 inches (203 mm) with a minimum run of 9 inches (229 mm). The minimum stairway width may be 30 inches (762 mm).

425.8.7.1435.8.7.1 Doors within floor separations. Doors within such floor separations shall be tight fitting solid wood at least 13/8 inches (35 mm) in thickness. Door glazing shall not exceed 1296 square inches (32 918 mm²) with no dimension greater than 54 inches (1372 mm). Such doors shall be positive latching, smoke gasketed and shall be automatic-closing by smoke detection.

425.8.8435.8.8 Fences and gates. Grounds of a Residential Care Facility for the Elderly serving Alzheimer clients may be fenced and gates therein equipped with locks, provided safe dispersal areas are located not less than 50 feet (15 240 mm) from the buildings. Dispersal areas shall be sized to provide an area of not less than 3 square feet (0.28m²) per occupant. Gates shall not be installed across corridors or passageways leading to such dispersal areas unless they comply with egress requirements.

425.8.9435.8.9 Basement exits. One exit is required to grade level when the basement is accessible to clients.

425.8.10435.8.10 Delayed egress locks. See Section ~~1008.1.9.7~~**1010.1.9.7**.

425.9435.9 Request for alternate means of protection for facilities housing bedridden clients. Request for alternate means of protection shall apply to Sections ~~425.435~~**425.9435** through **425.9435.9**. Request for approval to use an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment, or means of protection shall be made in writing to the local fire authority having jurisdiction by the facility, client or the client's authorized representative. Sufficient evidence shall be submitted to substantiate the need for an alternate means of protection. The facility, client or the client's representative or the local fire authority having jurisdiction may request a written opinion from the State Fire Marshal concerning the interpretation of the regulations promulgated by the State Fire Marshal for a particular factual dispute. The State Fire Marshal shall issue the written opinion within 45 days following the request. Approval of a request for use of an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment, or means of protection made pursuant to this section shall be limited to Group R, 3.1 occupancies housing a bedridden client. Approvals made by the local fire authority having jurisdiction and the written opinion by the State Fire Marshal shall be applicable only to the requesting facility and shall not be construed as establishing any precedent for any future request by that facility or any other facility.

~~425.10435.10~~ Temporarily bedridden clients. Clients who become temporarily bedridden as defined in Health and Safety Code Section 1569.72, as enforced by the Department of Social Services, may continue to be housed on any story in Group R-2.1, R-3.1 or R-4 occupancies classified as Residential Care Facilities for the Elderly (RCFE). Every Residential Care Facility for the Elderly (RCFE) admitting or retaining a bedridden resident shall, within 48 hours of the resident's admission or retention in the facility, notify the local fire authority with jurisdiction of the estimated length of time the resident will retain his or her bedridden status in the facility.

**SECTION 426436
GROUP I-4 [SFM]**

~~426.4436.1~~ Group I-4 special provisions. Rooms classified as Group I-4 shall not be located above or below the first story.

Exceptions:

1. Basements or stories having floor levels located within 4 feet (1219 mm), measured vertically, from adjacent ground level at the level of exit discharge, provided the basement or story has exterior exit doors at that level.
2. In buildings equipped with an automatic sprinkler system throughout, rooms used for kindergarten, first- and second-grade children or for day-care purposes may be located on the second story, provided there are at least two exterior exit doors, or other egress systems complying with Section 1017 with two exits, for the exclusive use of such occupants. Egress systems for the exclusive use of such occupants shall be maintained until exit discharge at grade is attained.
3. Group I-4 child-care facilities may be located above the first story in buildings of Type I construction and in Types II-A and III-A construction, subject to the limitation of Section 503 when:
 - 3.1. Group I-4 childcare facilities with children under the age of seven or containing more than 12 children per story shall not be located above the fourth floor; and
 - 3.2. The entire story in which the Group I-4 child-care facility is located is equipped with an approved manual fire alarm and smoke-detection system. (See the Fire Code.) Actuation of an initiating device shall sound an audible alarm throughout the entire story. When a building fire alarm system is required by other provisions of this code or the Fire Code, the alarm system shall be connected to the building alarm system. An approved alarm signal shall sound at an approved location in the Group I-4 child-care facility to indicate a fire alarm or sprinkler flow condition in other portions of the building; and
 - 3.3. Group I-4 child-care facilities, if more than 1,000 square feet (92.9 m²) in area, is divided into at least two compartments of approximately the same size by a smoke barrier with door openings protected by smoke- and draft-control assemblies having a fire-protection rating of not less than 20 minutes. Smoke barriers shall have a fire-resistive rating of not less than one hour. In addition to the requirements of Section 508.3.3, occupancy separations between Group I-4 child-care and other occupancies shall be constructed as smoke barriers. Door openings in the smoke barrier shall be tightfitting, with gaskets installed as required by Section 710, and shall be automatic closing by actuation of the automatic sprinklers, fire alarm or smoke-detection system.
 - 3.4. Each compartment formed by the smoke barrier has not less than two exits or exit access doors, one of which is permitted to pass through the adjoining compartment; and
 - 3.5. Where two or more exits or exit access are required at least one shall not share a common path of travel.
 - 3.6. The building is equipped with an automatic sprinkler system throughout.

**SECTION 427437
Reserved**

**SECTION 428438
Reserved**

**SECTION 429439
ROAD TUNNELS, BRIDGES, AND OTHER LIMITED ACCESS HIGHWAYS [SFM]**

~~429.4439.1~~ General. Road tunnels, bridges, and other limited access highways that are state owned shall comply with NFPA 502.

**SECTION 430440
HORSE RACING STABLES [SFM]**

~~430.1440.1~~ For automatic sprinkler and fire alarm system requirements applying to each building, barn or structure which is used by an association regulated by the California Horse Racing Board for the stabling of horses or human habitation, and the stable area grounds, including any additional location where any excess horses are stabled see Title 4, Division 4, Article 17, Section 1927.

**SECTION ~~431.441~~
PET KENNELS [SFM]**

~~431.441.1~~ These regulations shall apply to every building or fire area in which a pet dealer, as defined in Health and Safety Code Section 122125, maintains a kennel.

~~431.2441.2~~ **Automatic sprinkler system.** An approved automatic sprinkler system complying with California Fire Code Section 903 shall be installed.

Exception: Where a fire alarm system that is connected to a central reporting station that alerts the local fire department in case of fire.

**SECTION ~~432.442~~
COMBUSTION ENGINES AND GAS TURBINES[SFM]**

~~432.442.1~~ **General.** The installation of combustion engines and gas turbines shall be in accordance with NFPA-37 and this chapter.

~~432.2442.2~~ **Separation.**

~~432.2.1442.2.1~~ **Construction.** Every room in which is installed a combustion engine or gas turbine shall be separated from the remainder of the building by not less than a one-hour fire barrier.

~~432.2.2442.2.2~~ **Exterior openings.** When doors, windows or louvered openings are located below openings in another story or less than 10 feet (3048 mm) from doors, windows or louvered openings of the same building, they shall be protected by a fire assembly having a 3/4-hour rating. Such fire assemblies shall be fixed, automatic or self-closing.

~~432.2.2.1442.2.2.1~~ **Interior openings.** In other than buildings housing Group I and R-2.1 occupancies, interior openings shall be allowed in buildings protected by an automatic fire sprinkler system throughout.

~~432.2.3442.2.3~~ **Location.** Combustion engines and gas turbines used for emergency power shall not be located in a room or area used for any other purpose other than equipment and controls related to the generation and distribution of emergency power.

~~432.2.4442.2.4~~ **Special hazards.** The handling and use of flammable or combustible liquids shall comply with the California Fire Code.

**SECTION ~~435.445~~
RESERVED**

**SECTION ~~436.446~~
WINERY CAVES [SFM]**

~~436.1446.1~~ **Scope.** The use of subterranean space for winery facilities in natural or manmade caves shall be in accordance with this section.

~~436.2446.2~~ **Definitions.**

~~436.3446.3~~ **General.** For definitions of ASSEMBLY, FIRE APPLIANCE and NONCOMBUSTIBLE, see Chapter 2.

~~436.4446.4~~ **Limited application.** For the purpose of Section ~~436.446~~, certain terms are defined as follows:

TYPE 1 WINERY CAVES are natural or manmade caves used solely for storage and/or processing of wine at a winery facility. Type 1 winery caves are not accessible to the public.

TYPE 2 WINERY CAVES are natural or manmade caves used for the storage and/or processing of wine at a winery facility. Type 2 winery caves are accessible to the public on guided tours only.

TYPE 3 WINERY CAVES are natural or manmade caves used for the storage and/or processing of wine at a winery facility. Type 3 winery caves are accessible to the public on guided tours and contain assembly use areas.

436.5446.5 Permits. For permits to operate Type 2 and 3 winery caves, see Section 105.

436.6446.6 Fire apparatus access roads. Fire apparatus access roads shall be constructed and maintained in accordance with the California Fire Code, Section 503.

436.7446.7 Construction requirements.

436.7.1446.7.1 Allowable area. The area of winery caves shall not be limited if constructed entirely of noncombustible materials. Winery caves constructed with combustible materials shall be limited in area so that no point is more than 150 feet (45 720 mm) from an exit.

436.7.2446.7.2 Interior construction. The walls and ceilings of winery caves shall not contain hidden or concealed spaces.

436.8446.8 General requirements.

436.8.1446.8.1 Public tours. Tours for the public shall be continuously guided by staff knowledgeable in the location of exits and the use of emergency notification devices.

436.8.2446.8.2 Standby personnel. Per the California Fire Code, Section 2404.20, when, in the opinion of the fire chief, it is essential for public safety, the owner, agent or lessee shall employ one or more qualified persons, as required and approved by the chief, to be on duty at such place. Such individuals shall be in uniform or otherwise easily identifiable. Standby personnel shall be subject to the fire chief's orders at all times when so employed and shall remain on duty during the times such places are open to the public or when such activity is being conducted. Before the start of any activity requiring standby personnel, such individuals shall: 1. Inspect the required fire appliances to ensure they are in the proper place and in good working order. 2. Inspect all exits to verify accessibility and proper operation. While on duty, such individuals shall not be required or permitted to perform any duties other than those specified by the fire chief.

436.8.3446.8.3 Open-flame devices. The use of candles and other open-flame devices shall be in accordance with California Fire Code Section 308.1.7.

436.9446.9 Portable fire extinguishers and other fire appliances. Portable fire extinguishers shall be located to be readily accessible. Its type, location and spacing throughout the facility shall be in accordance with the provisions of Title 19, Chapter 3 and California Fire Code Section 906.1. Other fire appliances shall be maintained at the site as required by the fire chief.

436.10446.10 Fire alarm systems. An approved manual fire alarm system conforming with the provisions of the California Fire Code, Section 907.2.1 shall be provided in all Type 3 winery caves.

436.11446.11 Exits.

436.11.1446.11.1 Distribution. Exits shall be located remotely from each other and arranged to minimize any possibility that more than one may be blocked off by any one fire or other emergency condition.

436.11.2446.11.2 Number. Winery caves shall be provided with a minimum of two exits. Assembly areas of Type 3 winery caves shall be provided with exits as required by the California Building Code for Group A Occupancies.

436.12446.12 Exit illumination.

436.12.1446.12.1 General. Exits shall be illuminated to a minimum intensity of not less than 1 foot-candle (10.76 lx) at floor level whenever the winery cave is occupied. Fixtures providing exit illumination shall be supplied from a dedicated circuit or source of power used only for exit illumination.

436.12.2446.12.2 Separate sources of power. The power supply for exit illumination may be provided by the premises' wiring system. In the event of its failure, illumination shall be automatically provided from an emergency system in Types 2 and 3 winery caves. Emergency systems shall be supplied from storage batteries or an on-site generator set, and the system shall be installed in accordance with the requirements of the California Electrical Code.

436.13446.13 Exit signs. Exit signs shall be installed at required exits and where otherwise necessary to clearly indicate the exits from assembly areas in Type 3 winery caves.

436.14446.14 Maximum occupant load. Occupant load requirements in the assembly areas of Type 3 winery caves shall be in accordance with Section 1004.

436.15446.15 Seating arrangements. Seating arrangements in the assembly areas of Type 3 winery caves shall be in accordance with California Fire Code, Section 1028.9.

**SECTION 437447
RESERVED**

**SECTION 438448
RESERVED**

**SECTION 439449
PUBLIC LIBRARIES [SL AND SFM]**

Public libraries funded from the California Library Construction and Renovation Act of 1988.

439.1449.1 Automatic sprinkler system. Automatic sprinkler systems shall be installed in: 1. New facilities, including additions; 2. Existing facilities to which a project adds the lesser of 5,000 square feet (465 m²) or 10 percent of the size of the existing facility, if the existing facility does not already have an automatic sprinkler system.

439.2449.2 System monitoring requirement. All fire protection systems shall be monitored by a fire alarm supervising station in accordance with the NFPA 72.

439.3449.3 Book return slots. Any interior book return with a slot piercing the exterior wall shall have a separate sprinkler head and be enclosed in fire-rated construction.

439.4449.4 Automatic sprinkler and extinguishing systems. For public libraries constructed with funds awarded under the California Reading and Literacy Improvement and Public Library Construction and Renovation Bond Act of 2000:

1. Fire sprinkler system requirement. All libraries funded for new construction, including additions, shall have automatic fire sprinkler systems installed.

2. Fire sprinkler system requirement for renovations of existing facilities. If there is no automatic fire sprinkler system in the existing facility, grant recipients shall be required to install a fire sprinkler system throughout the existing facility.

3. Fire sprinkler system types. The grant recipient may choose, on approval by the local fire authority, from wet-pipe, dry-pipe or pre-action systems, utilizing listed standard, early suppression fast response (ESFR), or on/off type sprinkler heads.

4. Book return rooms and slots. Book return rooms with slots in exterior walls shall have an automatic sprinkler head and be of approved fire-resistive construction. Book return slots and book drops shall have an additional automatic sprinkler head when shielded from the room sprinkler head.

5. System monitoring requirement. All fire protection systems shall be monitored by a fire alarm supervising station in accordance with the National Fire Protection Association (NFPA) 72.

6. Alternate fire-extinguishing systems for specialized areas. When approved by the fire authority having jurisdiction, other types of approved automatic fire-extinguishing systems may be utilized as an alternate to sprinklers in the following areas: rare book rooms, central computer rooms and telecommunication rooms.

7. Automatic sprinkler system plan requirement. Fire sprinkler system drawings shall use the furniture plan as a background for coordination with furniture and book stack location and height.

**SECTION 440450
GROUP C [SFM]**

440.1450.1 Group C Occupancies defined.

440.1.1450.1.1 Organized camps. For the purposes of these regulations, Group C Occupancies shall mean "organized camps" as defined in Section 18897, Health and Safety Code.

440.1.1.1450.1.1.1 Description. An organized camp is a site with programs and facilities established for the primary purpose of providing an outdoor group living experience with social, spiritual, educational or recreational objectives, for five days or more during one or more seasons of the year. The term "organized camp" does not include a motel, tourist camp, trailer park, resort, hunting camp, auto court, labor camp, penal or correctional camp, child-care institution or home-finding agency nor does it include any charitable or recreational organization which complies with the rules and regulations for recreational trailer parks provided for by Section 18301 (b), Health and Safety Code.

440.1.2450.1.2 Tents and tent structures. For the purpose of this chapter, a tent or tent structure is defined as any shelter of which 25 percent or more of the walls or roof, or both, are constructed of, or covered or protected by, a canvas or any other fabric material.

440.2450.2 Purpose and intent. The provisions of this section are established to provide fire and life safety in organized camps, but at the same time preserve the basic concept of outdoor living. It is the intent of this section that organized camps shall be considered as a separate and distinct occupancy.

440.3450.3 Basic building and structures.

440.3.1450.3.1 Building classification. Every building or structure shall be classified into the occupancy group they most nearly resemble and be constructed in accordance with appropriate occupancy requirements specified in this part.

Exceptions:

1. Tents, tent structures, and buildings and structures that do not exceed 25 feet (7620 mm) in any lateral dimension and where such building or structure is not more than one story.
2. For fire safety, buildings or structures on the premises of an organized camp which are used for sleeping purposes, regardless of their similarity to other occupancy groups, shall conform to the provisions of Sections 440.4450.4, 440.5450.5, 440.6450.6 and 440.7450.7.
3. For fire safety, buildings and structures which are not used for sleeping purposes shall conform to the provisions of Section 440.7450.7, which shall supersede any similar provisions contained in this part.

440.3.2450.3.2 Occupant load. The living shelter whether a building, structure, tent and tent structure, or cabin, shall provide a minimum of 30 square feet (2.8 m²) of superficial floor area per person for single-tier bed units, and 20 square feet (1.9 m²) of superficial floor area per person for two-tier bed units. More than two tiers per bed unit are prohibited. There shall be at least 3 feet (914 mm) of lateral distance between beds.

Exception: Intermittent short-term organized camps are not required to provide shelter facilities but, if provided, they shall comply with this section.

440.4450.4 General.

440.4.1450.4.1 Buildings intended for sleeping. Buildings and structures used or intended for sleeping purposes which do not exceed any one of the limitations set forth below shall conform to the provisions of Sections 440.5450.5 and 440.7450.7.

1. One story in height
2. Twenty-five feet (7620 mm) in any lateral dimension

Exception: This provision shall not apply to buildings or structures conforming to construction provisions of this section in effect prior to January 1, 1985.

3. Maximum housing of 12 persons

440.4.2450.4.2 Limitations. Buildings and structures used or intended for sleeping purposes, including those so used in whole or in part by staff personnel, and which exceed any one of the limitations set forth in Section 440.4.1450.4.1, shall conform to the provisions of Sections 440.5450.5 and 440.7450.7.

Exception: Buildings or structures used exclusively for living and sleeping purposes by resident custodial or caretaker personnel only may be constructed in accordance with the provisions of these regulations for a Group R, 3 Occupancy.

440.5450.5 Special buildings, tents and tent structures.

440.5.1450.5.1 Special buildings. In addition to the provisions of Section 440.7450.7, special buildings conforming to the limitations specified in Section 440.4.1450.4.1 shall conform to the following:

1. The flame-spread end-point rating of all interior finish materials shall not exceed 200.
2. Every room or area housing more than eight persons shall be provided with not less than two approved exits, each of which shall be direct to the exterior and shall not be less than 32 inches (813 mm) in clear width and 6 feet 8 inches (2032 mm) in height. Rooms or areas housing eight or less persons shall be provided with at least one such exit direct to the exterior.
3. Every exit door shall be openable from the inside without the use of any key, special knowledge or effort.
4. Exit doors need not be hung to swing in the direction of exit travel. Where exit doors are hung to swing in the direction of exit travel, a landing conforming to the provisions of Section 1008.1.5 shall be provided.
5. When the distance (measured vertically) between the ground level and the floor level exceeds 8 inches (203 mm), a stairway from each exit shall be provided. Steps shall have a rise of not more than 8 inches (203 mm) and a run of not less than 9 inches (229 mm). Such stairway shall be at least as wide as the door it serves.

Exception: In lieu of a stairway, a ramp having a slope of not more than 1 foot (305 mm) of rise for each 8 feet (2438 mm) of run may be provided.

6. When the floor level at any door opening of any building or structure is more than 30 inches (762 mm) above the adjacent ground level, handrails or guardrails shall be provided on the landing, balcony or porch, and on every stairway or ramp to ground level.
7. Buildings and structures or groups of buildings and structures shall be separated from each other by not less than 10 feet (3048 mm). This section shall not apply to existing buildings and structures of existing Group C Occupancies.

440.5.2450.5.2 Tents and tent structures. In addition to the provisions of Section 440.7450.7, tents and tent structures, or groups thereof, shall conform to the provisions of Section 440.5450.5, except as follows:

1. Regardless of any other provisions of this section, heating of tents and tent structures shall be prohibited unless written permission is obtained from the fire chief.
2. All canvas or other fabric material shall be treated and maintained in a flame-retardant condition.

Exceptions:

1. Tents in existence prior to January 1, 1979, provided the following conditions are met:
 - 1.1. Tents shall not exceed 80 square feet (7.4 m²) in area.
 - 1.2. No electrical devices, except flashlights, are installed or used in the tents.
 - 1.3. Tents are not located closer than 30 feet (9144 mm) to any open fire.
 - 1.4. Smoking is prohibited in the tents.
 - 1.5. All other applicable provisions of this article are met.
2. Canvas or materials used exclusively to protect windows and similar openings in walls.
3. Canvas or materials used as a windbreak enclosure of not more than three sides and open to the sky.

Note: It is not the intent of Section 440.5.2450.5.2 that strict adherence to the width and height requirements of exit openings be enforced for exits from tents.

440.6.450.6 Building and structures for sleeping. Buildings and structures, or portions thereof, used or intended for sleeping purposes and which exceed the height, area or capacity limitations specified in Section 440.4.1450.4.1 shall conform to the provisions of this section.

440.6.1450.6.1 Area, height and type of construction. Buildings and structures, or portions thereof, shall not exceed the limits of area, height and type of construction specified in these regulations for a Group R-2.1 occupancy. Such buildings and structures shall not be of less than one-hour fire-resistive construction throughout.

440.6.2450.6.2 Location on property. The fire-resistive protection of exterior walls and openings, as determined by location on property, shall be in accordance with the provisions of these regulations for a Group R-2.1 occupancy.

440.6.3450.6.3 Exits. Stairs, exits and smoke-proof enclosures shall be provided in accordance with the provisions of Chapter 10.

440.6.4450.6.4 Enclosure of vertical openings. Exits shall be enclosed as specified in Chapter 10. Elevator shafts, vent shafts and other vertical openings shall be enclosed and enclosures shall be as set forth in Chapter 7.

440.6.5450.6.5 Fire-extinguishing systems. Automatic fire-extinguishing systems, standpipes, and basement pipe inlets shall be installed when and as specified in Chapter 9 for buildings, based on the occupancy they most nearly resemble.

440.6.6450.6.6 Automatic fire alarm system. See Section 907.

440.7450.7 Special requirements. The provisions of this section shall apply to the premises and to all buildings and structures of all organized camps.

440.7.1450.7.1 Electrical. The installation of all electrical wiring shall conform to the applicable provisions of the California Electrical Code.

440.7.2450.7.2 Heating equipment. Heating equipment, and the installation thereof, shall conform to the provisions of the California Mechanical Code.

440.7.3450.7.3 Motion picture booths. Motion picture machine booths shall conform to the requirements of Section 409.

440.7.4450.7.4 Interior finish. Interior finish shall conform to the requirements of Chapter 8, except as permitted in Section 440.5.1450.5.1, Item 1.

440.7.5450.7.5 Heater room openings. All exterior openings in rooms containing central heating equipment, low-pressure boilers or water-heating boilers used as part of the heating system, if located below openings in another story, or if less than 10 feet (3048 mm) from other doors or windows of the same building, shall be protected by a fire assembly having a three-fourths-hour fire-resistive rating. Such fire assemblies shall be fixed, automatic or self-closing.

Exception: The requirement for three-fourths-hour fire assembly protection of openings may be deleted if the entire room is protected by an automatic sprinkler system conforming to the provisions of Section 903.

440.7.6450.7.6 Heating rooms. Every room containing central- heating equipment, low-pressure boiler or water-heating boiler used as part of the heating system shall be separated from the rest of the building by a one-hour fire-resistive fire barrier with all openings protected as set forth in Section 707.6.

Exceptions:

1. Boilers or central heating plants where the largest piece of fuel equipment does not exceed 400,000 Btu per hour (135 kW) input.
2. When any such opening is protected by a pair of fire doors, the inactive leaf shall be normally secured in the closed position and shall be openable only by use of a tool. An astragal shall be provided and the active leaf shall be self-closing.

440.7.7450.7.7 Exits. For purposes of determining occupant load for exit requirements, see Section ~~440.3.2450.3.2~~.

440.7.8450.7.8 Liquefied petroleum gas. The construction and installation of all tanks, cylinders, equipment and systems used or intended for use in conjunction with any liquefied petroleum gas shall conform to the provisions of the California Mechanical Code and the California Fire Code.

440.7.9450.7.9 Air-conditioning and ventilation systems. Heating units used as an integral part of an air-conditioning and ventilation system shall be installed in accordance with Sections ~~440.7.2450.7.2~~, ~~440.7.3450.7.3~~ and ~~440.7.6450.7.6~~.

440.8450.8 Camp fire alarm. Every organized camp shall provide and maintain a device or devices suitable for sounding a fire alarm. Such device or devices may be of any type acceptable to the enforcing agency provided they are distinctive in tone from all other signaling devices or systems and shall be audible throughout the camp premises. When an automatic fire alarm system is provided, as required by Section ~~440.6.6450.6.6~~, all signaling devices required by this section shall be of the same type as that used in the automatic system.

**SECTION 441451
RESERVED**

**SECTION 442452
SCHOOL FACILITIES FOR KINDERGARTEN THROUGH 12th GRADE AND GROUP E DAY CARE.**

442.1452.1 General Provisions. School facilities for Kindergarten through 12th grade and Group E day care shall comply with the provisions of this section and other applicable provisions of this code including requirements for specific occupancies.

442.1.1452.1.1 Location on property. All buildings housing Group E occupancies shall front directly on a public street or an exit discharge not less than 20 feet (6096 mm) in width. The exit discharge to the public street shall be a minimum 20-foot-wide (6096 mm) right-of-way, unobstructed and maintained only as access to the public street. At least one required exit shall be located on the public street or on the exit discharge

442.1.2452.1.2 Separate means of egress systems required. Every room with an occupant load of 300 or more shall have one of its exits or exit-access doorways lead directly into a separate means of egress system that consists of not less than two paths of exit travel which are separated by a smoke barrier in accordance with Section 709 in such a manner to provide an atmospheric separation that precludes contamination of both paths of exit travel by the same fire. Not more than two required exits or exit-access doorways shall enter into the same means of egress system.

442.1.3452.1.3 Fences and gates. School grounds may be fenced and gates therein may be equipped with locks, provided that safe dispersal areas based on 3 square feet (0.28 m²) per occupant are located between the school and the fence. Such required safe dispersal areas shall not be located less than 50 feet (15 240 mm) from school buildings.

Every public and private school shall conform with Section 32020 of the Education Code which states:

The governing board of every public school district, and the governing authority of every private school, which maintains any building used for the instruction or housing of school pupils on land entirely enclosed (except for building walls) by fences or walls, shall, through cooperation with the local law enforcement and fire-protection agencies having jurisdiction of the area, make provision for the erection of gates in such fences or walls. The gates shall be of sufficient size to permit the entrance of the ambulances, police equipment and fire-fighting apparatus used by the law enforcement and fire-protection agencies. There shall be no less than one such access gate and there shall be as many such gates as needed to assure access to all major buildings and ground areas. If such gates are to be equipped with locks, the locking devices shall be designed to permit ready entrance by the use of the chain or bolt-cutting devices with which the local law enforcement and fire-protection agencies may be equipped.

442.1.4452.1.4 Special provisions. Rooms used by kindergarten, first-, or second-grade pupils, and Group E day care, shall not be located above or below the first story.

Exceptions:

1. Kindergarten, first-, or second-grade pupils, or day care may be located in basements or stories having floor levels located within 4 feet (1219 mm), measured vertically, from the adjacent ground level at the level of exit discharge, provided the basement or story has exterior exit doors at that level.
2. In buildings equipped with an automatic sprinkler system throughout, rooms used for kindergarten, first- and second-grade children or for day-care purposes may be located on the second story, provided there are at least two exterior exit doors, or other egress systems complying with Section 1018 with two exits, for the exclusive use of such occupants. Egress systems for the exclusive use of such occupants shall be maintained until exit discharge at grade is attained.
3. Group E day-care facilities may be located above the first story in buildings of Type I-A, Type I-B, Type II-A and III-A construction, subject to the limitation of Section 503 when:
 - 3.1. Facilities with children under the age of seven or containing more than 12 children per story shall not be located above the fourth floor; and
 - 3.2. The entire story in which the day-care facility is located is equipped with an approved manual fire alarm and smoke-detection system. Actuation of an initiating device shall sound an audible alarm throughout the entire story. When a building fire alarm system is required by other provisions of this code, the alarm system shall be interconnected and sound the day-care fire alarm system; and
 - 3.3. The day-care facility, if more than 1,000 square feet (92.9 m²) in area, is divided into at least two compartments of approximately the same size by a smoke barrier in accordance with Section 709. In addition to the requirements of Section 508, occupancy separations between daycare and other occupancies shall be constructed as smoke barriers. Door openings in the smoke barrier shall be tight fitting, with gaskets installed as required by Section 716.5.3.1 and shall be automatic closing by actuation of the fire sprinklers, fire alarm or smoke detection system; and
 - 3.4. Each compartment formed by the smoke barrier has not less than two exits or exit-access doors, one of which is permitted to pass through the adjoining compartment, and
 - 3.5. At least one exit or exit-access door from the day-care facility shall be into a separate means of egress with not less than two paths of exit travel, which are separated in such a manner to provide an atmospheric separation.
 - 3.6. The building is equipped with an automatic sprinkler system throughout.

442.1.5452.1.5 Special hazards. School classrooms constructed after January 1, 1990, not equipped with automatic sprinkler systems, which have metal grilles or bars on all their windows and do not have at least two exit doors within 3 feet (914 mm) of each end of the classroom opening to the exterior of the building or to a common hallway used for evacuation purposes, shall have an inside release for the grilles or bars on at least one window farthest from the exit doors. The window or windows with the inside release shall be clearly marked as emergency exits.

442.1.6452.1.6 Class I, II or III-A flammable liquids. Class I, II or III-A flammable liquids shall not be placed, stored or used in Group E occupancies, except in approved quantities as necessary in laboratories and classrooms and for operation and maintenance as set forth in the California Fire Code.

SECTION 443.453 GROUP L [SFM]

443.1453.1 Scope. The provisions of this section shall apply to buildings or structures, or portions thereof, containing one or more Group L laboratory suites as defined in Section 443.2453.2.

443.2453.2 Definitions. The following terms are defined in Chapter 2:

**LABORATORY SUITE.
LIQUID TIGHT FLOOR.**

443.3453.3 Laboratory suite requirements.

443.3.1453.3.1 The gross square footage of an individual laboratory suite shall not exceed 10,000 sq ft (929 m²).

443.3.2453.3.2 An individual laboratory suite shall not serve more than a single tenant.

Exception: A laboratory suite controlled by a single responsible party.

443.4453.4 Construction

443.4.1453.4.1 Separation of laboratory suites.

~~443.4.1.1~~**453.4.1.1** Laboratory suites shall be separated from other occupancies in accordance with Table 508.4.

~~443.4.1.2~~**453.4.1.2** Laboratory suites shall be separated from other laboratory suites by a fire barrier having a fire-resistance rating of not less than 1-hour.

~~443.4.1.3~~**453.4.1.3** Laboratory suites shall be separated from control areas by a minimum 2-hour fire-resistance rating in accordance with Sections 707 and 711.

Exception: Laboratory suites shall be separated from control areas by a minimum 1-hour fire-resistance rating on floor levels below the 4th story.

~~443.4.1.4~~**453.4.1.4 Horizontal separation.** The floor construction of the laboratory suite and the construction supporting the floor of the laboratory suite shall have a minimum 2-hour fire-resistance rating in accordance with Section 711.

Exceptions:

1. The floor construction of the laboratory suite and the construction supporting the floor of the laboratory suite are allowed to be 1-hour fire-resistance rated in buildings of Type IIA, IIIA and VA construction.
2. When an individual laboratory suite occupies more than one story, the intermediate floors contained within the suite shall comply with the requirements of Table 601.

~~443.4.2~~**453.4.2 Structural design occupancy category.**

~~443.4.2.1~~**453.4.2.1** Buildings containing Group L occupancies with an occupant load greater than 500 for colleges or adult education facilities, or other buildings with an occupant load greater than 5,000 shall be classified as Occupancy Category III in accordance with Chapters 16 and 16A.

~~443.4.2.2~~**453.4.2.2** Other buildings containing Group L occupancies shall be classified as Occupancy Category II in accordance with Chapters 16 and 16A.

~~443.4.3~~**453.4.3 Fire barrier and fire-smoke barrier.**

~~443.4.3.1~~**453.4.3.1 Fire barrier.** A fire barrier having a fire resistance rating of not less than 2-hours shall divide any story containing more than one laboratory suite above the 4th story.

~~443.4.3.1.1~~**453.4.3.1.1** Fire barriers shall be continuous from exterior wall to exterior wall,

~~443.4.3.1.2~~**453.4.3.1.2** The fire barrier shall divide the floor so that the square footage on each side of the 2-hour fire barrier is not less than 30 percent of the total floor area, and

~~443.4.3.1.3~~**453.4.3.1.3** The number of laboratory suites on each side of the 2-hour fire barrier shall not be less than 25 percent of the total number of laboratory suites on the floor.

~~443.4.3.2~~**453.4.3.2 Fire-smoke barrier.** Any story containing a Group L occupancy above the 10th story shall be subdivided by a fire-smoke barrier constructed as a fire barrier having a fire resistance rating of not less than 2- hours and shall also comply with the smoke barrier requirements of Section 709.

The 2-hour fire- smoke barrier shall be in accordance with Sections ~~443.4.3.2~~**453.4.3** through ~~443.4.3.2.3~~**453.4.3.2.3**.

~~443.4.3.2.1~~**453.4.3.2.1** A minimum of one door opening shall be provided in the 2-hour fire-smoke barrier for emergency access.

~~443.4.3.2.2~~**453.4.3.2.2** Each side of the 2-hour fire- smoke barrier shall be designed as a separate smoke zone designed in accordance with Section 909.6.

~~443.4.3.2.3~~**453.4.3.2.3** The area on each side of the 2-hour firesmoke barrier shall be served by a minimum of one exit enclosure in accordance with Section 1022.

443.4.4453.4.4 Emergency response equipment area. An area for emergency response equipment shall be provided on each floor in an approved location. The area shall be a minimum of 50 square feet (4.6 m²), accessed from outside the laboratory suite and identified with signage

443.4.5453.4.5 Liquid tight floor. All portions of the laboratory suite where hazardous materials may be present shall be provided with a liquid tight floor. Where the floor is designed to provide spill control or secondary containment the floor shall be designed in accordance with California Fire Code Section 5004.2.

443.4.6453.4.6 Emergency power. An emergency power system shall be provided in accordance with Chapter 27.

443.4.6.1453.4.6.1 Required systems. Emergency power shall be provided for all electrically operated equipment, systems and connected control circuits including:

1. Mechanical ventilation systems. See section 443.4.7.2453.4.7.2. Emergency alarm and monitoring systems.
3. Temperature control systems required to prevent unsafe process excursions or chemical reactions.
4. Treatment systems and scrubbers.
5. Egress lighting.
6. Electrically operated systems required elsewhere in this code and the California Fire Code.

443.4.7453.4.7 Ventilation.

443.4.7.1453.4.7.1 Compatibility. Incompatible materials shall not be conveyed in the same duct system. Combined products in mechanical exhaust ducts shall not create a physical hazard or reaction that could degrade the duct material. The building official may require a technical report in accordance with Section 443.7.1453.7.1.

443.4.7.2453.4.7.2 Fire dampers, smoke dampers and combination fire/smoke dampers. Fire dampers, smoke dampers or fire/smoke dampers shall not be permitted in product conveying and other mechanical exhaust duct systems used to maintain a safe laboratory environment. When the exhaust duct penetrates the laboratory suite boundary the exhaust duct shall be located within a horizontal assembly having a fire resistance rating equal to the fire barrier.

443.4.7.3453.4.7.3 Duct materials. Product conveying and other mechanical exhaust duct systems used to maintain a safe laboratory environment shall be constructed in accordance with Chapters 5 and 6 of the California Mechanical Code.

443.4.7.4453.4.7.4 Laboratory suite exhaust air.

443.4.7.4.1453.4.7.4.1 Exhaust air from laboratory suites shall not be recirculated.

443.4.7.4.2453.4.7.4.2 Laboratory suite exhaust air shall be independently ducted to a point outside the building or a roof top structure.

Exceptions:

1. Exhaust ducts serving a single laboratory suite.
2. Exhaust ducts serving separate laboratory suites on the same story may be connected to a common duct within a fire rated vertical shaft when the sub-duct extends vertically upward at least 22 inches.
3. Exhaust ducts serving separate laboratory suites on the basement through the 4th story may be connected to a common duct within a fire rated vertical shaft when the sub-duct extends vertically upward at least 22 inches.
4. Exhaust ducts serving separate laboratory suites on the 5th story and above may be connected to a common duct that does not exceed 100 vertical feet within a fire rated vertical shaft when the subducts extends vertically upward at least 22 inches. Ducts serving the 5th story and above shall be separate from the duct serving the 4th story and below, but may be within the same fire rated shaft.

443.4.7.4.3453.4.7.4.3 Laboratory suite exhaust ducts shall not penetrate the 2-hour fire barrier required by Section 443.4.3453.4.3. **Exception:** Where the exhaust duct is enclosed in a 2-hour shaft in accordance with Section 708.

443.4.7.5453.4.7.5 Ventilation rates. Mechanical exhaust ventilation systems shall provide a minimum ventilation rate not less than 1 cubic feet per minute per square foot [0.00508 m³/(s·m²)] of floor area, or 6 air exchanges per hour, whichever is greater. Systems shall operate continuously at the designed ventilation rate.

443.4.7.6453.4.7.6 Mechanical ventilation systems on emergency power. When operating on emergency power, the ventilation rate may be reduced to a level sufficient to maintain a differential pressure negative to the surrounding area.

443.4.7.7453.4.7.7 Mechanical ventilation system balancing. Mechanical ventilation systems shall be designed and balanced such that during normal and emergency conditions the door opening forces comply with the requirements of Sections 1008.1.3 and Chapter 11B as applicable. Emergency conditions shall include: supply fan shutdown or failure, closing of smoke dampers or combination fire/smoke dampers, or emergency power.

443.5453.5. Fire protection systems. See Chapter 9.

443.6453.6 Means of egress.

443.6.1453.6.1 Access to exits. Every portion of a laboratory suite containing hazardous materials and having a floor area of 500 square feet (19 m²) or more shall have access to not less than two separate exits or exit-access doorways in accordance with Section 1015.2.

443.6.2453.6.2 Door swing. All exit and exit-access doors serving areas with hazardous materials shall swing in the direction of exit travel, regardless of the occupant load served.

443.6.3453.6.3 Panic hardware. Exit and exit access doors from areas with hazardous materials shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware.

443.6.4453.6.4 Buildings more than four stories. A minimum of one exit shall be provided to serve the floor on each side of the 2-hour fire barrier and shall comply with the provisions of Chapter 10.

443.6.5453.6.5 Corridors. Corridors shall comply with Section 1018 and shall have opening protection in accordance with Tables 716.5 and 716.6.

443.7453.7 Hazardous materials.

443.7.1453.7.1 Technical report. The enforcing agency may require a technical opinion and report to identify and develop methods of protection from the hazards presented by the hazardous materials. A qualified person, firm or corporation, approved by the enforcing agency, shall prepare the opinion and report, and shall be provided without charge to the enforcing agency. The opinion and report may include, but is not limited to, the preparation of a hazardous material management plan (HMMP); chemical analysis; recommendations for methods of isolation, separation, containment or protection of hazardous materials or processes, including appropriate engineering controls to be applied; the extent of changes in the hazardous behavior to be anticipated under conditions of exposure to fire or from hazard control procedures; and the limitations or conditions of use necessary to achieve and maintain control of the hazardous materials or operations. The report shall be entered into the files of the code enforcement agencies. Proprietary and trade secret information shall be protected under the laws of the state or jurisdiction having authority.

443.7.2453.7.2 Multiple hazards. When a hazardous material has multiple hazards, all hazards shall be addressed and controlled in accordance with the provisions of this code.

443.7.3453.7.3 Percentage of maximum allowable quantities. The percentage of the maximum allowable quantity of hazardous materials per laboratory suite permitted for each story level within a building shall be in accordance with Table 443.7.3.1453.7.3.1.

**TABLE 443.7.3.1453.7.3.1
HAZARDOUS MATERIALS QUANTITY PER LABORATORY SUITE**

STORY		PERCENTAGE OF MAXIMUM ALLOWABLE QUANTITY PER LABORATORY SUITE ^{a, b}	Number of Lab Suites per floor based on Construction Type				
			Type IA	Type IB	Type IIA, IIIA, IV	Type IIB, IIIB, VA	Type VB
Above grade plane	Above 20	0	NP	NP	NP	NP	NP
	15 to 20	25	4	NP	NP	NP	NP

	11, 12, 13, 14	50	8	NP	NP	NP	NP
	7, 8, 9, 10	50	16	NP	NP	NP	NP
	6	75	20	20	NP	NP	NP
	4, 5	75	20	20	20	NP	NP
	3	100	UL	UL	UL	UL	NP
	1, 2	100	UL	UL	UL	UL	UL
	1	75 ^c	10	10	10	10	10
Below grade plane	2	50 ^d	5	5	5	5	5
	3 and below	0	NP	NP	NP	NP	NP

UL = Unlimited, NP= Not permitted

a. Percentages shall be of the maximum allowable quantity per laboratory suite shown in Tables 307.1(1) and 307.1(2). Allowable hazardous material increases for buildings equipped throughout with an automatic sprinkler system shall not be applicable to Group L occupancies.

b. When an individual laboratory suite occupies more than one story, the more restrictive percentage of the maximum allowable quantity per laboratory suite shall apply.

c. The total aggregate quantity of flammable liquids on the first story below grade shall be limited to the maximum total aggregate quantity for Group B occupancy control areas.

d. The total aggregate quantity of flammable liquids on the second story level below grade shall be limited to a maximum total aggregate quantity for Group B occupancy control areas.

443.7.4453.7.4 Handling and transportation. The handling and transportation of hazardous materials shall be in accordance with Section 5003 of the California Fire Code.

443.7.5453.7.5 Transportation of hazardous materials above the 10th story. Transportation of hazardous materials above the 10th story shall be limited to 5 percent of the maximum allowable quantities of Tables 307.1 (1) and 307.1(2). Quantities are permitted to be increased 100 percent in buildings with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Materials where footnote g of Table 307.1(1) applies shall not be increased.

443.8.4453.8 Elevators and elevator lobbies above the 10th story. Any story containing a Group L occupancy above the 10th story shall be provided with elevators and elevator lobbies in accordance with Sections 443.8.1453.8.1 through 443.8.3453.8.3.

443.8.1453.8.1 An elevator that serves every story of the building shall be provided on each side of the 2-hour fire-smoke barrier.

443.8.2453.8.2 An elevator lobby shall be provided on each side of the 2-hour fire-smoke barrier at each floor in accordance with Section 413.14.13006. Exceptions to 413.14.1 shall not apply.

443.8.3453.8.3 The elevator and its associated elevator lobbies and elevator machine rooms shall be pressurized in accordance with Section 909.6.

443.9453.9 Existing Group L (Formerly Group H-8) occupancies, additions, alterations, or repairs. See Section 3416 California Fire Code Chapter 11 and California Existing Building Code.

SECTION 444454 RESERVED

SECTION 445455 LARGE FAMILY DAY-CARE HOMES [SFM]

445.1455.1 Large family day-care homes.

445.2455.2 For purposes of clarification, Health and Safety Code Section 1597.46 is repeated.

(a) A city, county, or city and county shall not prohibit large family day care homes on lots zoned for single-family dwellings, but shall do one of the following:

(1) Classify these homes as a permitted use of residential property for zoning purposes.

(2) Grant a nondiscretionary permit to use a lot zoned for a single-family dwelling to any large family day-care home that complies with local ordinances prescribing reasonable standards, restrictions and requirements concerning spacing and concentration, traffic control, parking and noise control relating to such homes, and complies with subdivision (d) and any regulations adopted by the state fire marshal pursuant to that subdivision. Any noise standards shall be consistent with local noise ordinances implementing the noise element of the general plan and shall take into consideration the noise level generated by children. The permit issued pursuant to this paragraph shall be granted by the zoning administrator, if any, or if there is no zoning administrator by the person or persons designated by the planning agency to grant such permits, upon the certification without a hearing.

(3) Require any large family day-care home to apply for a permit to use a lot zoned for single-family dwellings. The zoning administrator, if any, or if there is no zoning administrator, the person or persons designated by the planning agency to handle the use permits shall review and decide the applications. The use permit shall be granted if the large family day care home complies with local ordinances, if any, prescribing reasonable standards, restrictions and requirements concerning spacing and concentration, traffic control, parking and noise control relating to such homes, and complies with subdivision (d) and any regulations adopted by the state fire marshal pursuant to that subdivision.

Any noise standards shall be consistent with local noise ordinances implementing the noise element of the general plan and shall take into consideration the noise levels generated by children.

The local government shall process any required permit as economically as possible, and fees charged for review shall not exceed the costs of the review and permit process. Not less than 10 days prior to the date on which the decision will be made on the application, the zoning administrator or person designated to handle such use permits shall give notice of the proposed use by mail or delivery to all owners shown on the last equalized assessment roll as owning real property within a 100-foot radius of the exterior boundaries of the proposed large family day care home. No hearing on the application for a permit issued pursuant to this paragraph shall be held before a decision is made unless a hearing is requested by the applicant or other affected person. The applicant or other affected person may appeal the decision. The appellant shall pay the cost, if any of the appeal.

(b) A large family day-care home shall not be subject to the provisions of Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) Use of a single-family dwelling for the purposes of a large family day-care home shall not constitute a change of occupancy for purposes of Part 1.5 (commencing with Section 17910) of Division 13 (State Housing Law), or for purposes of local building and fire codes.

(d) Large family day-care homes shall be considered as single-family residences for the purposes of the State Uniform Building Standards Code and local building and fire codes, except with respect to any additional standards specifically designed to promote the fire and life safety of the children in these homes adopted by the State Fire Marshal pursuant to this subdivision.

445.3455.3 Smoke alarms. Large family day-care homes shall be equipped with State Fire Marshal approved and listed single station residential type smoke alarms. The number and placement of smoke alarms shall be determined by the enforcement authority.

445.4455.4 Fire extinguishers. Large and small family day-care homes shall be equipped with a portable fire extinguisher having a minimum 2A10BC rating.

445.5455.5 Fire alarm devices. See Section 907.2.6.4.

445.6455.6 Compliance. Every large-family day-care home shall comply with the provisions for Group R-3 occupancies and, if appropriate, Section ~~426.1436.1~~. For the purposes of Section ~~426.1436.1~~, the first story shall be designated as the floor used for residential occupancy nearest to the street level which provides primary access to the building.

Enforcement of the provisions shall be in accordance with the Health and Safety Code Sections 13145 and 13146. No city, county, city and county, or district shall adopt or enforce any building ordinance or local rule or regulation relating to the subject of fire and life safety in large-family day-care homes which is inconsistent with those standards

adopted by the State Fire Marshal, except to the extent the building ordinance or local rule or regulation applies to single-family residences in which day care is not provided.

445.7455.7 Special hazards. Every unenclosed gas-fired water heater or furnace which is within the area used for child care in a large family day-care home shall be protected in such a way as to prevent children from making contact with those appliances.

Exception: This does not apply to kitchen stoves or ovens.

445.8455.8 Exiting. See Section 1015.7.

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

503.1 General. Unless otherwise specifically modified in Chapter 4 and this chapter, building height, number of stories and building area shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Building height, number of stories and building area provisions shall be applied independently. Each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

Exceptions:

1. [HCD 1] Limited-density owner-built rural dwellings may be of any type of construction which will provide for a sound structural condition. Structural hazards which result in an unsound condition and which may constitute a substandard building are delineated by Section 17920.3 of the Health and Safety Code.

2. Other than structural requirements, solar photovoltaic panels supported by a structure with no use underneath shall not constitute additional story or additional floor area and may exceed the height limit when constructed on a roof top of a building provided the following conditions are met:

1.1. For all occupancies, the highest point of the structure/panel shall meet the lower of the two values below:

1. 3' above the allowable building height per this code.
2. 3' above the roof of the building immediately below.

2.1. For installations on flat roofs in other than Group R-3 and R-4 occupancies, the highest point of the structure/panel shall meet the lower of the two values below:

1. 10' above the allowable building height per this code.
2. 10' above the roof of the building immediately below.

3. Other than structural requirements, solar photovoltaic panels supported by a structure over parking stalls shall not constitute additional story or additional floor area and may exceed the height limit as specified in exception 2 (above) when the following conditions are met (see Figure 5-1):

1. The area within the perimeter of the photovoltaic array has maximum rectangular dimension of 40 feet by 150 feet.
2. The distance between solar photovoltaic array structures is a minimum of 10 feet clear.
3. The driveway aisle separating solar photovoltaic array structures has a minimum width of 25 feet clear.
4. Solar photovoltaic array structure is used only for parking purposes with no storage.
5. Completely open on all sides (other than necessary structural supports) with no interior partitions.

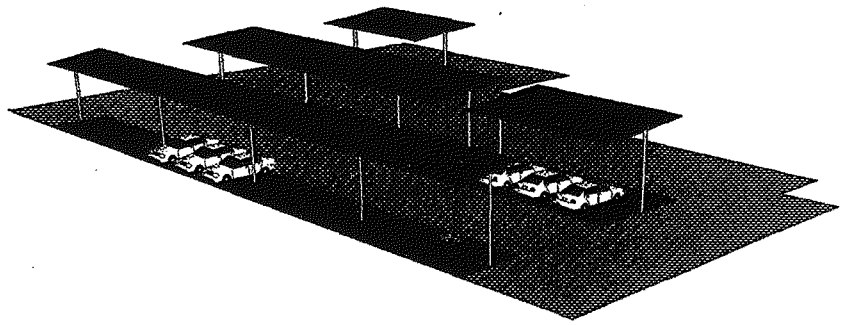
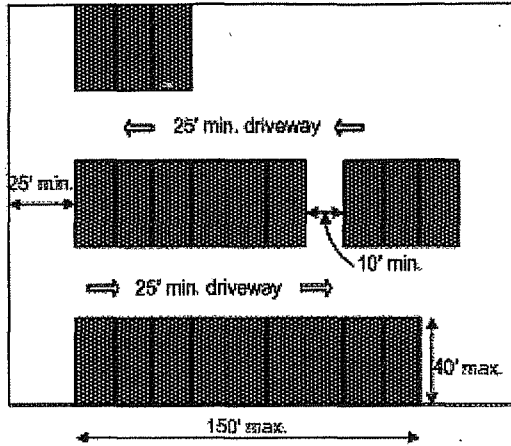


Figure 5-1

TABLE 504.3^{a,i}
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A, B, E, F, S, U	NS ^b	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
<u>A, E</u>	<u>NS^b</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>70</u>	<u>60</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>
H-1, H-2, H-3, H-5, <u>L</u>	NS ^{c,d}	UL	160	65	55	65	55	65	50	40
	S	UL	160	65	55	65	55	65	50	40
H-4	NS ^{c,d}	UL	160	65	55	65	55	65	50	40
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>70</u>	<u>60</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>
I-1 Condition 1, I-3	NS ^{d,e}	UL	160	65 NP	55 NP	65 NP	55 NP	65 NP	50 NP	40 NP
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85NP</u>	<u>75NP</u>	<u>85NP</u>	<u>75NP</u>	<u>85NP</u>	<u>70NP</u>	<u>60NP</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>
I-1 Condition 2, I-2, <u>I-2.1</u>	NS ^{d,f,e}	UL	160	65						
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>65</u>						
I-4	NS ^{d,g}	UL	160	65	55	65	55	65	50	40
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>70</u>	<u>60</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>
<u>R-1^h</u>	NS ^{d,h}	UL	160	65	55	65	55	65	50	40
	S13R	60	60	60	60 55	60	60 55	60	60 50	60 40
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>70</u>	<u>60</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>
<u>R-2^h</u>	NS ^{d,h}	UL	160	65	55	65	55	65	50	40
	S13R	60	60	60	60 55	60	60 55	60	60 50	60 40
	<u>S (without area increase)</u>	<u>UL</u>	<u>180</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>75</u>	<u>85</u>	<u>70</u>	<u>60</u>
	<u>S (with area increase)</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>60</u>	<u>40</u>

<i>R-3, R-3.1^h</i>	NS ^{d,h}	UL	160	65	55	65	55	65	50	40
	<u>S13D</u>	<u>60</u>	<u>60</u>	<u>60</u>	<u>60</u>	<u>60</u>	<u>60</u>	<u>60</u>	<u>50</u>	<u>40</u>
	S13R	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	85	70	60
<i>R-2.1, R-4^h</i>	NS ^{d,h}	UL	160	65	55	65	55	65	50	40
	<u>S13D</u>	<u>60</u>	<u>60</u>	<u>60</u>	<u>55</u>	<u>60</u>	<u>55</u>	<u>60</u>	<u>50</u>	<u>40</u>
	S13R	60	60	60	60 55	60	60 55	60	60 50	60 40
	<u>S</u>	<u>UL</u>	<u>160</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>55</u>	<u>65</u>	<u>50</u>	<u>40</u>

For SI: 1 foot = 304.8 mm.

Note: UL = Unlimited; *NP* = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = *Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.*

- See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- The NS value is only for use in evaluation of existing building height in accordance with the ~~International~~ California Existing Building Code.
- New Group I-4 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.
- New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the ~~International~~ California Fire Code.
- For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
- New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
- In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the S increases for height and stories in tables 504.3 and 504.4 are permitted in addition to the S area increase in accordance with Table 506.2.*
- For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, S area increase is permitted in addition to the height and story increase provided the height shall not exceed 60 feet and 4 stories.*

TABLE 504.4^{a, b, n}
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	6	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	<u>UL</u>	<u>5</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>1</u>
A-2	NS	UL	11	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	12	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	<u>UL</u>	<u>11</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>1</u>
A-3	NS	UL	11	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	12	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	<u>UL</u>	<u>11</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>1</u>
A-4	NS	UL	11	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	4	3	4	3	4	3	3	2
	<i>S (with area increase)</i>	<u>UL</u>	<u>11</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>1</u>

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A-5	NS S	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL	UL UL
B	NS S	UL UL	11 12	5 6	3 4	5 6	3 4	5 6	3 4	2 3
E	NS <i>S (without area increase)</i> <i>S (with area increase)</i>	UL UL <u>UL</u>	5 6 <u>5</u>	3 4 <u>3</u>	2 3 <u>2</u>	3 4 <u>3</u>	2 3 <u>2</u>	3 4 <u>3</u>	1 2 <u>1</u>	1 2 <u>1</u>
F-1	NS S	UL UL	11 12	4 5	2 3	3 4	2 3	4 5	2 3	1 2
F-2	NS S	UL UL	11 12	5 6	3 4	4 5	3 4	5 6	3 4	2 3
H-1	NS ^d S		1	1	1	1	1	1	1	NP
H-2	NS ^d S	<u>UL</u> 20	3	2	1	2	1	2	1	1
H-3	NS ^d S	<u>UL</u> 20	6	4	2	4	2	4	2	1
H-4	NS ^d <i>S (without area increase)</i> <i>S (with area increase)</i>	<u>UL</u> 20 <u>UL</u> 20 <u>UL</u> 20	7 8 <u>7</u>	5 6 <u>5</u>	3 4 <u>3</u>	5 6 <u>5</u>	3 4 <u>3</u>	5 6 <u>5</u>	3 4 <u>3</u>	2 3 <u>2</u>
H-5	NS ^d S		4	4	3	3	3	3	3	2
I-1 Condition 1	NS ^{d,e} S	<u>UL</u> <u>UL</u>	9 10	4 5	3 4	4 5	3 4	4 5	3 4	2 3
I-1 Condition 2	NS ^{d,e} S	<u>UL</u> <u>UL</u>	9 10	4 5	3 4	4 5	3 4	4 5	3 4	2 3
I-2/I-2.1 ^j	NS ^{d,f} <i>S (without area increase)</i> <i>S (with area increase)</i>	UL UL <u>UL</u>	4 5 <u>4</u>	2 3 <u>2</u>	1 1 <u>1</u>	1 1 <u>1</u>	NP NP <u>NP</u>	1 1 <u>1</u>	1 1 <u>1</u>	NP NP <u>NP</u>
I-3	NS ^{d,e} <i>S (without area increase)</i> <i>S (with area increase)</i>	<u>UL</u> NP UL <u>UL</u>	4NP 53 <u>2</u>	2NP 3NP <u>NP</u>	1NP 2NP <u>NP</u>	2NP 3NP <u>NP</u>	1NP 2NP <u>NP</u>	2NP 3NP <u>NP</u>	2NP 3NP <u>NP</u>	1NP 2NP <u>NP</u>
I-4	NS ^{d,g} <i>S (without area increase)</i> <i>S (with area increase)</i>	UL UL <u>UL</u>	5 6 <u>5</u>	3 4 <u>3</u>	2 3 <u>2</u>	3 4 <u>3</u>	2 3 <u>2</u>	3 4 <u>3</u>	1 2 <u>1</u>	1 2 <u>1</u>
L	NS S	<u>NP</u> <u>20</u>	<u>NP</u> <u>6</u>	<u>NP</u> <u>5</u>	<u>NP</u> <u>3</u>	<u>NP</u> <u>5</u>	<u>NP</u> <u>3</u>	<u>NP</u> <u>5</u>	<u>NP</u> <u>3</u>	<u>NP</u> <u>2</u>
M	NS S	UL UL	11 12	4 5	2 3	4 5	2 3	4 5	3 4	1 2
R-1 ^h	NS ^{d,h} S13R <i>S (without area increase)</i> <i>S (with area increase)</i>	UL 4 UL <u>UL</u>	11 4 12 <u>11</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	3 43 4 <u>3</u>	2 32 3 <u>2</u>
R-2 ^h	NS ^{d,h} S13R <i>S (without area increase)</i> <i>S (with area increase)</i>	UL 4 UL <u>UL</u>	11 4 12 <u>11</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	4 4 5 <u>4</u>	4 43 5 <u>4</u>	3 43 4 <u>4</u>	2 32 3 <u>2</u>
R-2.1 ^h	NS ^{d,h}	<u>UL</u>	<u>6</u> ⁱ	<u>3</u> ^k	<u>NP</u>	<u>3</u> ^k	<u>NP</u>	<u>NP</u>	<u>3</u> ^k	<u>NP</u>

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	<u>S13R</u> <u>S</u>	<u>UL</u> <u>UL</u>	<u>4^l</u> <u>6^l</u>	<u>3^k</u> <u>3^k</u>	<u>NP</u> <u>NP</u>	<u>3^k</u> <u>3^k</u>	<u>NP</u> <u>NP</u>	<u>NP</u> <u>NP</u>	<u>3^k</u> <u>3^k</u>	<u>NP</u> <u>NP</u>
R-3, R-3.1 ^h	NS ^{d,h} <u>S13D</u> S13R S	UL <u>4</u> 4 UL	11 <u>4</u> 4 12	 4 4 5	 4 4 5	 4 4 5	 4 4 5	 4 4 5	3 <u>3</u> 4 4	3 <u>3</u> 4 4
R-4 ^h	NS ^{d,h} <u>S13D</u> S13R S	UL <u>4</u> 4 UL	11 ^l <u>4^l</u> 4 11 ^l	 4 ^k 4 ^k 4 ^m	 4 ^m 4 ^k 4 ^m	 4 ^k 4 ^m 4 ^m	 4 ^m 4 ^m 4 ^m	 4 ^m 4 ^m 4 ^m	3 ^k 3 ^k 3 ^k	2 ^m 2 ^m 2 ^m
S-1	NS S	UL UL	11 12	 5	 3	 4	 3	 5	4 4	2 2
S-2 ^j	NS S	UL UL	11 12	5 6	3 4	4 5	3 4	4 5	4 5	2 3
U	NS S	UL UL	5 6	4 5	2 3	3 4	2 3	4 5	2 3	1 2

Note: UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
d. The NS value is only for use in evaluation of existing building height in accordance with the ~~International~~ California Existing Building Code.
e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. ~~For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.~~
f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the ~~International~~ California Fire Code.
g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
i. See Section 408.1.2 for specific exceptions to construction type, allowable building areas and allowable heights.
j. Restraint shall not be permitted in any building except in Group I-3 occupancies constructed for such use (see Section 408.1.2).
k. Nonambulatory persons shall be limited to the first 2 stories.
l. Nonambulatory persons shall be limited to the first 5 stories.
m. Nonambulatory elderly clients are not permitted in buildings of these types of construction. See Section 425.3.3435.3.3 and 425.3.4435.3.4.
n. In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the S increases for height and stories in tables 504.3 and 504.4 are permitted in addition to the S area increase in accordance with Table 506.2.
o. For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, S area increase is permitted in addition to the height and story increase provided the height shall not exceed 60 feet and 4 stories.

TABLE 506.2^{a, b, l}
ALLOWABLE AREA FACTOR (At = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION					
	SEE FOOTNOTES	TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V

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		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM (without height increase)	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
	SM (with height increase)	<u>UL</u>	<u>UL</u>	<u>15,500</u>	<u>8,500</u>	<u>14,000</u>	<u>8,500</u>	<u>15,000</u>	<u>11,500</u>	<u>5,500</u>
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM (without height increase)	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
	SM (with height increase)	<u>UL</u>	<u>UL</u>	<u>15,500</u>	<u>9,500</u>	<u>14,000</u>	<u>9,500</u>	<u>15,000</u>	<u>11,500</u>	<u>6,000</u>
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM (without height increase)	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
	SM (with height increase)	<u>UL</u>	<u>UL</u>	<u>15,500</u>	<u>9,500</u>	<u>14,000</u>	<u>9,500</u>	<u>15,000</u>	<u>11,500</u>	<u>6,000</u>
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM (without height increase)	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
	SM (with height increase)	<u>UL</u>	<u>UL</u>	<u>15,500</u>	<u>9,500</u>	<u>14,000</u>	<u>9,500</u>	<u>15,000</u>	<u>11,500</u>	<u>6,000</u>
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1									
	SM									
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM (without height increase)	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
	SM (with height increase)	<u>UL</u>	<u>UL</u>	<u>26,500</u>	<u>14,500</u>	<u>23,500</u>	<u>14,500</u>	<u>25,500</u>	<u>18,500</u>	<u>9,500</u>
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8,500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NS ^c	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
	S1									
H-2	NS ^c	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
	S1									
	SM									
H-3	NS ^c	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
	S1									
	SM									
H-4	NS ^c	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000
	SM (without height increase)	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,000
	SM (with height increase)	<u>UL</u>	<u>UL</u>	<u>37,500</u>	<u>17,500</u>	<u>28,500</u>	<u>17,500</u>	<u>36,000</u>	<u>18,000</u>	<u>6,500</u>
H-5	NS ^c	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000

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	<u>SM (without height increase)</u>	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
	<u>SM (with height increase)</u>	<u>UL</u>	<u>UL</u>	<u>37,500</u>	<u>23,000</u>	<u>28,500</u>	<u>19,000</u>	<u>36,000</u>	<u>18,000</u>	<u>9,000</u>
I-1	NS ^{d,e}	UL	55,000	19,000	40,000	16,500	40,000	18,000	40,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
I-2/I-2.1	NS ^{d,f}	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	<u>SM (without height increase)</u>	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP
	<u>SM (with height increase)</u>	<u>UL</u>	<u>UL</u>	<u>15,000</u>	<u>11,000</u>	<u>12,000</u>	<u>NP</u>	<u>12,000</u>	<u>9,500</u>	<u>NP</u>
I-3	NS ^{d,e}	UL	UL 15,100	15,000 NP	40,000 NP	40,500 NP	7,500 NP	12,000 NP	7,500 NP	5,000 NP
	S1	UL	UL 45,300	45,000 NP	40,000 NP	42,000 NP	30,000 NP	48,000 NP	30,000 NP	20,000 NP
	<u>SM (without height increase)</u>	UL	UL 30,200	45,000 NP	30,000 NP	31,500 NP	22,500 NP	36,000 NP	22,500 NP	15,000 NP
	<u>SM (with height increase)</u>	<u>UL</u>	<u>15,100</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>	<u>NP</u>
I-4	NS ^{d,g}	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000
	<u>SM (without height increase)</u>	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000
	<u>SM (with height increase)</u>	<u>UL</u>	<u>60,500</u>	<u>26,500</u>	<u>13,000</u>	<u>23,500</u>	<u>13,000</u>	<u>25,500</u>	<u>18,500</u>	<u>9,000</u>
L	NS	UL	60,000	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1									
	SM									
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000
	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000
R-1 ^b	NS ^{d,h}	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	<u>SM (without height increase)</u>	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	<u>SM (with height increase)</u>	<u>UL</u>	<u>UL</u>	<u>24,000</u>	<u>16,000</u>	<u>24,000</u>	<u>16,000</u>	<u>20,500</u>	<u>12,000</u>	<u>7,000</u>
R-2 ^h	NS ^{d,h}	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	<u>SM (without height increase)</u>	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	<u>SM (with height increase)</u>	<u>UL</u>	<u>UL</u>	<u>24,000</u>	<u>16,000</u>	<u>24,000</u>	<u>16,000</u>	<u>20,500</u>	<u>12,000</u>	<u>7,000</u>
R-2 Type VA construction ^b	NS ^d	NP	NP	NP	NP	NP	NP	NP	12,000	NP
	S13R									
	S1	NP	NP	NP	NP	NP	NP	NP	48,000	NP
	<u>SM (without height increase)</u>	NP	NP	NP	NP	NP	NP	NP	36,000	NP
	<u>SM (with height increase)</u>	NP	NP	NP	NP	NP	NP	NP	36,000	NP
R-2.1 ^b	NS ^d	UL	55,000	19,000	NP	16,500	NP	NP	16,500	NP
	S13R									
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000
	<u>SM (without height increase)</u>	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
	<u>SM (with height increase)</u>	<u>UL</u>	<u>55,000</u>	<u>19,000</u>	<u>NP</u>	<u>16,500</u>	<u>NP</u>	<u>NP</u>	<u>16,500</u>	<u>NP</u>
R-3/R-3.1 ^b	NS ^{d,h}	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13D									

	S13R									
	S1									
	SM									
	NS ^{a,h}									
R-4 ^b	S13R	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM (without height increase)	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	SM (with height increase)	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500
U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

Note: UL = Unlimited; NP = Not permitted;

For SI: 1 square foot = 0.0929 m².

NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; *S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.*

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building area in accordance with the International California Existing Building Code.

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. ~~For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.~~

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the International California Fire Code.

g. New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

i. In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the S increases for height and stories in tables 504.3 and 504.4 are permitted in addition to the S area increase in accordance with Table 506.2.

j. For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, S area increase is permitted in addition to the height and story increase provided the height shall not exceed 60 feet and 4 stories.

[SFM amendments incorporated into Tables 504.3 and 504.4]

504.2 Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one. Increases are permitted in addition to the building area increase in accordance with Section 506.2. *In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, these increases are permitted in addition to the area increase in accordance with Section 506.3.* For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in

~~accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one, but shall not exceed 60 feet (18 288 mm) or four stories, respectively, these increases are permitted in addition to the area increase in accordance with Section 506.3. For Group R-3 buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum building height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one, but shall not exceed 60 feet (18 288 mm) or four stories, respectively.~~

Exceptions: The use of an automatic sprinkler system to increase building heights shall not be permitted for the following conditions:

1. Buildings, or portions of buildings, classified as a Group I-2 occupancy of Type IIB, III, IV or V construction.
2. Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3 or H-5 occupancy.
3. Fire resistance rating substitution in accordance with Table 601, Note d.
4. ~~[SFM] Buildings, or portions of buildings, classified as a Group L occupancy.~~
5. ~~[SFM] Buildings, or portions of buildings, classified as a Licensed Group R-2.1 or R-4 occupancy.~~

[SFM amendments incorporated into Table 506.2]

506.3 Automatic sprinkler system increase. ~~Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the building area limitation in Table 503 is permitted to be increased by an additional 200 percent ($I_s = 2$) for buildings with more than one story above grade plane and an additional 300 percent ($I_s = 3$) for buildings with no more than one story above grade plane. In other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, these increases are permitted in addition to the height and story increases in accordance with Section 504.2. For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, these increases are permitted in addition to the height and story increase in accordance with Section 504.2.~~

Exception: The building area limitation increases shall not be permitted for the following conditions:

1. The automatic sprinkler system increase shall not apply to buildings with an occupancy in Group H-1.
2. The automatic sprinkler system increase shall not apply to the building area of an occupancy in Group H-2 or H-3. For buildings containing such occupancies, the allowable building area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.
3. Fire resistance rating substitution in accordance with Table 601, Note d.
4. ~~[SFM] The automatic sprinkler system increase shall not apply to buildings with an occupancy in Group L.~~

[SFM amendments incorporated into Table 506.2]

506.4.1 Area determination. ~~In other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the total allowable building area of a single occupancy building with more than one story above grade plane shall be determined by multiplying the allowable building area per story (A_a), as determined in Section 506.1, by the number of stories above grade plane as listed below:~~

1. For buildings with two stories above grade plane, multiply by 2;
2. For buildings with three or more stories above grade plane, multiply by 3; and
3. No story shall exceed the allowable building area per story (A_a), as determined in Section 506.1, for the occupancies on that story.

Exceptions:

Unlimited area buildings in accordance with Section 507.

~~For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the total allowable building area of a single occupancy building with more than one story above grade plane shall be determined by multiplying the allowable building area per story (A_a), as determined in Section 506.1, by the number of stories above grade plane as listed below:~~

1. ~~For buildings with two or more stories above grade plane, multiply by 2;~~

~~2. No story shall exceed the allowable building area per story (A_a), as determined in Section 506.1, for the occupancies on that story.~~

~~Exception: Unlimited area buildings in accordance with Section 507.~~

[SFM amendments incorporated into Section 506.2.3 and 506.2.4]

~~506.5.2 More than one story above grade plane.~~ For buildings with more than one story above grade plane and containing mixed occupancies, each story shall individually comply with the applicable requirements of Section 508.1.

~~For other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories based on the applicable provisions of Section 508.1 shall not exceed 3.~~

~~For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, buildings with more than two stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories based on the applicable provisions of Section 508.1 shall not exceed 2.~~

[Relocated from 2013 CBC 506.5.2]

506.2.3 Single-occupancy, multistory buildings. The allowable area of a single-occupancy building with more than one story above grade plane shall be determined in accordance with Equation 5-2:

$$A_a = [A_t + (NS \times If)] \times S_a \quad \text{(Equation 5-2)}$$

where:

A_a = Allowable area (square feet).

A_t = Tabular allowable area factor (NS, S13R or SM value, as applicable) in accordance with Table 506.2.

NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered building (regardless of whether the building is sprinklered).

If = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

S_a = For other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, actual number of building stories above grade plane, not to exceed three. For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, actual number of building stories above grade plane, not to exceed two.

~~For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, use the actual number of building stories above grade plane, not to exceed four.~~

No individual story shall exceed the allowable area (A_a) as determined by Equation 5-2 using the value of $S_a = 1$.

[Relocated from 2013 CBC 506.5.2]

506.2.4 Mixed-occupancy, multistory buildings. Each story of a mixed-occupancy building with more than one story above grade plane shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories, determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed three, provided the aggregate sum of the ratios for portions of mixed occupancy, multistory buildings containing A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, including any other associated non-separated occupancies, shall not exceed two.

$$A_a = [A_t + (NS \times If)] \quad \text{(Equation 5-3)}$$

where:

A_a = Allowable area (square feet).

A_t = Tabular allowable area factor (NS, S13R or SM value, as applicable) in accordance with Table 506.2.

NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered building (regardless of whether the building is sprinklered).

If = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

Exception: For buildings designed as separated occupancies under Section 508.4 and equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed four.

507.4 Sprinklered, one-story buildings. The area of a Group A-4 building no more than one story above grade plane of other than Type V construction, or the area of a Group B, F, M or S building no more than one story above grade plane of any construction type, shall not be limited where the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

Exceptions:

1. Buildings and structures of Type I and II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.3, 903.3.1.1 and Chapter 23 of the *International California Fire Code*.
2. The automatic sprinkler system shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that:
 - 2.1. Exit doors directly to the outside are provided for occupants of the participant sports areas; and
 - 2.2. The building is equipped with a fire alarm system with manual fire alarm boxes installed in accordance with Section 907.

507.11 Group E buildings. The area of a Group E building no more than one story above grade plane, of Type IIA, IIIA or IV construction, shall not be limited when all of the following criteria are met:

1. Each classroom shall have not less than two means of egress, with one of the means of egress being a direct exit to the outside of the building complying with Section 1020.
2. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The building is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

**TABLE 509
INCIDENTAL USES**

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system ^a
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system ^a
Refrigerant machinery rooms	1 hour or provide automatic sprinkler system ^a
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic fire-extinguishing system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 and I-2.1 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system ^a
[SFM] Rooms or areas with special hazards such as laboratories, vocational shops and other such areas not classified as Group H, located in Group E occupancies where hazardous materials in quantities not exceeding the maximum allowable quantity are used or stored.	1 hour

In ambulatory care facilities, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system ^a
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 and I-2.1 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 and I-2.1 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour ^a
In other than ambulatory care facilities and Group I-2 and I-2.1 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies. ^a

For SI: 1 square foot = 0.0929 m², 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L.

a. [SFM] Fire barrier protection and automatic sprinkler protection required throughout the fire area in I-2 and I-2.1 occupancies as indicated.

509.10510.10 Group R. Buildings housing protective social care homes or in occupancies housing inmates who are not restrained need not be of one-hour fire-resistive construction when not more than two stories in height. In no case shall individual floor areas exceed 3,000 square feet (279 m²). The fire-resistive protection of the exterior walls shall not be less than one hour where such walls are located within 5 feet (1524 mm) of the property line. Openings within such walls are not permitted. Openings in exterior nonrated walls need not be protected.

CHAPTER 6 TYPES OF CONSTRUCTION

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A ^d	B
Primary structural frame ^f (see Section 202)	3 ^a	2 ^a	1	0	1	0	HT	1	0
Bearing walls									
Exterior ^{e, f}	3	2	1	0	2	2	2	1	0
Interior	3 ^a	2 ^a	1	0	1	0	1/HT	1	0
Nonbearing walls and partitions	See Table 602								
Exterior									
Nonbearing walls and partitions									
Interior ^d	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and secondary members (see Section 202)	1 1/2 ^b	1 ^{b, c}	1 ^{b, c}	0 ^c	1 ^{b, c}	0	HT	1 ^{b, c}	0

For SI: 1 foot = 304.8 mm.

- a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
- b.1. Except in Group A, E, F-1, H, I, L, M, R-1, R-2, R-2.1 and S-1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
- b.2 For Group A, E, I, L, R-1, R-2, and R-2.1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, fire protection of members other than the structural frame shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
- b.3. One-story portions of Group A and E assembly occupancies the roof-framing system of Type II A or Type III A construction may be of unprotected construction when such roof-framing system is open to the assembly area and does not contain concealed spaces.
- c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
- d. Not less than the fire-resistance rating required by other sections of this code.
- e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).
- f. Not less than the fire-resistance rating as referenced in Section 704.10.

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602. Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

Exception: Noncombustible structural members supporting solar photovoltaic panels are not required to meet the fire resistance rating for the following:

- 1. Photovoltaic panel supported by a structure and having no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.
- 2. Solar photovoltaic (PV) panels supported by noncombustible framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.
- 3. Solar photovoltaic panels supported by a structure over parking stalls where the panels constitute the roof and all the following conditions are met (see Figure 5-1):

- 3.1. The area within the perimeter of the solar photovoltaic array has maximum rectangular dimension of 40 feet by 150 feet.
- 3.2. The distance between solar photovoltaic array structures is a minimum of 10 feet clear.
- 3.3. The driveway aisle separating solar photovoltaic array structures has a minimum width of 25 feet clear.
- 3.4. Solar photovoltaic array structure is used only for parking purposes with no storage.
- 3.5. Completely open on all sides (other than necessary structural supports) with no interior partitions.

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS
BASED ON FIRE SEPARATION DISTANCE^{a,d,g}

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H ^e , L	OCCUPANCY GROUP F-1, M, S-1 ^f	OCCUPANCY GROUP A, B, E, F-2, I, R ^h , S-2, U ^h
X < 5 ^p	All	3	2	1
5 ≤ X < 10	IA Others	3 2	2 1	1 1
10 ≤ X < 30	IA, IB	2	1	1 ^c

	IIB, VB Others	1 1	0 1	0 1 ^c
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

- a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
- b. See Section 705.1.1 for party walls.
- c. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
- d. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
- e. For special requirements for Group H occupancies, see Section 415.3.
- f. For special requirements for Group S aircraft hangars, see Section 412.4.1.
- g. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.
- h. Group R-3 and Group U occupancies when used as accessory to Group R-3 occupancies, shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet or more; or when equipped throughout with an automatic residential fire sprinkler system installed in accordance with Section 903.3 the fire-resistance rating shall not be required where the fire separation distance is 3 feet or more.*

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. Fire-retardant-treated wood shall be permitted in:
 - 1.1. Nonbearing partitions where the required fire-resistance rating is 2 hours or less.
 - 1.2. Nonbearing exterior walls where fire-resistance rated construction is not required.
 - 1.3. Roof construction, including girders, trusses, framing and decking.

Exception: In buildings of Type IA construction exceeding two stories above grade plane, fire-retardant-treated wood is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

2. Thermal and acoustical insulation, other than foam plastics, having a flame spread index of not more than 25.

Exceptions:

1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a flame spread index of not more than 100.
2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a flame spread index of not more than 200.
3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. Interior floor finish and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. Interior wall and ceiling finishes installed in accordance with Sections 801 and 803.
8. Trim installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire-retardant-treated wood, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
13. Combustible exterior wall coverings, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.11.

19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of fire-resistance tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *InternationalCalifornia Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m²), in size, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

603.1.1 Ducts. The use of nonmetallic ducts shall be permitted where installed in accordance with the limitations of the *InternationalCalifornia Mechanical Code*.

603.1.2 Piping. The use of combustible piping materials shall be permitted where installed in accordance with the limitations of the *InternationalCalifornia Mechanical Code* and the *InternationalCalifornia Plumbing Code*.

603.1.3 Electrical. The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted when installed in accordance with the limitations of ~~this code~~ the *California Electrical Code*.

CHAPTER 7 FIRE-RESISTANCE-RATED CONSTRUCTION

702.1 Definitions. The following terms are defined in Chapter 2.

ANNULAR SPACE.
BUILDING ELEMENT.
CEILING RADIATION DAMPER.
COMBINATION FIRE/SMOKE DAMPER.
CORRIDOR DAMPER.
DAMPER.
DRAFTSTOP
F RATING.
FIRE BARRIER.
FIRE DAMPER.
FIRE DOOR.
FIRE DOOR ASSEMBLY.
FIRE PARTITION.
FIRE PROTECTION RATING.
FIRE-RATED GLAZING.
FIRE RESISTANCE.
FIRE-RESISTANCE RATING.
FIRE-RESISTANT JOINT SYSTEM.
FIRE SEPARATION DISTANCE.
FIRE-SMOKE BARRIER.
FIRE WALL.
FIRE WINDOW ASSEMBLY.
FIREBLOCKING.
FLOOR FIRE DOOR ASSEMBLY.
HORIZONTAL ASSEMBLY.
JOINT.
L RATING.
MEMBRANE PENETRATION.
MEMBRANE-PENETRATION FIRESTOP.
MEMBRANE-PENETRATION FIRESTOP SYSTEM.

MINERAL FIBER.
MINERAL WOOL.
PENETRATION FIRESTOP.
SELF-CLOSING.
SHAFT.
SHAFT ENCLOSURE.
SMOKE BARRIER.
SMOKE COMPARTMENT.
SMOKE DAMPER.
SPLICE.
T RATING.
THROUGH PENETRATION.
THROUGH-PENETRATION FIRESTOP SYSTEM.

705.5 Fire-resistance ratings. *For other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602 and this section. The required fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside. The required fire-resistance rating of exterior walls with a fire separation distance of less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides.*

For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602 and this section. The required fire-resistance rating of exterior walls shall be rated for exposure to fire from both sides.

705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an exterior wall in any story of a building shall not exceed the percentages specified in Table 705.8.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first story above grade plane either:

- 1.1. Where the wall faces a street and has a fire separation distance of more than 15 feet (4572 mm); or
- 1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International California Fire Code*.

2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.

705.8.5 Vertical separation of openings. Openings in exterior walls in adjacent stories shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet (1524 mm) of each other horizontally and the opening in the lower story is not a protected opening with a fire protection rating of not less than 3/4 hour. Such openings shall be separated vertically not less than 3 feet (914 mm) by spandrel girders, exterior walls or other similar assemblies that have a fire-resistance rating of not less than 1 hour, rated for exposure to fire from both sides, or by flame barriers that extend horizontally not less than 30 inches (762 mm) beyond the exterior wall. Flame barriers shall have a fire-resistance rating of not less than 1 hour. The unexposed surface temperature limitations specified in ASTM E 119 or UL 263 shall not apply to the flame barriers or vertical separation unless otherwise required by the provisions of this code.

Exceptions:

1. This section shall not apply to buildings that are three stories or less above grade plane.
2. This section shall not apply to buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Open parking garages.

705.12 Exterior Graphics on Exterior Walls of High-Rise Buildings. *Where installed on the exterior walls of high-rise buildings, exterior graphics, both permanent and temporary, greater than 100 square feet in area or greater than*

10 feet in either dimension shall comply with the following conditions subject to the review and approval of the fire code official and building official:

1. The materials used for graphics installed at a height greater than 40 feet above the grade plane shall be noncombustible materials or shall have a flame spread index not greater than 25 when tested in accordance with ASTM E84 or UL 723.
2. The method of attachment and mounting of the graphics to the exterior wall shall be such that the graphics are securely attached.
3. The graphics shall not interfere with the active or passive ventilation required for the building and the required smoke control systems in the building.
4. The graphics shall not impair the functions of any fire or life safety systems in the building.

TABLE 706.4
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, R-2.1, U, L	3 ^a
F-1, H-3 ^b , H-5, M, S-1	3
H-1, H-2	4 ^b
F-2, S-2, R-3, R-4	2

- a. In Type II or V construction, walls shall be permitted to have a 2-hour fire-resistance rating.
b. For Group H-1, H-2 or H-3 buildings, also see Sections 415.7 and 415.8.

707.1 General. Fire barriers installed as required elsewhere in this code or the *International California Fire Code* shall comply with this section.

TABLE 707.3.10
FIRE-RESISTANCE RATING REQUIREMENTS FOR FIRE BARRIER ASSEMBLIES OR HORIZONTAL ASSEMBLIES BETWEEN FIRE AREAS

OCCUPANCY GROUP	FIRE-RESISTANCE RATING (hours)
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, L, M, R, S-2	2
U	1

708.3 Fire-resistance rating. Fire partitions shall have a fire-resistance rating of not less than 1 hour.

Exceptions:

1. Corridor walls permitted to have a 1/2 hour fire-resistance rating by Table 1020.1.
2. Dwelling unit and sleeping unit separations in buildings of Type IIB, IIIB and VB construction shall have fire-resistance ratings of not less than 1/2 hour in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. Walls separating enclosed tenant spaces in Group B high-rise buildings of Type I and II construction equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

708.4 Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the fire partitions are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required fire-resistance rating of the wall supported, except for walls separating tenant spaces in covered and open mall buildings, walls separating dwelling units, walls separating sleeping units and corridor walls, in buildings of Type IIB, IIIB and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour fire-resistance rating.

2. Where the room-side fire-resistance-rated membrane of the corridor is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the corridor shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the corridor ceiling is constructed as required for the corridor walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partitions separating tenant spaces in a covered or open mall building, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in attic or ceiling spaces above tenant separation walls.
5. Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four stories above grade plane, provided the attic space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m²) or above every two dwelling units, whichever is smaller.
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in *all* combustible floor/ceiling and roof/ceiling spaces.

709.5 Openings. Openings in a smoke barrier shall be protected in accordance with Section 716.

Exceptions:

1. In ~~Group I-1 Condition 2~~, Group I-2, *I-2.1, R-2.1* and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of 3/4 inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In ~~Group I-1 Condition 2~~, Group I-2, *R-2.1* and ambulatory care facilities, horizontal sliding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

710.2 Materials. The walls shall be of materials permitted by the building type of construction. *In Group I-2 and I-2.1, smoke partitions shall have framing covered with noncombustible materials having an approved thermal barrier with an index of not less than 15 in accordance with FM 4880, UL 1040, NFPA 286 or UL 1715.*

710.8 Ducts and air transfer openings. The space around a duct penetrating a smoke partition shall be filled with an *approved* material to limit the free passage of smoke. Air transfer openings in smoke partitions shall be provided with a *smoke damper* complying with Section 717.3.2.2. *For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, duct openings in smoke partitions shall also be provided with a smoke damper complying with Section 717.3.2.2.*

Exceptions:

1. Where the installation of a smoke damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternative protection shall be utilized.
2. *[SFM] Smoke dampers are not required in corridor penetrations where the duct is constructed of steel not less than 0.019-inch (0.40 mm) in thickness and there are no openings serving the corridor.*

712.1.3 Escalator openings. *In other than Groups I-2, I-2.1, and I-3, where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, vertical openings for escalators shall be permitted where protected in accordance with Section 712.1.3.1 or 712.1.3.2.*

712.1.9 Two-story openings. In other than Groups I-2, I-2.1 and I-3, a vertical opening that is not used as one of the applications listed in this section shall be permitted if the opening complies with all of the items below:

1. Does not connect more than two stories.
2. Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.
3. Is not concealed within the construction of a wall or a floor/ceiling assembly.
4. Is not open to a corridor in Group I and R occupancies.
5. Is not open to a corridor on nonsprinklered floors.
6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

713.13 Waste and linen chutes and incinerator rooms. Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter 5 and shall meet the requirements of Sections 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of Sections 713.13.4 through 713.13.5.

Exception: Chutes serving and contained within a single dwelling unit.

~~**713.14.1 Elevator lobby.** An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than two stories in Group A, E, H, I, L, R-1, R-2 and R-2.1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, and more than three stories for all other occupancies. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by fire partitions. In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 716.4.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.~~

Exceptions:

1. Enclosed elevator lobbies are not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 708.2 are not required to have enclosed elevator lobbies.
3. Enclosed elevator lobbies are not required where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. Enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:

- 4.1. Group A occupancies;
- 4.2. Group E occupancies;
- 4.3. Group H occupancies;
- 4.4. Group I occupancies;
- 4.5. Group L occupancies;
- 4.6. Group R-1, R-2 and R-2.1 occupancies; and
- 4.7. High-rise buildings.

5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the requirements in Section 711 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 711.5.2, 711.5.3, and 715.4.8 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 716.5.4.1.

6. ~~[SFM] When approved, in other than Group I-2 occupancies enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 708.14.2.~~

7. Enclosed elevator lobbies are not required where the elevator serves only open parking garages in accordance with Section 406.3.

8. ~~[SFM] Enclosed elevator lobbies are not required where the hoistway door has a fire protection rating as required by Section 708.7 and the hoistway door opening is also protected by a listed and labeled smoke containment system complying with ICC-ES AC 77.~~

~~See Section 403.6 for additional requirements for highrise buildings.~~

716.5.3 Door assemblies in corridors and smoke barriers. Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in corridor walls or smoke barrier walls having a fire-resistance rating in accordance with Table 716.5 shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

Exceptions:

1. Viewports that require a hole not larger than 1 inch (25 mm) in diameter through the door, have not less than a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
2. Corridor door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.

3. Unprotected openings shall be permitted for corridors in multitheater complexes where each motion picture auditorium has not fewer than one-half of its required exit or exit access doorways opening directly to the exterior or into an exit passageway.

4. Horizontal sliding doors in smoke barriers that comply with Sections 408.6 and ~~408.8.4~~ 408.8.1 in occupancies in Group I-3

5. *Cell or room doors, including cell or room doors with integral side-lites that are part of the door assembly in Group I-3 occupancies which open into a required exit corridor within a cell complex.*

716.5.5 Doors in interior exit stairways and ramps and exit passageways. Fire door assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 ~~or 903.3.1.2~~.

716.5.7.1 Fire door labeling requirements. Fire doors shall be labeled showing the name of the manufacturer or other identification readily traceable back to the manufacturer, the name or trademark of the third party inspection agency, the fire protection rating and, where required for fire doors in interior exit stairways and ramps and exit passageways by Section 716.5.5, the maximum transmitted temperature end point. Smoke and draft control doors complying with UL 1784 shall be labeled as such and shall comply with Section 716.5.7.3. Labels shall be approved and permanently affixed. The label shall be applied at the factory or location where fabrication and assembly are performed.

Exception: *In Group I-3 doors which are required to be 45 minutes or higher shall be fire-rated assemblies or certified by the manufacturer as being equivalent to the required standard.*

716.5.9.3 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be automatic-closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a corridor.
2. Doors installed in the enclosures of exit access stairways and ramps in accordance with Sections 1019 and 1023, respectively.
3. Doors that protect openings in exits or corridors required to be of fire-resistance-rated construction.
4. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
5. Doors installed in smoke barriers in accordance with Section 709.5.
6. Doors installed in fire partitions in accordance with Section 708.6.
7. Doors installed in a fire wall in accordance with Section 706.8.
8. Doors installed in shaft enclosures in accordance with Section 713.7.
9. Doors installed in waste and linen chutes, discharge openings and access and discharge rooms in accordance with Section 713.13. Loading doors installed in waste and linen chutes shall meet the requirements of Sections 716.5.9 and 716.5.9.1.1.
10. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
11. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
12. Doors installed in smoke partitions in accordance with Section 710.5.2.3.
- ~~42 13. [SFM] Doors installed in walls required to be fire rated in accordance with Section 509.4.~~
- ~~43 14. [SFM] Doors installed in walls required to be fire rated in accordance with Section 508.4.~~

In Group I-2 and I-2.1 occupancies smoke activated doors installed in the above locations shall be automatic closing by actuation of the fire alarm system, or actuation of smoke detectors installed in accordance with Section ~~907.10~~ 907.3, or activation of the sprinkler system installed in accordance with Section 903.1.

TABLE 716.6
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS

[Table not shown for clarity]

[Editorial Note: Publisher to verify that rows line up across the columns. Currently, Mixed occupancy separations, Fire partitions, and Smoke barriers do not line up properly across the columns. No changes in regulatory effect, solely editorial clarification.]

717.2.2 Hazardous exhaust ducts. Fire dampers for hazardous exhaust duct systems shall comply with the *International California Mechanical Code*.

717.5.2 Fire barriers. In other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, ducts and air transfer openings of fire barriers shall be protected with approved fire dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for interior exit stairways and ramps and exit passageways except as permitted by Sections 1023.5 and 1024.6, respectively.

Exception: Fire dampers are not required at penetrations of fire barriers where any of the following apply:

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire damper would interfere with the operation of a smoke control system.
3. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

[SFM] For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, ducts and air transfer openings of fire barriers shall be protected with approved fire and smoke dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate exit enclosures and exit passageways except as permitted by Sections 1022.4 and 1023.6, respectively.

Exceptions:

1. Fire dampers are not required at penetrations of fire barriers where penetrations are tested in accordance with ASTM E119 as part of the fire-resistance rated assembly.
2. Fire and smoke dampers are not required where ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire or smoke damper would interfere with the operation of a smoke control system.

717.5.4 Fire partitions. In other than Group A, E, I and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, ducts and air transfer openings that penetrate fire partitions shall be protected with listed fire dampers installed in accordance with their listing.

Exceptions: In occupancies other than Group H and L, fire dampers are not required where any of the following apply:

1. Corridor walls in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the duct is protected as a through penetration in accordance with Section 714.
2. Tenant partitions in covered and open mall buildings where the walls are not required by provisions elsewhere in the code to extend to the underside of the floor or roof sheathing, slab or deck above.
3. The duct system is constructed of approved materials in accordance with the *International California Mechanical Code* and the duct penetrating the wall complies with all of the following requirements:
 - 3.1. The duct shall not exceed 100 square inches (0.06 m²).
 - 3.2. The duct shall be constructed of steel not less than 0.0217 inch (0.55 mm) in thickness.
 - 3.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.
 - 3.4. The duct shall be installed above a ceiling.
 - 3.5. The duct shall not terminate at a wall register in the fire-resistance-rated wall.
 - 3.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1 1/2-inch by 1 1/2-inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws. The annular space between the steel sleeve and the wall opening shall be filled with mineral wool batting on all sides.

4. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

For Group A, E, I and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, ducts and air transfer openings that penetrate fire partitions shall be protected with listed fire dampers installed in accordance with their listings.

Exceptions:

1. Fire dampers are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness, protected as a through penetration in accordance with Section 713 and there are no openings serving the corridor.

2. Fire dampers are not required where the duct system is constructed of approved materials in accordance with the California Mechanical Code and the duct penetrating the wall complies with all of the following requirements:

2.1 For other than corridors in Group I-2 occupancies the duct shall not exceed 100 square inches (0.6 m²).

2.2 The duct shall be constructed of steel a minimum of 0.0217 inch (0.55 mm) in thickness.

2.3 The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.

2.4 The duct shall be installed above a ceiling.

2.5 The duct shall not terminate at a wall register in the fire-resistance rated wall.

2.6 The duct shall be protected as a through penetration in accordance with Section 714 or shall comply with the all of the following:

1. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening.

2. The sleeve shall be secured to both sides of the wall and for all four sides of the sleeve with minimum 1 1/2-inch by 1 1/2-inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles.

3. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws.

4. The annular space between the steel sleeve and the wall opening shall be filled with mineral wool batting on all sides.

717.5.4.1 Corridors. *In other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, duct and air transfer openings that penetrate corridors shall be protected with dampers as follows:*

1. A corridor damper shall be provided where corridor ceilings, constructed as required for the corridor walls as permitted in Section 708.4, Exception 3, are penetrated.

2. A ceiling radiation damper shall be provided where the ceiling membrane of a fire-resistance rated floor-ceiling or roof-ceiling assembly, constructed as permitted in Section 708.4, Exception 2, is penetrated.

3. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a corridor enclosure required to have smoke and draft control doors in accordance with Section 716.5.3.

Exceptions:

1. Smoke dampers are not required where the building is equipped throughout with an approved smoke control system in accordance with Section 909, and smoke dampers are not necessary for the operation and control of the system.

2. Smoke dampers are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the corridor.

[SFM] *For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, a listed smoke damper designed to resist the passage of smoke shall also be provided at each point a duct or air transfer opening penetrates a fire-resistance rated corridor enclosure required to have smoke and draft doors in accordance with Section 716.5.3 716.5.3.*

Exceptions:

1. Smoke dampers are not required where ducts are used as part of an approved mechanical smoke control system designed in accordance with Section 909 and where the smoke damper will interfere with the operation of the smoke control system.
2. Smoke damper are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the corridor.

717.6.1 Through penetrations. In occupancies other than Groups I-2, *I-2.1* and I-3, a duct constructed of approved materials in accordance with the *International California Mechanical Code* that penetrates a fire-resistance-rated floor/ceiling assembly that connects not more than two stories is permitted without shaft enclosure protection, provided a listed fire damper is installed at the floor line or the duct is protected in accordance with Section 714.4. For air transfer openings, see Section 712.1.9.

Exception: A duct is permitted to penetrate three floors or less without a fire damper at each floor, provided such duct meets all of the following requirements:

1. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel having a minimum wall thickness of 0.0187 inches (0.4712 mm) (No. 26 gage).
2. The duct shall open into only one dwelling or sleeping unit and the duct system shall be continuous from the unit to the exterior of the building.
3. The duct shall not exceed 4-inch (102 mm) nominal diameter and the total area of such ducts shall not exceed 100 square inches (0.065 m²) in any 100 square feet (9.3 m²) of floor area.
4. The annular space around the duct is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time-temperature conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.
5. Grille openings located in a ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with a listed ceiling radiation damper installed in accordance with Section 717.6.2.1.

717.6.2 Membrane penetrations. Ducts and air transfer openings constructed of approved materials in accordance with the *International California Mechanical Code* that penetrate the ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with one of the following:

1. A shaft enclosure in accordance with Section 713.
2. A listed ceiling radiation damper installed at the ceiling line where a duct penetrates the ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly.
3. In floor assemblies composed of noncombustible materials, a shaft shall not be required where the duct connects not more than three stories, the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion and a fire damper is installed at each floor line.

717.6.3 Nonfire-resistance-rated floor assemblies. Duct systems constructed of approved materials in accordance with the *International California Mechanical Code* that penetrate nonfire-resistance-rated floor assemblies shall be protected by any of the following methods:

1. A shaft enclosure in accordance with Section 713.
2. The duct connects not more than two stories, and the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion.
3. The duct connects not more than three stories, and the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion and a fire damper is installed at each floor line.

Exception: Fire dampers are not required in ducts within individual residential dwelling units.

718.3.3 Other groups. In other groups, draftstopping shall be installed so that horizontal floor areas do not exceed 1,000 square feet (93 m²).

Exceptions:

1. In other than Group A, E, H, I, L and R-2.1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. In Group A, E, H, I and L occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, where an automatic sprinkler system in accordance with Section 903.3.1.1 is installed, the area between draft stops may be 3,000 square feet (279 m²) and the greatest horizontal dimension may be 100 feet (30 480 mm).

718.4.3 Other groups. Draftstopping shall be installed in attics and concealed roof spaces, such that any horizontal area does not exceed 3,000 square feet (279 m²).

Exceptions:

1. In other than Group A, E, H, I and L and R-2.1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. In Group A, E, H, I, L and R-2.1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, where an automatic sprinkler system in accordance with Section 903.3.1.1 is installed, the area between draft stops may be 9,000 square feet (836 m²) and the greatest horizontal dimension may be 100 feet (30 480 mm).

718.5 Combustible materials in concealed spaces in Type I or II construction. Combustible materials shall not be permitted in concealed spaces of buildings of Type I or II construction.

Exceptions:

1. Combustible materials in accordance with Section 603.
2. Combustible materials exposed within plenums complying with Section 602 of the *International California Mechanical Code*.
3. Class A interior finish materials classified in accordance with Section 803.
4. Combustible piping within partitions or shaft enclosures installed in accordance with the provisions of this code.
5. Combustible piping within concealed ceiling spaces installed in accordance with the *International California Mechanical Code* and the *International California Plumbing Code*.
6. Combustible insulation and covering on pipe and tubing, installed in concealed spaces other than plenums, complying with Section 720.7.

720.1 General. Insulating materials, including facings such as vapor retarders and vapor-permeable membranes, similar coverings and all layers of single and multilayer reflective foil insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International California Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

720.7 Insulation and covering on pipe and tubing. Insulation and covering on pipe and tubing shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: Insulation and covering on pipe and tubing installed in plenums shall comply with the *International California Mechanical Code*.

**CHAPTER 7A [SFM]
MATERIALS AND CONSTRUCTION METHODS FOR
EXTERIOR WILDFIRE EXPOSURE**

SECTION 701A

SCOPE, PURPOSE AND APPLICATION

701A.1 Scope. This chapter applies to building materials, systems and/or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area as defined in Section 702A.

701A.2 Purpose. The purpose of this chapter is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.

701A.3 Application. New buildings located in any Fire Hazard Severity Zone or any Wildland-Urban Interface Fire Area designated by the enforcing agency constructed after the application date shall comply with the provisions of this chapter.

Exceptions:

1. Buildings of an accessory character classified as a Group U occupancy and not exceeding 120 square feet in floor area, when located at least 30 feet from an applicable building.
2. Buildings of an accessory character classified as Group U occupancy of any size located least 50 feet from an applicable building.
3. Buildings classified as a Group U Agricultural Building, as defined in Section 202 of this code (see also Appendix C – Group U Agricultural Buildings), when located at least 50 feet from an applicable building.
4. Additions to and remodels of buildings originally constructed prior to the applicable application date.

701A.3.1 Application date and where required. New buildings for which an application for a building permit is submitted on or after July 1, 2008 located in any Fire Hazard Severity Zone or Wildland Interface Fire Area shall comply with all sections of this chapter, including all of the following areas:

1. All unincorporated lands designated by the State Board of Forestry and Fire Protection as State Responsibility Area (SRA) including:
 - 1.1. Moderate Fire Hazard Severity Zones
 - 1.2. High Fire Hazard Severity Zones
 - 1.3. Very-High Fire Hazard Severity Zones
2. Land designated as Very-High Fire Hazard Severity Zone by cities and other local agencies.
3. Land designated as Wildland Interface Fire Area by cities and other local agencies.

Exceptions:

1. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.
2. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland Interface Fire Area designated by cities and other local agencies for which an application for a building permit is submitted on or after December 1, 2005 but prior to July 1, 2008, shall only comply with the following sections of this chapter:
 - 2.1. Section 705A – Roofing
 - 2.2. Section 706A – Attic Ventilation

701A.4 Inspection and certification. Building permit applications and final completion approvals for buildings within the scope and application of this chapter shall comply with the following:

1. **Building permit issuance.** The local building official shall, prior to construction, provide the owner or applicant a certification that the building as proposed to be built complies with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter. Issuance of a building permit by the local building official for the proposed building shall be considered as complying with this section.
2. **Building permit final.** The local building official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter. Issuance of a certificate of occupancy by the local building official for the proposed building shall be considered as complying with this section.

701A.5 Vegetation management compliance. Prior to building permit final approval, the property shall be in compliance with the vegetation management requirements prescribed in California Fire Code Section 4906, including California Public Resources Code 4291 or California Government Code Section 51182. Acceptable methods of compliance inspection and documentation shall be determined by the enforcing agency and may include any of the following:

1. Local, state or federal fire authority or designee authorized to enforce vegetation management requirements
2. Enforcing agency
3. Third party inspection and certification authorized to enforce vegetation management requirements
4. Property owner certification authorized by the enforcing agency

SECTION 702A DEFINITIONS

For the purposes of this chapter, certain terms are defined below:

CDF DIRECTOR means the Director of the California Department of Forestry and Fire Protection.

EXTERIOR COVERING. The exposed siding or cladding material applied to the exterior side of an exterior wall, roof eave soffit, floor projection or exposed underfloor framing.

FIRE PROTECTION PLAN is a document prepared for a specific project or development proposed for a Wildland Urban Interface Fire Area. It describes ways to minimize and mitigate potential for loss from wildfire exposure.

The Fire Protection Plan shall be in accordance with this chapter and the California Fire Code, Chapter 49. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted. Only locally adopted ordinances that have been filed with the California Building Standards Commission or the Department of Housing and Community Development in accordance with Section 1.1.8 shall apply.

FIRE HAZARD SEVERITY ZONES are geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. See California Fire Code ~~Article 86~~ Chapter 49.

The California Code of Regulations, Title 14, Section 1280, entitles the maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

HEAVY TIMBER. A type of construction classification specified in Section 602. For use in this chapter, heavy timber shall be sawn lumber or glue laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Heavy timber walls or floors shall be sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.

IGNITION-RESISTANT MATERIAL. A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildland-urban interface conflagrations under worst-case weather and fuel conditions with wildfire exposure of burning embers and small flames, as prescribed in Section 703A and SFM Standard 12-7A-5, Ignition-Resistant Material.

LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE means an area designated by a local agency upon the recommendation of the CDF Director pursuant to Government Code Sections 51177(c), 51178 and 5118 that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection.

LOG WALL CONSTRUCTION. A type of construction in which exterior walls are constructed of solid wood members and where the smallest horizontal dimension of each solid wood member is at least 6 inches (152 mm).

RAFTERTAIL. The portion of roof rafter framing in a sloping roof assembly that projects beyond and overhangs an exterior wall.

ROOF EAVE. The lower portion of a sloping roof assembly that projects beyond and overhangs an exterior wall at the lower end of the rafter tails. Roof eaves may be either "open" or "enclosed." Open roof eaves have exposed rafter tails and an unenclosed space on the underside of the roof deck. Enclosed roof eaves have a boxed-in roof eave soffit with a horizontal underside or sloping rafter tails with an exterior covering applied to the underside of the rafter tails.

ROOF EAVE SOFFIT. An enclosed boxed-in soffit under a roof eave with exterior covering material applied to the soffit framing creating a horizontal surface on the exposed underside.

STATE RESPONSIBILITY AREA means lands that are classified by the Board of Forestry pursuant to Public Resources Code Section 4125 where the financial responsibility of preventing and suppressing forest fires is primarily the responsibility of the state.

WILDFIRE is any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources as defined in Public Resources Code Sections 4103 and 4104.

WILDFIRE EXPOSURE is one or a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment.

WILDLAND-URBAN INTERFACE FIRE AREA is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.

SECTION 703A STANDARDS OF QUALITY

703A.1 General. Building material, systems, assemblies and methods of construction used in this chapter shall be in accordance with Section 703A.

703A.2 Qualification by testing. Material and material assemblies tested in accordance with the requirements of Section 703A shall be accepted for use when the results and conditions of those tests are met. Product evaluation testing of material and material assemblies shall be approved or listed by the State Fire Marshal, or identified in a current report issued by an approved agency.

703A.3 Approved agency. Product evaluation testing shall be performed by an approved agency as defined in Section 1702. The scope of accreditation for the approved agency shall include building product compliance with this code.

703A.4 Labeling. Material and material assemblies tested in accordance with the requirements of Section 703A shall bear an identification label showing the fire test results. That identification label shall be issued by a testing and/or inspecting agency approved by the State Fire Marshal.

1. Identification mark of the approved testing and/or inspecting agency
2. Contact and identification information of the manufacturer
3. Model number or identification of the product or material
4. Pre-test weathering specified in this chapter
5. Compliance standard as described under Section 703A.7

703A.5 Weathering and surface treatment protection.

703A.5.1 General. Material and material assemblies tested in accordance with the requirements of Section 703A shall maintain their fire test performance under conditions of use, when installed in accordance with the manufacturers instructions.

703A.5.2 Weathering. Fire-retardant-treated wood and fire-retardant-treated wood shingles and shakes shall meet the fire test performance requirements of this chapter after being subjected to the weathering conditions contained in the following standards, as applicable to the materials and the conditions of use.

703A.5.2.1 Fire-retardant-treated wood. Fire-retardant-treated wood shall be tested in accordance with ASTM D 2898, "Standard Practice for Accelerated Weathering of Fire-Retardant Treated Wood for Fire Testing (Method A)" and the requirements of Section 2303.2.

703A.5.2.2 Fire-retardant-treated wood shingles and shakes. Fire-retardant-treated wood shingles and shakes shall be approved and listed by the State Fire Marshal in accordance with Section 208(c), Title 19 California Code of Regulations.

703A.5.3 Surface treatment protection. The use of paints, coatings, stains or other surface treatments are not an approved method of protection as required in this chapter.

703A.6 Alternates for materials, design, tests and methods of construction. The enforcing agency is permitted to modify the provisions of this chapter for site-specific conditions in accordance with Section 1.11.2.4. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted in accordance with the California Fire Code, Chapter 49.

703A.7 Standards of quality. The State Fire Marshal standards for exterior wildfire exposure protection listed below and as referenced in this chapter are located in the California Referenced Standards Code, Part 12 and Chapter 35 of this code.

SFM Standard 12-7A-1, Exterior Wall Siding and Sheathing. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for a 10-minute duration.

SFM Standard 12-7A-2, Exterior Windows. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for a 8-minute duration.

SFM Standard 12-7A-3, Horizontal Projection Underside A fire resistance test standard consisting of a 300 kW intensity direct flame exposure for a 10-minute duration.

SFM Standard 12-7A- 4, Decking. A two-part test consisting of a heat release rate (Part A) deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3-minute duration, and a (Part B) sustained deck assembly combustion test consisting of a deck upper surface burning ember exposure with a 12 mph wind for 40 minutes using a 2.2 lb (1 kg) burning "Class A" size 12" x 12" x 2.25" (300 mm x 300 mm x 57 mm) roof test brand.

SFM Standard 12-7A-4A, Decking Alternate Method A. A heat release rate deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3-minute duration,

SFM Standard 12-7A-5, Ignition-resistant Material. A generic building material surface burning flame spread test standard consisting of an extended 30 minute ASTM E84 or UL 723 test method as is used for fire-retardant-treated wood.

SECTION 704A IGNITION-RESISTANT CONSTRUCTION

704A.1 General. The materials prescribed herein for ignition resistance shall conform to the requirements of this chapter.

704A.2 Ignition-resistant material. Ignition-resistant material shall be determined in accordance with the test procedures set forth in SFM Standard 12-7A-5 "Ignition-Resistant Material" or in accordance with this section.

704A.3 Alternative methods for determining ignition-resistant material. Any one of the following shall be accepted as meeting the definition of ignition-resistant material:

1. Noncombustible material. Material that complies with the definition for noncombustible materials in Section 202.
2. Fire-retardant-treated wood. Fire-retardant-treated wood identified for exterior use that complies with the requirements of Section 2303.2.

3. *Fire-retardant-treated wood shingles and shakes.* Fire-retardant-treated wood shingles and shakes, as defined in Section 1505.6 and listed by State Fire Marshal for use as "Class B" roof covering, shall be accepted as an ignition-resistant wall covering material when installed over solid sheathing.

SECTION 705A ROOFING

705A.1 General. Roofs shall comply with the requirements of Chapter 7A and Chapter 15. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.

705A.2 Roof coverings. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 installed over the combustible decking.

705A.3 Roof valleys. Where valley flashing is installed, the flashing shall be not less than 0.019-inch (0.48 mm) No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D 3909, at least 36-inch-wide (914 mm) running the full length of the valley.

705A.4 Roof gutters. Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter.

SECTION 706A VENTS

706A.1 General. Where provided, ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation shall be in accordance with Section 1203 and Sections 706A.1 through 706A.3 to resist building ignition from the intrusion of burning embers and flame through the ventilation openings.

SECTION 707A EXTERIOR COVERING

707A.1 Scope. The provisions of this section shall govern the materials and construction methods used to resist building ignition and/or safeguard against the intrusion of flames resulting from small ember and short-term direct flame contact exposure.

707A.2 General. The following exterior covering materials and/or assemblies shall comply with this section:

1. Exterior wall covering material
2. Exterior wall assembly
3. Exterior exposed underside of roof eave overhangs
4. Exterior exposed underside of roof eave soffits
5. Exposed underside of exterior porch ceilings
6. Exterior exposed underside of floor projections
7. Exterior underfloor areas

Exceptions:

1. Exterior wall architectural trim, embellishments, fascias, and gutters
2. Roof or wall top cornice projections and similar assemblies
3. Roof assembly projections over gable end walls
4. Solid wood rafter tails and solid wood blocking installed between rafters having minimum dimension 2 inch (50.8 mm) nominal
5. Deck walking surfaces shall comply with Section 709A.4 only

707A.3 Exterior walls. The exterior wall covering or wall assembly shall comply with one of the following requirements:

1. Noncombustible material
2. Ignition-resistant material
3. Heavy timber exterior wall assembly
4. Log wall construction assembly
5. Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1

Exception: Any of the following shall be deemed to meet the assembly performance criteria and intent of this section:

1. One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing
2. The exterior portion of a 1-hour fire resistive exterior wall assembly designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

707A.3.1 Extent of exterior wall covering. Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2 inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.

707A.4 Open roof eaves. The exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following:

1. Noncombustible material
2. Ignition-resistant material
3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside exterior of the roof deck
4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the roof deck designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual

Exceptions: The following materials do not require protection:

1. Solid wood rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm)
2. Solid wood blocking installed between rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm)
3. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails
4. Fascia and other architectural trim boards

SECTION 708A EXTERIOR WINDOWS AND DOORS

708A.1 General.

708A.2 Exterior glazing. The following exterior glazing materials and/or assemblies shall comply with this section:

1. Exterior windows
2. Exterior glazed doors
3. Glazed openings within exterior doors
4. Glazed openings within exterior garage doors
5. Exterior structural glass veneer

708A.2.1 Exterior windows and exterior glazed door assembly requirements. Exterior windows and exterior glazed door assemblies shall comply with one of the following requirements:

1. Be constructed of multipane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing, or
2. Be constructed of glass block units, or
3. Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or

4. Be tested to meet the performance requirements of SFM Standard 12-7A-2

708A.2.2 Structural glass veneer. The wall assembly behind structural glass veneer shall comply with Section 707A.3.

708A.3 Exterior doors. Exterior doors shall comply with one of the following:

1. The exterior surface or cladding shall be of noncombustible or ignition-resistant material, or
2. Shall be constructed of solid core wood that comply with the following requirements:
 - 2.1. Stiles and rails shall not be less than 1 3/8 inches thick.
 - 2.2. Raised panels shall not be less than 1 1/4 inches thick, except for the exterior perimeter of the raised panel that may taper to a tongue not less than 3/8 inch thick.
3. Shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252.
4. Shall be tested to meet the performance requirements of SFM Standard 12-7A-1.

708A.3.1 Exterior door glazing. Glazing in exterior doors shall comply with Section 708A.2.1.

SECTION 709A DECKING

709A.1 General. The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this section.

709A.2 Where required. The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this section when any portion of such surface is within 10 feet (3048 mm) of the building.

709A.3 Decking Surfaces. The walking surface material of decks, porches, balconies and stairs shall be constructed with one of the following materials:

1. Ignition-resistant material that complies with the performance requirements of both SFM Standard 12-7A-4 and SFM Standard 12-7A-5.
2. Exterior fire retardant treated wood
3. Noncombustible material
4. Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached exterior wall covering is also either noncombustible or ignition-resistant material.

Exception: Wall material may be of any material that otherwise complies with this chapter when the decking surface material complies with the performance requirements ASTM E 84 with a Class B flame spread rating.

SECTION 710A ACCESSORY STRUCTURES

710A.1 General. Accessory and miscellaneous structures, other than buildings covered by Section 701A.3, which pose a significant exterior exposure hazard to applicable buildings during wildfires shall be constructed to conform to the ignition resistance requirements of this section.

710A.2 Applicability. The provisions of this section shall apply to trellises, arbors, patio covers, carports, gazebos and similar structures of an accessory or miscellaneous character.

Exceptions:

1. Decks shall comply with the requirements of Section 709A.
2. Awnings and canopies shall comply with the requirements of Section 3105.

710A.3 Where required. Accessory structures shall comply with the requirements of this section.

710A.3.1 Attached accessory structures shall comply with the requirements of this section.

710A.3.2 When required by the enforcing agency, detached accessory structures within 50 feet of an applicable building shall comply with the requirements of this section.

710A.4. Requirements. When required by the enforcing agency accessory structures shall be constructed of noncombustible or ignition-resistant materials.

CHAPTER 8
INTERIOR FINISHES

TABLE 803.11
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY^k

GROUP	SPRINKLERED ^l			NONSPRINKLERED		
	Interior exit stairways and interior exit ramps and exit passageways ^{a, b}	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces ^c	Interior exit stairways and interior exit ramps and exit passageways ^{a, b}	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces ^c
A-1 & A-2	B	B	C	A	A ^d	B ^e
A-3 ^f , A-4, A-5	B	B	C	A	A ^d	C
B, E, M, R-1	B	C	C	A	B	C
R-4 ^m	B	C	C	A	B	B
F	C	C	C	B	C	C
H, L	B	B	C ^g	A	A	B
I-1	B	C	C	A	B	B
I-2, I-2.1	B	B	B ^{h, i}	A	A	B
I-3	A	A ^j	C B	A- NP	A- NP	B- NP
I-4	B	B	B ^{h, i}	A	A	B
R-2	C	C	C	B	B	C
R-2.1	B	C	C	A	B	B
R-3 ^m , R-3.1	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929m².

NP = Not permitted [SFM]

- Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.13.1.
- In other than Group I-3 occupancies in buildings less than three stories above grade plane, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.
- ~~In other than Group I-2 and I-2.1 occupancies in buildings less than three stories above grade plane of other than Group I-3, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.~~
- Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or

structure.

- d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.
- e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.
- f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.
- g. Class B material is required where the building exceeds two stories.
- h. Class C interior finish materials shall be permitted in administrative spaces.
- i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.
- j. Class B materials shall be permitted as wainscoting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.
- k. Finish materials as provided for in other sections of this code.
- l. Applies when protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
- m. Where Group R-3 and R-4 occupancies are permitted in Section 903.2.8 to be protected by automatic sprinkler system installed in accordance with Section 903.3.1.3 the requirements for a non-sprinklered building shall apply.

804.4 Interior floor finish requirements. Interior floor covering materials shall comply with Sections 804.4.1 and 804.4.2 and interior floor finish materials shall comply with Section ~~804.4.2~~ 804.4.3.

804.4.1 Test requirement. In all other occupancies *except I-3, interior floor finish and interior floor covering materials shall comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) or with ASTM D-2859 ASTM Standard E 648, and having a Specific Optical Density smoke rating not to exceed 450 per ASTM E 662. For Group I-3 occupancies see Section 804.4.3.*

804.4.2 Minimum critical radiant flux. In all occupancies, interior floor finish and floor covering materials in enclosures for stairways and ramps, exit passageways, corridors and rooms or spaces not separated from corridors by partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall be not less than Class I in Groups I-1, I-2 and I-3 R-2.1 and not less than Class II in Groups A, B, E, H, I-2.1, I-4, M, R-1, R-2 and S.

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required, and materials complying with DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) or with ASTM D-2859 ASTM Standard E 648, and having a Specific Optical Density smoke rating not to exceed 450 per ASTM E 662 are permitted in any area where Class II materials are required.

804.4.3 Group I-3 Occupancy floor surfaces. Interior floor finish and floor coverings occupied by inmates or patients whose personal liberties are restrained shall be noncombustible.

Exception: Noncombustible floor finish and floor coverings in areas where restraint is not used may have carpet or other floor covering materials applied in areas protected by an automatic sprinkler system and meeting ASTM Standard E 648, and having a specific optical density smoke rating not to exceed 450 per ASTM E 662. The carpeting and carpet padding shall be tested as a unit in accordance with floor covering radiant panel test meeting class 1 and has a critical radiant flux limit of not less than 0.45 watt per centimeter square. The carpeting and padding shall be identified by a hang-tag or other suitable method as to manufacturer and style and shall indicate the classification of the material based on the limits set forth above.

[Editorial Note: Remove existing amendments to Section 806.1. Model code section has changed and amendment no longer applies.]

~~**806.1 General requirements.** In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 806.2 or be noncombustible.~~

Exceptions:

- ~~1. Curtains, draperies, hangings and other decorative materials suspended from walls of sleeping units and dwelling units in dormitories in Group R-2 protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1 and such materials are limited to not more than 50 percent of the aggregate area of walls.~~
- ~~2. Decorative materials, including, but not limited to, photographs and paintings in dormitories in Group R-2 where~~

~~such materials are of limited quantities such that a hazard of fire development or spread is not present.~~

~~In Groups I-1, and I-2 and I-2.1, combustible decorative materials shall meet the flame propagation criteria of NFPA 701 unless the decorative materials, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorative materials are prohibited.~~

~~Fixed or movable walls and partitions, paneling, wall pads and crash pads applied structurally or for decoration, acoustical correction, surface insulation or other purposes shall be considered interior finish if they cover 10 percent or more of the wall or of the ceiling area, and shall not be considered decorative materials or furnishings.~~

~~In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 806.2 and NFPA 701 or shall be noncombustible.~~

806.7 Interior trim. Material, other than foam plastic used as interior trim, shall have a minimum *Class B flame spread and 450 smoke-developed index in Group I-3 and for all other occupancies Class C flame spread and smoke-developed index* when tested in accordance with ASTM E 84 or UL 723, as described in Section 803.1.1. Combustible trim, excluding handrails and guardrails, shall not exceed 10 percent of the specific wall or ceiling area in which it is attached.

CHAPTER 9 FIRE PROTECTION SYSTEMS

901.2 Fire protection systems. Fire protection systems shall be installed, repaired, operated and maintained in accordance with this code and the *International California Fire Code*.

Any fire protection system for which an exception or reduction to the provisions of this code has been granted shall be considered to be a required system.

Exception: Any fire protection system or portion thereof not required by this code shall be permitted to be installed for partial or complete protection provided that such system meets the requirements of this code.

901.3 Modifications. Persons shall not remove or modify any fire protection system installed or maintained under the provisions of this code or the *International California Fire Code* without approval by the building official.

901.5 Acceptance tests. Fire protection systems shall be tested in accordance with the requirements of this code and the *International California Fire Code*. When required, the tests shall be conducted in the presence of the building official. Tests required by this code, the *International California Fire Code* and the standards listed in this code shall be conducted at the expense of the owner or the owner's authorized agent. It shall be unlawful to occupy portions of a structure until the required fire protection systems within that portion of the structure have been tested and approved.

901.6.2 Fire alarm systems. Fire alarm systems required by the provisions of Section 907.2 of this code and Sections 907.2 and 907.9 of the *International California Fire Code* shall be monitored by an approved supervising station in accordance with Section 907.6.6.

Exceptions:

1. Single- and multiple-station smoke alarms required by Section 907.2.11.
2. Smoke detectors in Group I-3 occupancies.
3. Supervisory service is not required for automatic sprinkler systems in one- and two-family dwellings.

902.1 Definitions. The following terms are defined in Chapter 2.

ALARM NOTIFICATION APPLIANCE.

ALARM SIGNAL.

ALARM VERIFICATION FEATURE.

ANNUNCIATOR.

AUDIBLE ALARM NOTIFICATION APPLIANCE.

AUTOMATIC.
AUTOMATIC FIRE-EXTINGUISHING SYSTEM.
AUTOMATIC SMOKE DETECTION SYSTEM.
AUTOMATIC SPRINKLER SYSTEM.
AUTOMATIC WATER MIST SYSTEM.
AVERAGE AMBIENT SOUND LEVEL.
CARBON DIOXIDE EXTINGUISHING SYSTEMS.
CEILING LIMIT.
CLEAN AGENT.
COMMERCIAL MOTOR VEHICLE.
CONSTANTLY ATTENDED LOCATION.
DELUGE SYSTEM.
DETECTOR, HEAT.
DRY-CHEMICAL EXTINGUISHING AGENT.
ELECTRICAL CIRCUIT PROTECTIVE SYSTEM.
ELEVATOR GROUP.
EMERGENCY ALARM SYSTEM.
EMERGENCY VOICE/ALARM COMMUNICATIONS.
FIRE ALARM BOX, MANUAL.
FIRE ALARM CONTROL UNIT.
FIRE ALARM SIGNAL.
FIRE ALARM SYSTEM.
FIRE APPLIANCE.
FIRE AREA.
FIRE COMMAND CENTER.
FIRE DETECTOR, AUTOMATIC.
FIRE PROTECTION SYSTEM.
FIRE SAFETY FUNCTIONS.
FOAM-EXTINGUISHING SYSTEM.
HALOGENATED EXTINGUISHING SYSTEM.
INITIATING DEVICE.
MANUAL FIRE ALARM BOX.
MULTIPLE-STATION ALARM DEVICE.
MULTIPLE-STATION SMOKE ALARM.
NOTIFICATION ZONE.
NUISANCE ALARM.
PRIVATE GARAGE.
RECORD DRAWINGS.
SINGLE-STATION SMOKE ALARM.
SMOKE ALARM.
SMOKE DETECTOR.
SMOKEPROOF ENCLOSURE.
STANDPIPE SYSTEM, CLASSES OF.
Class I system.
Class II system.
Class III system.
STANDPIPE, TYPES OF.
Automatic dry.
Automatic wet.
Manual dry.
Manual wet.
Semiautomatic dry.
SUPERVISING STATION.
SUPERVISORY SERVICE.
SUPERVISORY SIGNAL.
SUPERVISORY SIGNAL-INITIATING DEVICE.
TIRES, BULK STORAGE OF.
TROUBLE SIGNAL.
VISIBLE ALARM NOTIFICATION APPLIANCE.

**WET-CHEMICAL EXTINGUISHING SYSTEM.
WIRELESS PROTECTION SYSTEM.
ZONE.
ZONE, NOTIFICATION.**

903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

~~**Exception:** Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour fire barriers constructed in accordance with Section 707 or not less than 2-hour horizontal assemblies constructed in accordance with Section 711, or both.~~

903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for fire areas containing Group A-2 occupancies and intervening floors of the building where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464.5 m²).
2. The fire area has an occupant load of 100 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. *The structure exceeds 5,000 square feet (465 m²), contains more than one fire area containing a Group A-2 occupancy, and is separated into two or more buildings by fire walls of less than four-hour fire resistance rating without openings.*

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided for fire areas containing Group A-3 occupancies and intervening floors of the building where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. *The structure exceeds 12,000 square feet (1155 m²), contains more than one fire area containing exhibition and display rooms, and is separated into two or more buildings by fire walls of less than four-hour fire resistance rating without openings.*

903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. Throughout all Group E fire areas greater than 12,000 square feet (1115 m²) in area.
2. Throughout every portion of educational buildings below the lowest *level of exit discharge* serving that portion of the building.

Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has not fewer than one exterior *exit door* at ground level.

3. *In rooms or areas with special hazards such as laboratories, vocational shops and other such areas where hazardous materials in quantities not exceeding the maximum allowable quantity are used or stored.*
4. *Throughout any Group E structure greater than 12,000 square feet (1115 m²) in area, which contains more than one fire area, and which is separated into two or more buildings by fire walls of less than four-hour fire resistance rating without openings.*
5. *For public school state funded construction projects see Section 903.2.19.*

903.2.4.1 Woodworking operations. An automatic sprinkler system shall be provided throughout all Group F-1 occupancy fire areas that contain woodworking operations in excess of 2,500 square feet (232 m²) in area that generate finely divided combustible waste or use finely divided combustible materials.
[SFM] A fire wall of less than four-hour fire-resistance rating without openings, or any fire wall with openings, shall not be used to establish separate fire areas.

903.2.5.4 Group H occupancies located above the 10th story. The fire sprinkler system shall be designed and zoned to provide separate indication upon water-flow for each side of the 2-hour fire-smoke barrier above the 10th story.

903.2.6 Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I fire area.

Exceptions:

- ~~1. An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.~~
- ~~2. An automatic sprinkler system is not required where Group I-4 day care facilities are at the level of exit discharge and where every room where care is provided has not fewer than one exterior exit door.~~
- ~~3. In buildings where Group I-4 day care is provided on levels other than the level of exit discharge, an automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the level of exit discharge, and all floors below the level of exit discharge other than areas classified as an open parking garage.~~
 1. Those areas exempted by Section 407.6 of the California Building Code.
 2. Pursuant to Health and Safety Code Section 13113 (d), Group I-2 occupancies, or any alterations thereto, located in Type IA construction in existence on March 4, 1972.

903.2.6.1 Group I-2. In an existing, unsprinklered Group I-2, nurses' station open to fire-resistive exit access corridors shall be protected by an automatic sprinkler system located directly above the nurses' station. It shall be permitted to connect the automatic sprinkler system to the domestic water service.

903.2.6.2 Group I-3. Every building, or portion thereof, where inmates or persons are in custody or restrained shall be protected by an automatic sprinkler system conforming to NFPA 13. The main sprinkler control valve or valves and all other control valves in the system shall be locked in the open position and electrically supervised so that at least an audible and visual alarm will sound at a constantly attended location when valves are closed. The sprinkler branch piping serving cells may be embedded in the concrete construction.

903.2.7 Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M fire area exceeds 12,000 square feet (1115 m²).
2. A Group M fire area is located more than three stories above grade plane.
3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²).
4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 m²).
5. The structure exceeds 24,000 square feet (465 m²), contains more than one fire area containing a Group M occupancy, and is separated into two or more buildings by fire walls of less than 4-hour fire resistance rating without openings.

903.2.7.1 High-piled storage. An automatic sprinkler system shall be provided in accordance with the ~~International~~ California Fire Code in all buildings of Group M where storage of merchandise is in high-piled or rack storage arrays.

[Editorial Note: Remove amendment to 2013 CFC section 903.2.8.1. Current model code language to remain.]

~~**903.2.8.1 Group R-3 or R-4 congregate residences.** An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-3 or R-4 congregate residences with 16 or fewer residents.~~

903.2.8.4 Care facilities~~**Group R-3.1.**~~ An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in ~~care facilities with five~~Group R-3.1 occupancies with six or fewer individuals in a single-family dwelling.

903.2.10 Group S-2 enclosed parking garages. An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.6 where either of the following conditions exists:

1. Where the fire area of the enclosed parking garage exceeds 12,000 square feet (1115 m²).
2. Where the enclosed parking garage is located beneath other groups.

Exception: Enclosed parking garages located beneath Group R-3 occupancies.

903.2.11.4 Ducts conveying hazardous exhausts. Where required by the ~~International~~California Mechanical Code, automatic sprinklers shall be provided in ducts conveying hazardous exhaust, or flammable or combustible materials.

Exception: Ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).

**TABLE 903.2.11.6
ADDITIONAL REQUIRED SUPPRESSION SYSTEMS**

SECTION	SUBJECT
402.5, 402.6.2	Covered and open mall buildings
403.3	High rise buildings
403.3	High-rise buildings <i>and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access</i>
404.3	Atriums
405.3	Underground structures
407.6	Group I-2
410.7	Stages
411.4	Special amusement buildings
412.3.6	Airport traffic control towers
412.4.6, 412.4.6.1, 412.6.5	Aircraft hangars
415.11.11	Group H-5 HPM exhaust ducts
416.5	Flammable finishes
417.4	Drying rooms
419.5	Live/work units
424.3	Children's play structures
430440	<i>Horse Racing Stables</i>
431441	<i>Pet Kennels</i>
439449	<i>Public Libraries</i>
507	Unlimited area buildings
509.4	Incidental use areas
1029.6.2.3	Smoke-protected assembly seating
IFCFC	Sprinkler system requirements as set forth in Section 903.2.11.6 of the International California Fire Code

For SI: 1 cubic foot = 0.023 m³.

903.2.12 During construction. Automatic sprinkler systems required during construction, alteration and demolition operations shall be provided in accordance with Chapter 33 of the ~~International~~California Fire Code.

903.2.13 Reserved.

903.2.14 Motion picture and television production studio sound stages, approved production facilities and production locations.

903.2.14.1 Existing sound stages and approved production facilities. All existing sound stages and approved production facilities equipped with an automatic fire sprinkler system shall be maintained in accordance with the provisions of California Fire Code Chapter 9.

903.2.14.2 New sound stages. All new sound stages shall be equipped with an approved automatic fire sprinkler system. The system shall be installed in accordance with the provisions of the California Fire Code Chapter 9 and shall meet the minimum design requirements of an Extra Hazard, Group 2 system.

903.2.15 Automatic sprinkler system—existing highrise buildings. See ~~Section 3414.27~~ California Fire Code Chapter 11 and California Existing Building Code.

903.2.15.1 Existing Group R-1 and R-2 high-rise buildings fire-extinguishing systems. See ~~Section 3413.13.3.3~~ California Fire Code Chapter 11 and California Existing Building Code.

903.2.16 Group L occupancies. An automatic sprinkler system shall be installed throughout buildings housing Group L occupancies. Sprinkler system design for research laboratories and similar areas of a Group L occupancy shall not be less than that required for Ordinary Hazard Group 2 with a design area of not less than 3,000 square feet (279 m²).

In mixed occupancies, portions of floors or buildings not classified as Group L occupancies shall be provided with sprinkler protection designed of not less than that required for Ordinary Hazard Group 1 with a design area of not less than 3,000 square feet (279 m²).

903.2.16.1 Group L occupancies located above the 10th story. The automatic sprinkler system shall be designed and zoned to provide separate indication upon water-flow for each side of the 2-hour fire-smoke barrier above the 10th story.

903.2.17.1 Automatic sprinkler system. An automatic sprinkler system shall be installed in all stations of fixed guideway transit systems.

Exceptions:

1. Guideways when the closest sprinkler heads to the guideway are within 3 feet (914 mm) of the edge, over the platform, and spaced 6 feet (1829 mm) on center parallel to the guideway
2. Station agent booths not exceeding 150 square feet (13.9 m²) in area, when provided with an approved smoke detector connected to the building fire alarm system
3. Power substations
4. Machinery rooms, electrical rooms and train control rooms protected by an approved automatic fixed fire-extinguishing system
5. Open stations
6. Station platform areas open to three or more sides

903.2.17.2 Station guideway deluge system. Underground stations and stations in open cuts with walls 5 feet (1524 mm) above the top of the running rail and with a raised platform shall be provided with an under-vehicle guideway manually activated deluge sprinkler system. In open cut stations, such system shall be provided in guideways which are situated between a raised platform edge and a retaining wall.

903.2.17.2.1 Systems shall be provided along the entire length of track at each station platform.

903.2.17.2.2 Deluge nozzles with caps shall be located in the approximate center of track with spacing designed to completely wet the undersides of the vehicle at the applied density.

903.2.17.2.3 System density shall be a minimum of 0.19 gallon per minute (gpm) per square foot (0.72 L/m per m²) for the design area. When more than one zone is provided, two adjacent zones are required to be considered operating for calculating purposes.

903.2.17.2.4 Deluge systems shall be directly connected to a water supply capable of supplying the required flow rate for a minimum 30-minute duration.

903.2.17.2.5 Controls or manually operable valves shall be in a location acceptable to the Fire Code Official. All deluge systems shall be monitored by the station fire alarm system.

903.2.17.2.6 Each valve shall be monitored by a separate circuit. The alarm panel shall be located in an area normally occupied by station personnel or signals shall be transmitted to the operations control center (OCC).

903.2.18 Group U private garages and carports accessory to Group R-3 occupancies. Carports with habitable space above and attached garages, accessory to Group R-3 occupancies, shall be protected by residential fire sprinklers in accordance with this section. Residential fire sprinklers shall be connected to, and installed in accordance with, an automatic residential fire sprinkler system that complies with Section R313 of the California Residential Code or with NFPA 13D. Fire sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a minimum density of 0.05 gpm/ft² (2.04 mm/min) over the area of the garage and/or carport, but not to exceed two sprinklers for hydraulic calculation purposes. Garage doors shall not be considered obstructions with respect to sprinkler placement.

Exception: An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing carports and/or garages that do not have an automatic residential fire sprinkler system installed in accordance with this section.

903.2.19 Public school state funded construction projects for kindergarten through 12th grade — automatic sprinkler system requirements.

903.2.19.1 New public school campus. An automatic sprinkler system shall be provided in all occupancies. The provisions of this section shall apply to any public school project consisting of one or more buildings on a new school campus and receiving state funds pursuant to Leroy F. Greene School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, new campus refers to a school site, where an application for construction of original buildings was made to DSA on or after July 1, 2002.

Exceptions:

1. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. Also see CCR, Title 24, Part 1, California Administrative Code, Section 4-314 for definition of relocatable building.
2. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Concession Stand
Press Box
Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth

903.2.19.1.1 Sprinklers shall be installed in spaces where the ceiling creates a "ceiling-plenum" or space above the ceiling is utilized for environmental air.

903.2.19.1.2 Fire-resistive substitution for new campus. A new public school campus shall be entitled to include in the design and construction documents all of the applicable fire-resistive construction substitutions as permitted by this code.

903.3 Installation requirements. Automatic sprinkler systems shall be designed and installed in accordance with Sections 903.3.1 through ~~903.3.8~~ **903.3.9**.

903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 as amended in Chapter 35 except as provided in Sections 903.3.1.1.1 and 903.3.1.1.2.

903.3.1.1.1 Exempt locations. *In other than Group I-2, I-2.1 and I-3 occupancies, automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from a room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.*

1. A room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. A room or space where sprinklers are considered undesirable because of the nature of the contents, where approved by the fire code official.
3. ~~Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.~~
4. ~~Rooms or areas that are of noncombustible construction with wholly noncombustible contents.~~
53. Fire service access elevator machine rooms and machinery spaces.
64. Machine rooms, machinery spaces, control rooms and control spaces associated with occupant evacuation elevators designed in accordance with Section 3008.
5. *Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, and associated electrical power distribution equipment, provided those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour fire barriers constructed in accordance with Section 707 or not less than 2-hour horizontal assemblies constructed in accordance with Section 712, or both.*
6. *Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.*
7. *Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.*

903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies up to and including four stories in height in buildings not exceeding 60 feet (18 288 mm) in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R as amended in Chapter 35.

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from the horizontal assembly creating separate buildings.

903.3.2 Quick-response and residential sprinklers. Where automatic sprinkler systems are required by this code, quick-response or residential automatic sprinklers shall be installed in all of the following areas in accordance with Section 903.3.1 and their listings:

1. Throughout all spaces within a smoke compartment containing care recipient sleeping units in Group I-2 in accordance with this code.
2. Throughout all spaces within a smoke compartment containing treatment rooms in ambulatory care facilities.
3. Dwelling units, and sleeping units in Group I-4 and R occupancies.
4. Light-hazard occupancies as defined in NFPA 13.

903.3.5 Water supplies. Water supplies for automatic sprinkler systems shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the ~~International Plumbing Code~~ *Health and Safety Code Section 13114.7*. For connections to public waterworks systems, the water supply test used for design of fire protection systems shall be adjusted to account for seasonal and daily pressure fluctuations based on information from the water supply authority and as approved by the fire code official.

903.3.7 Fire department connections. Fire department connections for automatic sprinkler systems shall be installed in accordance with Section 912. ~~The location of fire department connections shall be approved by the fire code official.~~

903.3.8 903.3.9 Floor control valves. *Floor control valves and waterflow detection assemblies shall be installed at each floor where any of the following occur:*

1. *Buildings where the floor level of the highest story is located more than 30 feet above the lowest level of fire department vehicle access*

2. Buildings that are four or more stories in height
3. Buildings that are two or more stories below the highest level of fire department vehicle access

Exception: Group R-3 and R-3.1 occupancies floor control valves and waterflow detection assemblies shall not be required.

903.4.2 Alarms. An ~~Approved~~ *One exterior approved* audible device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system. *Visible alarm notification appliances shall not be required except when required by section 907.*

903.4.3 Floor control valves. Approved supervised indicating control valves shall be provided at the point of connection to the riser on each floor in high-rise buildings *and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access.*

903.5 Testing and maintenance. Sprinkler systems shall be tested and maintained in accordance with the *International California Fire Code.*

904.2.2 Commercial hood and duct systems. Each required commercial kitchen exhaust hood and duct system required by Section 609 of the *International California Fire Code* or Chapter 5 of the *International California Mechanical Code* to have a Type I hood shall be protected with an approved automatic fire-extinguishing system installed in accordance with this code.

904.3.1 Electrical wiring. Electrical wiring shall be in accordance with *the NFPA 70 California Electrical Code.*

904.5 Wet-chemical systems. Wet-chemical extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5 and NFPA 17A* and their listing. Records of inspections and testing shall be maintained.

904.6 Dry-chemical systems. Dry-chemical extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5 and NFPA 17* and their listing. Records of inspections and testing shall be maintained.

904.7 Foam systems. Foam-extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5, NFPA 11 and NFPA 16* and their listing. Records of inspections and testing shall be maintained.

904.8 Carbon dioxide systems. Carbon dioxide extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5 and NFPA 12* and their listing. Records of inspections and testing shall be maintained.

904.9 Halon systems. Halogenated extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5 and NFPA 12A* and their listing. Records of inspections and testing shall be maintained.

904.10 Clean-agent systems. Clean-agent fire-extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5 and NFPA 2001* and their listing. Records of inspections and testing shall be maintained.

904.11.1.3 Water supply protection. Connections to a potable water supply shall be protected against backflow in accordance with the *International California Plumbing Code.*

904.11904.12 Commercial cooking systems. ~~The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered automatic dry- and wet-chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions.~~

~~Automatic fire extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows: Commercial cooking equipment that produces grease laden vapors shall be provided with a Type I Hood, in accordance with the California Mechanical Code, and an automatic fire extinguishing system that is listed and labeled for its intended use as follows:~~

- ~~1. Carbon dioxide extinguishing systems, NFPA 12.~~
- ~~2. Automatic sprinkler systems, NFPA 13.~~
- ~~3. Foam water sprinkler system or foam water spray systems, NFPA 16.~~
- ~~4. Dry chemical extinguishing systems, NFPA 17.~~
- ~~5. Wet chemical extinguishing systems, NFPA 17A.~~
1. Wet chemical extinguishing system, complying with UL 300.
2. Carbon dioxide extinguishing systems.
3. Automatic fire sprinkler systems.

All existing dry chemical and wet chemical extinguishing systems shall comply with UL 300.

Exception:

Public schools kitchens, without deep-fat fryers, shall be upgraded to a UL 300 compliant system during state funded modernization projects that are under the jurisdiction of the Division of the State Architect.

All systems shall be installed in accordance with the California Mechanical Code, appropriate adopted standards, their listing and the manufacturer's installation instructions.

Exception: Factory-built commercial cooking recirculating systems that are tested, listed, labeled and installed in accordance with UL 710B and the California Mechanical Code.

905.1 General. Standpipe systems shall be provided in new buildings and structures in accordance with this sections 905.2 through 905.10. In buildings used for high-piled combustible storage, fire protection shall be in accordance with the InternationalCalifornia Fire Code.

905.2 Installation standard. Standpipe systems shall be installed in accordance with this section and NFPA 14 as amended in Chapter 35. Fire department connections for standpipe systems shall be in accordance with Section 912.

905.3 Required installations. Standpipe systems shall be installed where required by Sections 905.3.1 through 905.3.8905.3.11.1. Standpipe systems are allowed to be combined with automatic sprinkler systems.

Exception: Standpipe systems are not required in Group R-3 occupancies.

905.3.1 Height. ~~In other than Group R-3 and R-3.1 occupancies, class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.~~ *at each floor where any of the following occur:*

1. Buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access.
2. Buildings that are four or more stories in height
3. Buildings where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.
4. Buildings that are two or more stories below the highest level of fire department vehicle access.

Exceptions:

1. Class I standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Class I manual standpipes are allowed in open parking garages where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.
3. Class I manual dry standpipes are allowed in open parking garages that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.
4. Class I standpipes are allowed in basements equipped throughout with an automatic sprinkler system.
5. In determining the lowest level of fire department vehicle access, it shall not be required to consider either of the following:
 - 5.1. Recessed loading docks for four vehicles or less.

5.2. Conditions where topography makes access from the fire department vehicle to the building impractical or impossible.

905.3.6 Helistops and heliports. Buildings with a rooftop helistop or heliport shall be equipped with a Class I or III standpipe system extended to the roof level on which the helistop or heliport is located in accordance with Section 2007.5 of the *International California Fire Code*.

905.3.9 Smokeproof enclosures. For smokeproof enclosures see Section 909.20.

905.3.10 Group I-3. Housing units within cell complexes where 50 or more inmates are restrained, shall be provided with Class I wet standpipes. In addition, Class I wet standpipes shall be located so that it will not be necessary to extend hose lines through interlocking security doors and any doors in smoke-barrier walls, horizontal fire walls or fire barrier walls. Standpipes located in cell complexes may be placed in secured pipe chases.

905.4 Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required interior exit stairway, a hose connection shall be provided for each story above and below grade. Hose connections shall be located at an intermediate landing between stories, unless otherwise approved by the fire code official. See Section 909.20.3.2 909.20.2.3 for additional provisions in smokeproof enclosures.
2. On each side of the wall adjacent to the exit opening of a horizontal exit.

Exception: Where floor areas adjacent to a horizontal exit are reachable from an interior exit stairway hose connection by a 30-foot hose stream from nozzle attached to 100 feet (30 480 mm) of hose as measured along the path of travel, a hose connection shall not be required at the horizontal exit.

3. In every exit passageway, at the entrance from the exit passageway to other areas of a building.

Exception: Where floor areas adjacent to an exit passageway are reachable from an interior exit stairway hose connection by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall. In open mall buildings, adjacent to each public entrance to the mall at the perimeter line and adjacent to each entrance from an exit passageway or exit corridor to the mall.

5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), a hose connection shall be located to serve the roof or at the highest landing of an interior exit stairway with access to the roof provided in accordance with Section 1011.12.

6. Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 (60 960mm) 150 feet (45 720 mm) from a hose connection, the fire code official is authorized to require that additional hose connections be provided in approved locations. The distances from a hose connection shall be measured along the path of travel.

905.5 Location of Class II standpipe hose connections. Class II standpipe hose connections shall be accessible and located so that all portions of the building are within 30 feet (9144 mm) of a listed variable stream fog nozzle attached to 100 feet (30 480 mm) of hose.

TABLE 906.3(1)
FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS

	LIGHT (Low) HAZARD OCCUPANCY	ORDINARY (Moderate) HAZARD OCCUPANCY	EXTRA (High) HAZARD OCCUPANCY
Minimum Rated Single Extinguisher	2-A ^c	2-A	4-A ^a

Maximum Floor Area Per Unit of A	3,000 square feet	1,500 square feet	1,000 square feet
Maximum Floor Area For Extinguisher ^b	11,250 square feet	11,250 square feet	11,250 square feet
Maximum distance of travel to extinguisher	75 feet	75 feet	75 feet

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929m², 1 gallon = 3.785 L.

- Two 2 1/2-gallon water-type extinguishers shall be deemed the equivalent of one 4-A rated extinguisher.
- ~~Annex E.3.3 of NFPA 10 provides more details~~ *California Code of Regulations, Title 19, Division 1, Chapter 3* concerning application of the maximum floor area criteria.
- Two water-type extinguishers each with a 1-A rating shall be deemed the equivalent of one 2-A rated extinguisher for Light (Low) Hazard Occupancies.

906.3.2 Class B fire hazards. Portable fire extinguishers for occupancies involving flammable or combustible liquids with depths less than or equal to 0.25-inch (6.4 mm) shall be selected and placed in accordance with Table 906.3(2).

Portable fire extinguishers for occupancies involving flammable or combustible liquids with a depth of greater than 0.25-inch (6.4 mm) shall be selected and placed in accordance with ~~NFPA 10~~ *California Code of Regulations, Title 19, Division 1, Chapter 3*.

TABLE 906.3(2)
FIRE EXTINGUISHERS FOR FLAMMABLE OR
COMBUSTIBLE LIQUIDS WITH DEPTHS
LESS THAN OR EQUAL TO 0.25 INCH

TYPE OF HAZARD	BASIC MINIMUM EXTINGUISHER RATING	MAXIMUM DISTANCE OF TRAVEL TO EXTINGUISHERS (feet)
Light (Low)	5-B 10-B	30 50
Ordinary (Moderate)	10-B 20-B	30 50
Extra (High)	40-B 80-B	30 50

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Note. For requirements on water-soluble flammable liquids and alternative sizing criteria, see ~~Section 5.5 of NFPA 40~~ *California Code of Regulations, Title 19, Division 1, Chapter 3*.

906.3.4 Class D fire hazards. Portable fire extinguishers for occupancies involving combustible metals shall be selected and placed in accordance with ~~NFPA 10~~ *California Code of Regulations, Title 19, Division 1, Chapter 3*.

907.1.2 Fire alarm shop drawings. Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following where applicable to the system being installed:

1. A floor plan that indicates the use of all rooms.
2. Locations of alarm-initiating devices.
3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.

4. Design minimum audibility level for occupant notification.
5. Location of fire alarm control unit, transponders and notification power supplies.
6. Annunciators.
7. Power connection.
8. Battery calculations.
9. Conductor type and sizes.
10. Voltage drop calculations.
11. Manufacturers' data sheets indicating model numbers and listing information for equipment, devices and materials.
12. Details of ceiling height and construction.
13. The interface of fire safety control functions.
14. Classification of the supervising station.
15. *All plans and shop drawings shall use the symbols identified in NFPA 170, Standard for Fire Safety and Emergency Symbols.*

Exception: *Other symbols are allowed where approved by the enforcing agency*

907.1.3 Equipment. Systems and components shall be *California State Fire Marshal* listed and approved in accordance with *California Code of Regulations, Title 19, Division 1* for the purpose for which they are installed.

907.1.4 Fire-walls and fire barrier walls. *For the purpose of Section 907 fire walls and fire barrier walls shall not define separate buildings.*

907.1.5 Fire alarm use. *A fire alarm system shall not be used for any purpose other than fire warning or mass notification and where permitted by NFPA 72.*

907.2 Where required—new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

Not fewer than one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, *or automatic fire alarm systems*, a single fire alarm box shall be installed *at a location approved by the enforcing agency.*

Exceptions:

1. The manual fire alarm box is not required for fire alarm ~~systems~~*control units* dedicated to elevator recall control, ~~and supervisory service~~ *and fire sprinkler monitoring.*
2. The manual fire alarm box is not required for Group R-2 occupancies unless required by the fire code official to provide a means for fire watch personnel to initiate an alarm during a sprinkler system impairment event. Where provided, the manual fire alarm box shall not be located in an area that is accessible to the public.
3. *The manual fire alarm box is not required to be installed when approved by the fire code official.*

907.2.1 Group A. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies where the occupant load due to the assembly occupancy is 300 or more. Group A occupancies not separated from one another in accordance with Section 707.3.10 shall be considered as a single occupancy for the purposes of applying this section. Portions of Group E occupancies occupied for assembly purposes *with an occupant load of less than 1,000*, shall be provided with a fire alarm system as required for the Group E occupancy.

Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

Every Group A building used for educational purposes shall be provided with a manual or automatic fire alarm system. This provision shall apply to, but shall not necessarily be limited to, every community college and university.

Exception: Privately owned trade or vocational schools or any firm or company which provides educational facilities and instructions for its employees.

907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or more. Activation of the fire alarm in Group A occupancies with an occupant load of 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.5.2.2. *Group A occupancies with an occupant load of 10,000 or more, see Section 907.2.1.3.*

Exception: Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.

907.2.1.3 Public address system. Pursuant to Health and Safety Code Section 13108.9, for all buildings or structures constructed on or after July 1, 1991, which are intended for public assemblies of 10,000 or more persons a public address system with an emergency backup power system shall be required.

907.2.2 Group B. A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B occupant load of all floors is 500 or more.
2. The Group B occupant load is more than 100 persons above or below the lowest level of exit discharge.
3. The fire area contains an ambulatory care facility.
4. *Group B occupancies containing educational facilities, see Section 907.2.2.2.*

Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

907.2.2.2 Group B Educational facilities. Every Group B building used for educational purposes shall be provided with a manual or automatic fire alarm system. This provision shall apply to, but shall not necessarily be limited to, every community college and university.

Exception: Privately owned trade or vocational schools or any firm or company which provides educational facilities and instructions for its employees.

907.2.3 Group E. A manual and automatic fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies with an occupant load of 50 or more persons or containing more than one classroom or one or more rooms used for Group E or 1-4 day care purposes in accordance with this section. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

- ~~1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.~~
- ~~2.1.~~ Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.
- ~~3.2.~~ Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
 - ~~3.12.1.~~ Interior corridors are protected by smoke detectors.
 - ~~3.22.2.~~ Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
 - ~~3.32.3.~~ Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
- ~~4.3.~~ Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:
 - ~~4.13.1.~~ The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
 - ~~4.23.2.~~ The emergency voice/alarm communication system will activate on sprinkler water flow.
 - ~~4.33.3.~~ Manual activation is provided from a normally occupied location.

4.43.4. The capability to activate the evacuation signal from a central point is provided.

34. For public school state funded construction projects see Section 907.2.29.

907.2.3.1 System connection. Where more than one fire alarm control unit is used at the school campus, they shall be interconnected and shall operate all notification appliances.

Exception: Interconnection of fire alarm control units is not required when all the following are provided:

1. Buildings that are separated a minimum of 20 feet (6096 mm) and in accordance with the California Building Code; and
2. There is a method of two way communication between each classroom and the school administrative office approved by the fire enforcing agency; and
3. A method of manual activation of each fire alarm system is provided.

907.2.3.2 Assemblies located within a Group E occupancy. Assembly occupancies with an occupant load of less than 1,000 and located within a Group E occupancy campus or building shall be provided with a fire alarm system as required for the Group E occupancy.

907.2.3.3 Notification. The fire alarm system notification shall comply with the requirements of Section 907.5.

907.2.3.4 Annunciation. Annunciation of the fire alarm system shall comply with the requirements of Section 907.6.3.1.

907.2.3.5 Monitoring. School fire alarm systems shall be monitored in accordance with Section ~~907.6.5.2~~ 907.6.6.2.

907.2.3.6 Automatic fire alarm system. Automatic detection shall be provided in accordance with this section.

907.2.3.6.1 Smoke detectors. Smoke detectors shall be installed at the ceiling of every room and in "ceiling-plenums" utilized for environmental air. Where the ceiling is attached directly to the underside of the roof structure, smoke detectors shall be installed on the ceiling only.

Exception: Where the environment or ambient conditions exceed smoke detector installation guidelines; heat detectors or fire sprinklers shall be used.

907.2.3.6.2 Heat detectors. Heat detectors shall be installed in combustible spaces where sprinklers or smoke detectors are not installed.

907.2.3.7 Private schools. An automatic fire alarm system shall be provided in new buildings of private schools.

Exception: Automatic detection devices are not required where an approved automatic sprinkler system is installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

907.2.3.8 Day-care, Group E.

907.2.3.8.1 An automatic fire alarm system shall be provided in all buildings used as or containing a Group E day-care.

Exception: Automatic detection devices are not required where an approved automatic sprinkler system is installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

907.2.3.8.2 Smoke detectors shall be installed in every room used for sleeping or napping.

907.2.5 Group H. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group H-5 occupancies and in occupancies used for the manufacture of organic coatings. An automatic smoke detection system shall be installed for highly toxic gases, organic peroxides and oxidizers in accordance with Chapters 60, 62 and 63, respectively, of the ~~International~~ California Fire Code.

907.2.5.1 Group H occupancies located above the 10th story. Manual fire alarm boxes shall be required on each side of the 2-hour fire-smoke barrier and at each exit above the 10th story.

907.2.6 Group I. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group I occupancies. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2 and 907.2.6.3.3.

Exceptions:

1. Manual fire alarm boxes in sleeping units of Group I-1 and I-2 occupancies shall not be required at exits if located at all care providers' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that the distances of travel required in Section 907.4.2.1 are not exceeded.

1. Large family day-care.

2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official and staff evacuation responsibilities are included in the fire safety and evacuation plan required by Section 404 of the ~~International~~California Fire Code.

907.2.6.1 Group I-1. Reserved. In Group I-1 occupancies, an automatic smoke detection system shall be installed in corridors, waiting areas open to corridors and habitable spaces other than sleeping units and kitchens. The system shall be activated in accordance with Section 907.5.

Exceptions:

1. For Group I-1 Condition 1 occupancies, smoke detection in habitable spaces is not required where the facility is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

2. Smoke detection is not required for exterior balconies.

~~[F] 907.2.6.1.1 Smoke alarms.~~ Single and multiple station smoke alarms shall be installed in accordance with Section 907.2.11.

907.2.6.2 Group I-2 and Group I-2.1. An automatic smoke detection system shall be installed in corridors in Group I-2 Condition 1 facilities and spaces permitted to be open to the corridors by Section 407.2. The system shall be activated in accordance with Section 907.4. Group I-2 Condition 2 occupancies shall be equipped with an automatic smoke detection system as required in Section 407.

Exceptions:

1. Corridor smoke detection is not required in smoke compartments that contain sleeping units where such units are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the corridor side of each sleeping unit and shall provide an audible and visual alarm at the care providers' station attending each unit.

2. Corridor smoke detection is not required in smoke compartments that contain sleeping units where sleeping unit doors are equipped with automatic door closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

A manual and automatic fire alarm system shall be installed in Group I-2 and I-2.1 occupancies. Where automatic fire suppression systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exception: Where an entire facility is used for the housing of persons, none of whom are physically or mentally handicapped or nonambulatory, and are between the ages of 18 and 64, the buildings or structures comprising such facility shall be exempt from the provisions of this subsection relating to the installation of an automatic fire alarm system.

907.2.6.2.1 Notification. The fire alarm notification system shall be in accordance with Section 907.5.2.5.

907.2.6.2.2 Automatic fire detection. Smoke detectors shall be provided in accordance with this section.

1. In patient and client sleeping rooms. Actuation of such detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurses' station. A nurse call system listed for this function is an acceptable means of providing the audible and visual alarm at the respective nurses' station and corridor room display. Operation of the smoke detector shall not include any alarm verification feature.

Exception: In patient and client rooms equipped with existing automatic door closers having integral smoke detector, the integral detector is allowed to substitute for the room smoke detector, provided it meets all the required alerting functions.

2. Group I-2 nurses' stations. A minimum of one (1) smoke detector shall be installed at the nurses' station and centrally located.

3. In waiting areas and corridors onto which they open, in the same smoke compartment, in accordance with Section 407.2.1.

907.2.6.3 Group I-3 occupancies. Group I-3 occupancies shall be equipped with a manual fire alarm system and automatic smoke detection system installed for alerting staff.

Exception: An automatic smoke detection system is not required within temporary holding cells.

907.2.6.3.3 Automatic smoke detection system. An automatic smoke detection system shall be installed throughout resident housing areas, including sleeping units and contiguous day rooms, group activity spaces and other common spaces normally accessible to residents/inmates.

Exceptions:

1. Other approved smoke detection arrangements providing equivalent protection including, but not limited to, placing detectors in exhaust ducts from cells or behind protective guards listed for the purpose, are allowed when necessary to prevent damage or tampering, may be used to prevent damage or tampering or for other purposes provided the function of detecting any fire is fulfilled and the location of the detectors is such that the speed of detection will be equivalent to that provided by the spacing and location required in accordance with NFPA 72 as referenced in Chapter 35. This may include the location of detectors in return air ducts from cells, behind grilles or in other locations. Spot type, combination duct and open area smoke detectors may be used when located not more than 14 inches (356mm) from the return air grill. For initiation and annunciation purposes, these detectors may be combined in groups of four. The fire code official having jurisdiction, however, must approve the proposed equivalent performance of the design.

~~2. Sleeping units in Use Conditions 2 and 3 as described in Section 308.~~

~~3. Smoke detectors are not required in sleeping units with four or fewer occupants in smoke compartments that are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

2. For detention housing and/or mental health housing area(s), including correctional medical and mental health uses, automatic smoke detection system in sleeping units shall not be required when all of the following conditions are met:

2.1. All rooms, including the inmate cells are provided with an automatic sprinkler system in accordance with Section 903.3.1.1.

2.2. Building is continuously staffed by a correctional officer at all times.

~~2.3. The exception to Section 903.2.6.2 shall not apply.~~

3. Smoke detectors are not required to be installed in inmate cells with 2 or fewer occupants in detention facilities which do not have a correctional medical and mental health use.

4. Smoke detectors are not required to be installed in inmate day rooms of detention facilities where 24 hour direct visual supervision is provided by a correctional officer(s) and a manual fire alarm box is located in the control room.

907.2.6.3.4 System annunciation. A staff alerting fire alarm shall sound at all staff control stations on the floor of activation and an audible and visual signal shall be indicated on an annunciator at the facility control center upon activation of any automatic extinguishing system, automatic detection system, or any smoke detector or manual actuating or initiating device. In addition, where there are staff-control stations on the floor, an audible, visual and manual alarm shall be located in each staff control station.

Fire and trouble signals of fire alarm systems and sprinkler water-flow and supervisory signals of extinguishing systems shall be annunciated in an area designated as the facility control center which shall be constantly attended by staff personnel. All such signals shall produce both an audible signal and visual display at the facility control center indicating the building, floor zone or other designated area from which the signal originated in accordance with Section 907.6.3.

All local detention facilities within the scope of Section 6031.4 of the Penal Code shall have a automatic smoke detection system. A manual fire alarm-initiating device shall be installed in all guard control stations and shall be capable of alerting personnel in a central control point to the presence of fire or smoke within the facility.

907.2.9 Group R-2 and R-2.1. Fire alarm systems and smoke alarms shall be installed in Group R-2 and R-2.1 occupancies as required in Sections 907.2.9.1 through ~~907.2.9.3~~ 907.2.9.4.

907.2.9.1 Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies where any of the following conditions apply:

1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge.
2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit.
3. The building contains more than 16 dwelling units or sleeping units.
4. *Congregate residences with more than 16 occupants.*

Exceptions:

1. A fire alarm system is not required in buildings not more than two stories in height where all dwelling units or sleeping units and contiguous attic and crawl spaces are separated from each other and public or common areas by not less than 1-hour fire partitions and each dwelling unit or sleeping unit has an exit directly to a public way, egress court or yard.
2. Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.
3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1027.6, Exception 3.

907.2.9.4 Licensed Group R-2.1 occupancies. *Licensed Group R-2.1 occupancies housing more than six nonambulatory, elderly clients shall be provided with an approved manual and automatic fire alarm system.*

Exceptions: *Buildings housing nonambulatory clients on the first story only and which are protected throughout by the following:*

1. *An approved and supervised automatic sprinkler system, as specified in Sections 903.3.1.1 or 903.3.1.2, which upon activation will initiate the fire alarm system to notify all occupants.*
2. *A manual fire alarm system.*
3. *Smoke alarms required by Section 907.2.11.*

907.2.9.4.1 Smoke alarms. *Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.*

907.2.11 Single- and multiple-station smoke alarms. Listed single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through ~~907.2.11.4~~ 907.2.11.8 and NFPA 72.

Exception: *For Group R occupancies. A fire alarm system with smoke detectors located in accordance with this section may be installed in lieu of smoke alarms. Upon actuation of the detector, only those notification appliances in the dwelling unit or guest room where the detector is actuated shall activate.*

907.2.11.1.1 Group R-1. Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

1. In sleeping areas.
2. In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.
3. In each story within the sleeping unit, including basements. For sleeping units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

See Section ~~907.2.11.5~~907.2.11.8 for specific location requirements.

907.2.11.2 Groups R-2, R-2.1, R-3, R-3.1, and R-4. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-2.1, R-3, R-3.1, and R-4 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.
3. In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. In a Group R-3.1 occupancies, in addition to the above, smoke alarms shall be provided throughout the habitable areas of the dwelling unit except kitchens.

See Section ~~907.2.11.5~~907.2.11.8 for specific location requirements.

907.2.11.2.1 Group I-4 occupancies. Large family day-care homes shall be equipped with State Fire Marshal approved and listed single station residential type smoke alarms.

907.2.11.2.2 Group R-3.1. In all facilities housing a bedridden client, smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms shall be electrically interconnected so as to cause all smoke alarms to sound a distinctive alarm signal upon actuation of any single smoke alarm. Such alarm signal shall be audible throughout the facility at a minimal level of 15 db above ambient noise level. These devices need not be interconnected to any other fire alarm device, have a control panel, or be electrically supervised or provided with emergency power.

907.2.11.2.3 Smoke alarms. Smoke alarms shall be tested and maintained in accordance with the manufacturer's instructions. Smoke alarms that no longer function shall be replaced.

907.2.11.5 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling unit or sleeping unit in Group R ~~or~~ **R-1, R-2, R-3, R-3.1, and R-4** occupancies, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

907.2.11.6 Power source. In new construction and in newly classified Group R-3.1 occupancies, required smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system in accordance with Section 2702. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exception: Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system that complies with Section 2702.

907.2.11.5 907.2.11.8 Specific location requirements.

Extract from NFPA 72 Section 29.8.3.4 Specific Location Requirements*.

This extract has been provided by NFPA as amended by the Office of the State Fire Marshal and adopted by reference as follows:

29.8.3.4 Specific Location Requirements. The installation of smoke alarms and smoke detectors shall comply with the following requirements:

- (1) Smoke alarms and smoke detectors shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.
- (2) Smoke alarms and smoke detectors shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F (4°C) or exceed 100°F (38°C).

(3) Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, smoke alarms and smoke detectors shall be mounted on an inside wall.

(4) Smoke alarms or smoke detectors shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance.

Exception: Ionization smoke alarms with an alarm-silencing switch or Photoelectric smoke alarms shall be permitted to be installed 10 feet (3 m) or greater from a permanently installed cooking appliance.

Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet (1.8 m) from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 ft distances would prohibit the placement of a smoke alarm or smoke detector required by other sections of the code. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance.

(5) Effective January 1, 2016, smoke alarms and smoke detectors used in household fire alarm systems installed between 6 ft (1.8 m) and 20 ft (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be listed for resistance to common nuisance sources from cooking.

(6) Installation near bathrooms. Smoke alarms shall be installed not less than a 3-foot (0.91 m) horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by other sections of the code.

(7) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.

(8) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.

(9) Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction.

(10) For stairways leading up from a basement, smoke alarms or smoke detectors shall be located on the basement ceiling near the entry to the stairs.

(11) For tray-shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 in. (300 mm) vertically down from the highest point.

(12) Smoke alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.7.3.2.4 of NFPA 72.

(13) Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3 of NFPA 72.

*For additional requirements or clarification see NFPA 72.

907.2.11.9 Existing Group R Occupancies. See the California Residential Code for existing Group R-3 occupancies or Chapter 11 of the California Fire Code for all other existing Group R occupancies.

907.2.13 High-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access. High-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access shall be provided with an automatic smoke detection system in accordance with Section 907.2.13.1, a fire department communication system in accordance with Section 907.2.13.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

Exceptions:

1. Airport traffic control towers in accordance with Sections 412 and 907.2.22.
2. Open parking garages in accordance with Section 406.5.
3. Buildings with an occupancy in Group A-5 in accordance with Section 303.1.
4. Low-hazard special occupancies in accordance with Section 503.1.1.
5. ~~Buildings with an occupancy in Group H-1, H-2 or H-3 in accordance with Section 415.~~
6. In Group ~~I-1~~ and I-2, I-2.1 and R-2.1 occupancies, the alarm shall sound at a constantly attended location and occupant notification shall be broadcast by the emergency voice/alarm communication system.

907.2.13.1 Automatic smoke detection. Automatic smoke detection in high-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access shall be in accordance with Sections 907.2.13.1.1 and 907.2.13.1.2.

907.2.13.1.2 Duct smoke detection. Smoke detectors listed for use in air duct systems shall be provided in accordance with this section and the California Mechanical Code. The activation of any detector required by this section shall initiate a visible and audible supervisory signal at a constantly attended location. Duct smoke detectors complying with Section 907.3.1 shall be located as follows:

1. In the main return air and exhaust air plenum of each air-conditioning system having a capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m³/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.
2. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning system. In Group R-1 and R-2 occupancies, a smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m³/s) and serving not more than 10 air-inlet openings.

907.2.13.2 Fire department communication system. Where a wired communication system is approved in lieu of an emergency responder radio coverage system in accordance with Section 510 of the *International California Fire Code*, the wired fire department communication system shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 911, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside interior exit stairways. The fire department communication device shall be provided at each floor level within the interior exit stairway.

907.2.15 High-piled combustible storage areas. An automatic smoke detection system shall be installed throughout high-piled combustible storage areas where required by Section 3206.5 of the *International California Fire Code*.

907.2.16 Aerosol storage uses. Aerosol storage rooms and general-purpose warehouses containing aerosols shall be provided with an approved manual fire alarm system where required by the *International California Fire Code*.

907.2.24 Motion picture and television production studio sound stages and approved production facilities.

907.2.24.1 Sound stages—solid-ceiling sets and platforms. Where required by Chapter 48 of the California Fire Code, all interior solid-ceiling sets over 600 square feet (55.7 m²) in area, and platforms (when provided) over 600 square feet (55.7 m²) in area and which exceed 3 feet (914 mm) in height shall be protected by an approved heat detector system. Heat detectors shall be spaced 30 feet (9144 mm) on center or as required by the manufacturer's installation instructions. The fire alarm system shall be connected to an approved supervising station in accordance with Section 907.6.5 or a local alarm which will give an audible signal at a constantly attended location.

907.2.24.2 Production locations—solid-ceiling sets and platforms. Where required by Chapter 48 of the California Fire Code in buildings with existing fire protection systems and where production intends to construct solid-ceiling sets over 600 square feet (55.7 m²) in area, and platforms over 600 square feet (55.7 m²) in area and which exceed 3 feet (914 mm) in height shall be protected by an approved heat detector system. Heat detectors shall be spaced 30 feet (9144 mm) on center or as required by the manufacturer's installation instructions. The fire alarm system shall be connected to an approved supervising station in accordance with Section 907.6.5 or a local alarm which will give an audible signal at a constantly attended location.

907.2.24.3 Fire alarm control units. Fire alarm control units shall be California State Fire Marshal listed and shall be utilized in accordance with their listing. Control units are permitted to be temporarily supported by sets, platforms or pedestals.

907.2.24.4 Heat detectors.

907.2.24.4.1 Heat detection required by this section shall be defined as a portable system as it is intended to be reinstalled when platforms or sets are changed.

907.2.24.4.2 Heat detectors shall be secured to standard outlet boxes and are allowed to be temporarily supported by sets, platforms or pedestals.

907.2.24.4.3 Heat detectors shall be provided for solid-ceiling sets and platforms where required by Sections 4805.3 and 4811.14.

907.2.25 Group C occupancies (organized camps).

907.2.25.1 General. Every building and structure used or intended for sleeping purposes shall be provided with an automatic smoke-detection system.

Exceptions:

1. Buildings and structures in existence and in operation prior to January 1, 1985.
2. Tents, tent structures and buildings and structures that do not exceed 25 ft (7620 mm) in any lateral dimensions and where such building or structure is not more than one story.

907.2.25.2 Camp fire alarm. Every organized camp shall provide and maintain audible appliances, or devices suitable for sounding a fire alarm. Such audible appliances or devices may be of any type acceptable to the enforcing agency provided they are distinctive in tone from all other signaling devices or systems and shall be audible throughout the camp premises. When an automatic fire alarm system is provided, as required by Section 440.6-6450.6.6 of the California Building Code, all audible appliances required by this section shall be of the same type as that used in the automatic system.

907.2.26.1 General. Every fixed guideway transit station shall be provided with an approved emergency voice/alarm communication system in accordance with NFPA 72. The emergency voice/alarm communication system, designed and installed so that damage to any one speaker will not render any paging zone of the system inoperative.

Exception: Open stations

907.2.26.2 System components. Each station fire alarm system shall consist of:

1. Fire alarm control unit at a location as permitted by the enforcing agency.
2. An alarm annunciator(s). The annunciator(s) shall be located at a point acceptable to the enforcing agency. The annunciator(s) shall indicate the type of device and general location of alarm. All alarm, supervisory and trouble signals shall be transmitted to the local annunciator(s) and the operations control center.
3. Manual fire alarm boxes shall be provided throughout passenger platforms and stations.

Exception: Two-way emergency communication reporting devices (emergency telephones) are allowed to be used in lieu of manual fire alarm boxes as permitted by the enforcing agency. Such devices shall provide two-way communication between the operations control center and each device. Such devices shall be located as required for manual fire alarm boxes, and shall be distinctly identified by signs, coloring or other means acceptable to the enforcing agency.

4. Automatic smoke detectors in all ancillary spaces.

Exceptions:

1. Ancillary spaces protected by an approved fixed automatic extinguishing system; or
2. Ancillary spaces protected by quickresponse sprinklers.
5. Automatic control of exiting components.

907.2.26.3 Emergency voice/alarm communication system. Each station shall be provided with an emergency voice/alarm communication system capable of transmitting voice, recorded or electronically generated textual messages to all areas of the station. The system(s) shall be configured such that the messages can be initiated from either the Emergency Management Panel (EMP) or the operations control center.

907.2.26.4 Emergency telephones. A dedicated two-way emergency communication phone system designed and installed in accordance with NFPA 72 shall be provided in all underground stations to facilitate direct communications for emergency response between remote locations and the EMP.

907.2.26.4.1 Remote emergency phones shall be located at ends of station platforms, each hose outlet connection and station valve rooms.

907.2.26.4.2 Provisions shall be made in the design of this two-way emergency communication phone system for extensions of the system to the next passenger station or guideway portal.

907.2.27 Winery caves. An approved manual fire alarm system conforming to the provisions of Section 907.2 shall be provided in all Type 3 winery caves.

907.2.28 Group L. A manual fire alarm system shall be installed throughout buildings containing Group L occupancies. When Group L occupancies are located in mixed use buildings, at least one manual fire alarm shall be located in the Group L occupancy.

907.2.28.1 Group L occupancies located above the 10th story. Manual fire alarm boxes shall be required on each side of the 2-hour fire-smoke barrier and at each exit above the 10th story.

907.2.29 Public school state funded construction projects for kindergarten through 12th grade — automatic fire alarm system requirements.

907.2.29.1 New public school campus. An automatic fire alarm system shall be provided in all occupancies that activates the occupant notification system signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6. The provisions of this section shall apply to any public school project consisting of one or more buildings on a new school campus and receiving state funds pursuant to Leroy F. Greene School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, new campus refers to a school site, where an application for construction of original buildings was made to DSA on or after July 1, 2002.

Exceptions:

1. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. Also see CCR, Title 24, Part 1, California Administrative Code, Section 4-314 for definition of relocatable building.
2. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Concession Stand
Press Box
Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth

3. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

907.2.29.2 New building on an existing public school campus. An automatic fire alarm system shall be provided in all occupancies. The provisions of this section shall apply to any public school project construction of a new building on an existing campus and receiving state funds pursuant to Leroy F. Green, School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, an existing campus refers to a school site, where an application for construction of original buildings was made to DSA prior to July 1, 2002.

Exceptions:

1. A construction project that has an estimated total cost of less than \$200,000.
2. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. See California Administrative Code, Section 4-314 for definition of relocatable building.
3. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Concession Stand

Press Box
Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth

907.2.29.3 Alterations to existing buildings on an existing public school campus. An automatic fire alarm system shall be provided for all portions within the scope of an alteration project. The provisions of this section shall apply to any public school project on an existing campus and receiving state funds pursuant to Leroy F. Green, School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, an existing campus refers to a school site, where an application for construction of original buildings was made to DSA prior to July 1, 2002.

Exceptions:

1. A construction project that has an estimated total cost of less than \$200,000.
2. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. See California Administrative Code, Section 4-314 for definition of relocatable building.
3. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Concession Stand
Press Box
Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth

907.2.29.4 Day-care, Group E or Group I-4 located on a public school campus. An automatic fire alarm system shall be provided in all buildings used as or containing a Group E or Group I-4 day-care.

907.3 Fire safety functions. Automatic fire detectors utilized for the purpose of performing fire safety functions shall be connected to the building's fire alarm control unit where a fire alarm system is required by Section 907.2 installed. Detectors shall, upon actuation, perform the intended function and activate the alarm notification appliances or activate a visible and audible supervisory signal at a constantly attended location. In buildings not equipped with a fire alarm system, the automatic fire detector shall be powered by normal electrical service and, upon actuation, perform the intended function. The detectors shall be located in accordance with NFPA 72.

907.3.1 Duct smoke detectors. Smoke detectors installed in ducts shall be listed for the air velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit when a fire alarm system is required by section 907.2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the ~~International~~ California Mechanical Code. In facilities that are required to be monitored by a supervising station, duct smoke detectors shall report only as a supervisory signal and not as a fire alarm. They shall not be used as a substitute for required open area detection.

Exceptions:

1. The supervisory signal at a constantly attended location is not required where duct smoke detectors activate the building's alarm notification appliances.
2. In occupancies not required to be equipped with a fire alarm system, actuation of a smoke detector shall activate a visible and an audible signal in an approved location. Smoke detector trouble conditions shall activate a visible or audible signal in an approved location and shall be identified as air duct detector trouble.

907.3.2 Delayed egress locks. Where delayed egress locks or devices are installed on means of egress doors in accordance with Section 1010.1.9.7, an automatic smoke or heat detection system shall be installed as required by that section and Section 1010.1.9.7.

907.3.2.1 In other than Groups I, R-2.1 and R-4 occupancies for single-story building, smoke detectors shall be installed at ceilings throughout all occupied areas and mechanical/electrical spaces. For multiple-story buildings, smoke detectors shall be installed throughout all occupied areas and mechanical/electrical spaces for the story where delayed egress devices are installed. Additional detectors are required on adjacent stories where occupants of those stories utilize the same means of egress.

Exception: Refer to Section 907.3.2.4 for Group A courthouse occupancies.

907.3.2.2 For Group I and R-2.1 occupancies. Smoke detectors shall be installed at ceilings throughout all occupied areas and mechanical/electrical spaces of smoke-compartments where delayed egress devices are installed. Additional detectors are required in adjacent smoke-compartments where occupants of those compartments utilize the same means of egress.

907.3.2.3 For Group R-4. Occupancies licensed as residential care facilities for the elderly, and housing clients with Alzheimer's disease or dementia residential facilities, smoke detectors shall be installed at ceilings throughout all occupiable rooms and areas and mechanical/ electrical rooms and spaces.

907.3.2.4 For Group A Courthouse occupancies. Approved automatic smoke detection system shall be installed at ceilings in all occupied corridors and mechanical/electrical spaces of smoke-compartments where delayed egress devices are installed.

907.3.3 Elevator emergency operation. Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of ASME A17.1 California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders and NFPA 72.

907.4.2.1 Location. Manual fire alarm boxes shall be located not more than 5 feet (1524 mm) from the entrance to each exit. In buildings not protected by an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, additional manual fire alarm boxes shall be located so that the exit access travel distance to the nearest box does not exceed 200 feet (60 960 mm).

Exception: When individual dwelling units are served by a single exit stairway, additional boxes at other than the ground floor may be omitted.

907.4.2.7 Operation. Manual fire alarm boxes shall be operable with one hand including boxes with protective covers.

907.5.2.1.3 Audible alarm signal. The audible signal shall be the standard fire alarm evacuation signal, ANSI S3.41 Audible Emergency Evacuation Signal, "three pulse temporal pattern," as described in NFPA 72.

Exception: The use of the existing evacuation signaling scheme shall be permitted where approved by the enforcing agency.

907.5.2.2 Emergency voice/alarm communication systems. Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404 of the ~~International~~ California Fire Code. In high-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access, the system shall operate on at least the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Interior exit stairways.
3. Each floor.
4. Areas of refuge as defined in Chapter 2.

Exception: In Group I-1 and I-2, I-2.1 and R-2.1 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

907.5.2.3.1 Public use areas and common use areas. Visible alarm notification appliances shall be provided in public use areas and common use areas, *including but not limited to:*

- ~~41.~~ Band rooms
- ~~42.~~ Classrooms
- ~~23.~~ Corridors
- ~~54.~~ Gymnasiums
- ~~95.~~ Lobbies
- ~~106.~~ Meeting rooms
- ~~67.~~ Multipurpose rooms
- ~~38.~~ Music practice rooms
- ~~79.~~ Occupational shops
- ~~810.~~ Occupied rooms where ambient noise impairs hearing of the fire alarm
- ~~11.~~ Sanitary facilities including restrooms, bathrooms and shower rooms

Exception: Where employee work areas have audible alarm coverage, the notification appliance circuits serving the employee work areas shall be initially designed with not less than 20- percent spare capacity to account for the potential of adding visible notification appliances in the future to accommodate hearing-impaired employee(s).

907.5.2.3.2 Groups I-1 and R-1 and R-2.1. Group I-1 and R-1 and R-2.1 dwelling units or sleeping units in accordance with Table 907.5.2.3.2 shall be provided with a visible alarm notification appliance, activated by both the in-room smoke alarm and the building fire alarm system.

**TABLE 907.5.2.3.2
VISIBLE ALARMS**

NUMBER OF SLEEPING UNITS	SLEEPING ACCOMMODATIONS WITH VISIBLE ALARMS
6 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1,000	5% of total
1,001 and over	50 plus 3 for each 100 over 1,000

[SFM] Also see Chapter 11B.

907.5.2.3.3 Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with Chapter 10 of ICG A117.1/NFPA 72. Such capability shall be permitted to include the potential for future interconnection of the building fire alarm system with the unit smoke alarms, replacement of audible appliances with combination audible/visible appliances, or future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.

~~907.5.2.3~~**907.5.2.3.4 Groups R-2.1, R-3.1 and R-4.** Protective social care facilities which house persons who are hearing impaired, shall be provided with notification appliances for the hearing impaired installed in accordance with NFPA 72 and which shall be activated upon initiation of the fire alarm system or the smoke alarms.

907.5.2.4 Group E Schools. One audible alarm notification appliance shall be mounted on the exterior of a building to alert occupants at each playground area.

907.5.2.5 Groups I-2 and I-2.1. Audible appliances shall be used in nonpatient areas. Visible appliances are allowed to be used in lieu of audible appliances in patient occupied areas. Audible appliances located in patient areas shall be only chimes or similar sounding appliances for alerting staff.

In occupancies housing nonambulatory persons where restraint is practiced, staff and attendants shall be provided and housed or located in such a manner that such supervisory personnel will also be alerted upon activation of the fire alarm system or any detector required by this section.

907.6.1 Wiring. Wiring shall comply with the requirements of ~~NFPA 70~~ California Electrical Code and NFPA 72. Wireless protection systems utilizing radio-frequency transmitting devices shall comply with the special requirements for supervision of low-power wireless systems in NFPA 72.

907.6.1.1 High-rise Buildings. Wiring for fire alarm signaling line circuits, initiating circuits, and notification circuits in high-rise buildings shall be in accordance with the following:

1. Class A in accordance with NFPA 72.

Exception: Initiating circuits which serve only a single initiating device.

2. Enclosed in continuous metallic raceways in accordance with the California Electrical Code.

Exception: Metallic cable (MC) shall be permitted for fire alarm notification circuits where continuous metallic raceways are not required for survivability.

907.6.4 Zones. Fire alarm systems shall be divided into zones where required by this section. For the purposes of annunciation and notification, zoning shall be in accordance with the following:

1. Where the fire-protective signaling system serves more than one building, each building shall be considered as a separate zone.
2. Each floor of a building shall be considered as a separate zone.
3. Each section of floor of a building that is separated by fire walls or by horizontal exits shall be considered as a separate zone.
4. Each floor shall be zoned separately and a zone shall not exceed 22,500 square feet (2090 m²). The length of any zone shall not exceed 300 feet (91 440 mm) in any direction.

Exception: Automatic sprinkler system zones shall not exceed the area permitted by NFPA 13.

5. For Group I-3 occupancies each cell complex shall be considered a separate zone.
6. For Group H and L occupancies above the 10th story, each side of the 2-hour fire-smoke barrier shall be considered a separate zone.
7. Annunciation shall be further divided into zones where deemed necessary by the enforcing agency.

~~907.6.3~~**907.6.4.1 Annunciation.** Alarm, supervisory and trouble signals shall be annunciated in the main control unit by means of an audible signal and a visual display in accordance with NFPA 72. Identification of the type of alarm and supervisory initiating devices, such as manual, automatic, sprinkler waterflow, sprinkler valve supervisory, fire-pump supervisory, etc., shall be separately indicated.

Exception: Group R-3 occupancies.

~~907.6.4~~**907.6.4.1.1 Zoning indicator-Annunciator panel.** A Zoning indicator-annunciator panel complying with Section ~~907.6.3~~**907.6.4.1** and the associated controls shall be provided in an approved remote location where

deemed necessary by the enforcing agency. The visual zone indication shall lock in until the system is reset and shall not be canceled by the operation of an audible alarm-silencing switch.

907.6.4.2 High-rise buildings. In high-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access, a separate zone by floor shall be provided for each of the following types of alarm-initiating devices where provided:

1. Smoke detectors
2. Sprinkler waterflow devices
3. Manual fire alarm boxes
4. Other approved types of automatic fire detection devices or suppression systems

907.6.3.3907.6.4.3 High-Rise Buildings Zoning Annunciator Panel – In high-rise buildings, a zoning annunciator panel shall be provided in the Fire Command Center. This panel shall not be combined with the Firefighter Smoke Control Panel unless approved. Panel shall be in matrix format or an approved equivalent configuration. All indicators shall be based upon positive confirmation. The panel shall include the following features at a minimum:

1. Fire alarm initiating devices with individual annunciation per floor for manual fire alarm boxes, area smoke detectors, elevator lobby smoke detectors, duct smoke detectors, heat detectors, auxiliary alarms, and sprinkler waterflow. (Red LED)
2. Sprinkler and standpipe system control valves per floor - supervisory. (Yellow LED)
3. Common fire alarm system trouble. (Yellow LED)
4. Annunciation Panel Power On. (Green LED)
5. Lamp test. (Push Button)

907.6.3.4907.6.4.4 Notification zoning. Upon activation of initiating devices where occupant notification is required for evacuation, all notification zones shall operate simultaneously throughout the building.

Exceptions:

1. High-rise buildings as permitted in Section 907.2.13,
2. Hospitals and convalescent facilities with staff alerting notification appliances or emergency voice/alarm communication, zoning shall be in accordance with the approved fire plan.
3. Detention facilities.
4. Upon approval by the fire code official in buildings which are sprinklered throughout, specific notification zoning shall be permitted where the notification zones are separated by a minimum of a 2-hour fire barrier and 2-hour fire-resistive floor assembly. The system shall have the capability to activate all other notification zones by automatic and manual means.
5. Upon approval by the fire code official in buildings which are sprinklered throughout, specific notification zoning shall be permitted where the activated initiating device or fire extinguishing system is separated from any nonactive notification zones by a minimum of 300 ft horizontal distance. The system shall have the capability to activate all other notification zones by automatic and manual means.
6. Where a Group H or L occupancy is located above the 10th story, each side of the 2-hour fire-smoke barrier shall be considered a separate zone.

907.6.6 Monitoring. Fire alarm systems required by this chapter or by the ~~International~~ California Fire Code shall be monitored by an approved supervising station in accordance with NFPA 72 and this section.

Exception: Monitoring by a supervising station is not required for:

1. Single- and multiple-station smoke alarms required by Section 907.2.11.
2. ~~Smoke detectors in~~ Group I-3 occupancies shall be monitored in accordance with Section 907.2.6.3.
3. Automatic sprinkler systems in one- and two-family dwellings.

907.6.6.2 Termination of monitoring service. Termination of fire alarm monitoring services shall be in accordance with Section 901.9 of the ~~International~~ California Fire Code.

907.6.5.3907.6.6.3 Group E schools. Fire alarm systems shall transmit the alarm, supervisory and trouble signals to an approved supervising station in accordance with NFPA 72. The supervising station shall be listed as either UUFX (Central Station) or UUJS (remote & proprietary) by the Underwriters Laboratory Inc. (UL) or other approved listing

and testing laboratory or shall comply with the requirements of standard, FM 3011.

907.8 Inspection, testing and maintenance. The maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with Section 907.8 of the *InternationalCalifornia Fire Code*.

908.6 Refrigerant detector. Machinery rooms shall contain a refrigerant detector with an audible and visual alarm. The detector, or a sampling tube that draws air to the detector, shall be located in an area where refrigerant from a leak will concentrate. The alarm shall be actuated at a value not greater than the corresponding TLV-TWA values for the refrigerant classification shown in the *InternationalCalifornia Mechanical Code*. Detectors and alarms shall be placed in approved locations.

908.7 Carbon dioxide (CO2) systems. Emergency alarm systems in accordance with Section 5307.5.2 of the *InternationalCalifornia Fire Code* shall be provided where required for compliance with Section 5307.5 of the *InternationalCalifornia Fire Code*.

909.1 Scope and purpose. This section applies to mechanical or passive smoke control systems where they are required by other provisions of this code. The purpose of this section is to establish minimum requirements for the design, installation and acceptance testing of smoke control systems that are intended to provide a tenable environment for the evacuation or relocation of occupants. These provisions are not intended for the preservation of contents, the timely restoration of operations or for assistance in fire suppression or overhaul activities. Smoke control systems regulated by this section serve a different purpose than the smoke- and heat-venting provisions found in Section 910. Mechanical smoke control systems shall not be considered exhaust systems under Chapter 5 of the *InternationalCalifornia Mechanical Code*.

909.10.2 Ducts. Duct materials and joints shall be capable of withstanding the probable temperatures and pressures to which they are exposed as determined in accordance with Section 909.10.1. Ducts shall be constructed and supported in accordance with the *InternationalCalifornia Mechanical Code*. Ducts shall be leak tested to 1.5 times the maximum design pressure in accordance with nationally accepted practices. Measured leakage shall not exceed 5 percent of design flow. Results of such testing shall be a part of the documentation procedure. Ducts shall be supported directly from fire-resistance-rated structural elements of the building by substantial, noncombustible supports.

Exception: Flexible connections, for the purpose of vibration isolation, complying with the *InternationalCalifornia Mechanical Code* and that are constructed of approved fire-resistance-rated materials.

[Editorial Note: Relocate existing amendments from Section 909.12 to 909.12.1 due to section split.]

909.12 Detection and control systems. Fire detection systems providing control input or output signals to mechanical smoke control systems or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and *listed* as smoke control equipment.

~~The status of dampers shall be determined using limit or proximity switches installed at the damper or incorporated into the damper actuator. Where multiple dampers are grouped together in an assembly requiring one or more actuators, each damper shall be independently controlled by a separate actuator and provided with an individual limit or proximity switch, or the dampers shall be linked together by a reliable and durable mechanical or otherwise permanent means into one or more groups, with each group provided with a common limit or proximity switch.~~

~~The status of fans shall be determined by sensing the air flow downstream of the fans using pressure differential switches or transmitters, or by other means of positive proof of air flow where approved by the enforcing authority.~~

909.12.1 Verification. Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override and the presence of power downstream of all disconnects. A preprogrammed weekly test sequence, report abnormal conditions audibly, visually and by printed report. The preprogrammed weekly test shall operate all devices, equipment and components used for smoke control.

~~The status of dampers shall be determined using limit or proximity switches installed at the damper or incorporated into the damper actuator. Where multiple dampers are grouped together in an assembly requiring one or more actuators, each damper shall be independently controlled by a separate actuator and provided with an individual limit~~

or proximity switch, or the dampers shall be linked together by a reliable and durable mechanical or otherwise permanent means into one or more groups, with each group provided with a common limit or proximity switch.

The status of fans shall be determined by sensing the air flow downstream of the fans using pressure differential switches or transmitters, or by other means of positive proof of air flow where approved by the enforcing authority.

Exception: Where verification of individual components tested through the preprogrammed weekly testing sequence will interfere with, and produce unwanted effects to, normal building operation, such individual components are permitted to be bypassed from the preprogrammed weekly testing, where approved by the building official and in accordance with both of the following:

1. Where the operation of components is bypassed from the preprogrammed weekly test, presence of power downstream of all disconnects shall be verified weekly by a listed control unit.
2. Testing of all components bypassed from the preprogrammed weekly test shall be in accordance with Section 909.20.6 of the *International California* Fire Code.

909.12.2 Wiring. In addition to meeting requirements of *NEPA-70 California California Electrical Code*, all wiring, regardless of voltage, shall be fully enclosed within continuous raceways.

909.13.1 Materials. Control-air tubing shall be harddrawn copper, Type L, ACR in accordance with ASTM B 42, ASTM B 43, ASTM B 68, ASTM B 88, ASTM B 251 and ASTM B 280. Fittings shall be wrought copper or brass, solder type in accordance with ASME B 16.18 or ASME B16.22. Changes in direction shall be made with appropriate tool bends. Brass compression-type fittings shall be used at final connection to devices; other joints shall be brazed using a BCuP-5 brazing alloy with solidus above 1,100°F (593°C) and liquids below 1,500°F (816°C). Brazing flux shall be used on copper-to-brass joints only.

Exception: Nonmetallic tubing used within control panels and at the final connection to devices provided all of the following conditions are met:

1. Tubing shall comply with the requirements of Section 602.2.1.3 of the *International California Mechanical Code*.
2. Tubing and connected devices shall be completely enclosed within a galvanized or paintgrade steel enclosure having a minimum thickness of 0.0296 inch (0.7534 mm) (No.22 gage). Entry to the enclosure shall be by copper tubing with a protective grommet of neoprene or teflon or by suitable brass compression to male barbed adapter.
3. Tubing shall be identified by appropriately documented coding.
4. Tubing shall be neatly tied and supported within the enclosure. Tubing bridging cabinets and doors or moveable devices shall be of sufficient length to avoid tension and excessive stress. Tubing shall be protected against abrasion. Tubing serving devices on doors shall be fastened along hinges.

909.16 Fire fighter's smoke control panel. A fire fighter's smoke control panel for fire department emergency response purposes only shall be provided and shall include manual control or override of automatic control for mechanical smoke control systems. The panel shall be located in a fire command center complying with Section 911 in high-rise buildings, *Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access* or buildings with smoke-protected assembly seating. In all other buildings, the fire fighter's smoke control panel shall be installed in an approved location adjacent to the fire alarm control panel. The fire fighter's smoke control panel shall comply with Sections 909.16.1 through 909.16.3.

909.16.1 Smoke control systems. Fans within the building shall be shown on the fire-fighter's control panel. A clear indication of the direction of airflow and the relationship of components shall be displayed. Status indicators shall be provided for all smoke control equipment, annunciated by fan and zone, and by *approved* pilot-lamp-type indicators as follows:

1. Fans, dampers and other operating equipment in their normal status—WHITE.
2. Fans, dampers and other operating equipment in their off or closed status—RED.
3. Fans, dampers and other operating equipment in their on or open status—GREEN.
4. Fans, dampers and other operating equipment in a fault status—YELLOW/AMBER.

909.16.3 Control action and priorities. The fire fighter's control panel actions shall be as follows:

1. ON-OFF and OPEN-CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire fighter's control panel, automatic or manual control from any other control point within the

building shall not contradict the control action. Where automatic means are provided to interrupt normal, nonemergency equipment operation or produce a specific result to safeguard the building or equipment including, but not limited to, duct freezestats, duct smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices, such means shall be capable of being overridden by the fire fighter's control panel. The last control action as indicated by each fire fighter's control panel switch position shall prevail. Control actions shall not require the smoke control system to assume more than one configuration at any one time.

Exception: Power disconnects required by NFPA-70 *California Electrical Code*.

2. Only the AUTO position of each three-position fire fighter's control panel switch shall allow automatic or manual control action from other control points within the building. The AUTO position shall be the NORMAL, nonemergency, building control position. Where a fire-fighter's control panel is in the AUTO position, the actual status of the device (on, off, open, closed) shall continue to be indicated by the status indicator described in Section 909.16.1. Where directed by an automatic signal to assume an emergency condition, the NORMAL position shall become the emergency condition for that device or group of devices within the zone. Control actions shall not require the smoke control system to assume more than one configuration at any one time.

909.18.9 Identification and documentation. Charts, drawings and other documents identifying and locating each component of the smoke control system, and describing its proper function and maintenance requirements, shall be maintained on file at the building as an attachment to the report required by Section 909.18.8.3. Devices shall have an approved identifying tag or mark on them consistent with the other required documentation and shall be dated indicating the last time they were successfully tested and by whom.

An approved operations manual describing the complete operations of the smoke control system and functioning of the firefighters smoke control panel shall be maintained at the fire command center.

909.20 Smokeproof enclosures. Where required by Section 1023.11, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an interior exit stairway or ramp that is enclosed in accordance with the application provisions of Section 1023 and an open exterior balcony or ventilated vestibule meeting the requirements of this section. Where access to the roof is required by the *International California Fire Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

909.20.1 Access. Access to the stairway or ramp shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall be not less than the required-width of the corridor leading to the vestibule as calculated in accordance with Section 1005.1, but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.

909.20.2.2 Vestibule doors. Where access to the stairway is by way of a vestibule, the door assembly from the building into the vestibule shall be a 90-minute fire door assembly complying with Section 715.4.4 716.5.5. The door assembly from the vestibule to the stairway shall have not less than a 20-minute fire protection rating and shall comply with the requirements for a smoke door assembly in accordance with Section 715.4.3 716.5.3. The door shall be installed in accordance with NFPA-105.

909.20.2.3 Standpipes. Where access to the stairway is by way of a vestibule, Fire department standpipe connections and valves serving the floor shall be within the vestibule unless otherwise approved by the fire code official. Standpipe connections in vestibules shall be located in such a manner so as not to obstruct egress where hose lines are connected and charged.

909.20.2.4 Pressure differences. The minimum pressure differences within the vestibule with the doors closed shall be 0.05-inch water gage (12.44 Pa) positive pressure relative to the fire floor and 0.05-inch water gage (12.44 Pa) negative pressure relative to the exit enclosure. No pressure difference is required relative to a nonfire floor.

909.20.2.5 Relief vent. A relief vent capable of discharging a minimum of 2,500 cubic feet per minute (1180 L/s) of air at the design pressure difference shall be located in the upper portion of such pressurized exit enclosures.

Exception: When approved by the enforcing agency, other engineered design methods capable of discharging a minimum of 2,500 cubic feet per minute (1180 L/s) of air at the design pressure difference shall be permitted.

909.20.3 Natural ventilation alternative. The provisions of Sections 909.20.3.1 through ~~and 909.20.3.3~~**909.20.3.2** shall apply to ventilation of smokeproof enclosures by natural means.

909.20.3.1 Balcony doors. Where access to the stairway or ramp is by way of an open exterior balcony, the door assembly into the enclosure shall be a fire door assembly in accordance with Section 716.5.

~~**909.20.3.2 Vestibule doors.** Where access to the stairway is by way of a vestibule, the door assembly into the vestibule shall be a fire door complying with Section 716.5. The door assembly from the vestibule to the stairway shall have not less than a 20-minute fire protection rating complying with Section 716.5.~~

~~**909.20.3.3**~~**909.20.3.2 Vestibule ventilation.** Where access to the stairway is by way of a vestibule, Each vestibule shall have a minimum net area of 16 square feet (1.5 m²) of opening in a wall facing an outer court, yard or public way that is not less than 20 feet (6096 mm) in width.

909.20.4 Mechanical ~~ventilation~~pressurization alternative. The provisions of Sections 909.20.4.1 through ~~909.20.4.4~~**909.20.4.3** shall apply to ventilation of smokeproof ~~to pressurization~~ enclosures by mechanical means.

909.20.4.1 Pressure differences. The pressurization system shall be designed so that the minimum pressure differences provided within the vestibule with the doors closed shall be 0.05-inch water gage (12.44 Pa) positive pressure relative to the fire floor and 0.05-inch water gage (12.44 Pa) negative pressure relative to the exit enclosure. No pressure difference is required relative to a nonfire floor.

~~**909.20.4.1 Vestibule doors.** The door assembly from the building into the vestibule shall be a fire door assembly complying with Section 716.5.3. The door assembly from the vestibule to the stairway or ramp shall not have less than a 20-minute fire protection rating and shall meet the requirements for a smoke door assembly in accordance with Section 716.5.3. The door shall be installed in accordance with NFPA 105.~~

~~**909.20.4.2 Vestibule ventilation.** The vestibule shall be supplied with not less than one air change per minute and the exhaust shall be not less than 150 percent of supply. Supply air shall enter and exhaust air shall discharge from the vestibule through separate, tightly constructed ducts used only for that purpose. Supply air shall enter the vestibule within 6 inches (152 mm) of the floor level. The top of the exhaust register shall be located at the top of the smoke trap but not more than 6 inches (152 mm) down from the top of the trap, and shall be entirely within the smoke trap area. Doors in the open position shall not obstruct duct openings. Duct openings with controlling dampers are permitted where necessary to meet the design requirements, but dampers are not otherwise required.~~

~~**909.20.4.2.1 Engineered ventilation system.** Where a specially engineered system is used, the system shall exhaust a quantity of air equal to not less than 90 air changes per hour from any vestibule in the emergency operation mode and shall be sized to handle three vestibules simultaneously. Smoke detectors shall be located at the floor side entrance to each vestibule and shall activate the system for the affected vestibule. Smoke detectors shall be installed in accordance with Section 907.3.~~

~~**909.20.4.3 Smoke trap.** The vestibule ceiling shall be not less than 20 inches (508 mm) higher than the door opening into the vestibule to serve as a smoke and heat trap and to provide an upward-moving air column. The height shall not be decreased unless approved and justified by design and test.~~

~~**909.20.4.4 Stairway or ramp shaft air movement system.** The stairway or ramp shaft shall be provided with a dampered relief opening and supplied with sufficient air to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) in the shaft relative to the vestibule with all doors closed.~~

~~**909.20.5 Stairway and ramp pressurization alternative.** Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the vestibule is not required, provided each interior exit stairway or ramp is pressurized to not less than 0.10 inch of water (25 Pa) and not more than 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all interior exit stairway and ramp doors closed under maximum anticipated conditions of stack effect and wind effect.~~

~~**909.20.6**~~**909.20.4.3 VentilatingPressurization equipment.** The activation of ventilatingpressurization equipment required by the alternatives in Sections 909.20.4 and 909.20.5 ~~Section 909.20.4~~ shall be by smoke detectors installed at each floor level at an approved location at the entrance to the smokeproof enclosure and upon activation of the automatic controls required by Section ~~909.12.3~~**909.12.4**. When the closing device for the stair shaft and

vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

~~909.20.6.1~~909.20.4.3.1 VentilationPressurization systems. Smokeproof enclosure ~~ventilation~~pressurization systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

Exceptions:

1. Control wiring and power wiring utilizing a 2-hour rated cable or cable system.
2. Where encased with not less than 2 inches (51 mm) of concrete.
3. Control wiring and power wiring protected by a listed electrical circuit protective system with a fire-resistance rating of not less than 2 hours.

~~909.20.6.2~~909.20.4.3.2 Standby power. Mechanical vestibule Pressurization and stairway and ramp shaft ventilation systems and automatic fire detection systems shall be powered in accordance with Section 2702.

~~909.20.6.3~~909.20.4.3.3 Acceptance and testing. Before the mechanical equipment is approved, the system shall be tested in the presence of the building official to confirm that the system is operating in compliance with these requirements.

911.1 General. Where required by other sections of this code and in buildings classified as high-rise buildings by this code and *Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access*, a fire command center for fire department operations shall be provided and shall comply with Sections 911.1.1 through 911.1.6.

911.1.6 Required features. The fire command center shall comply with NFPA 72 and shall contain all of the following features:

1. The emergency voice/alarm communication system control unit.
2. The fire department communications system.
3. ~~Fire detection and alarm system annunciator~~Fire alarm system zoning annunciator panel required by Section 907.6.3.3.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air distribution systems.
6. The fire fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking interior exit stairway doors simultaneously.
8. Sprinkler valve and waterflow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, fire fighter air replenishment system, fire-fighting equipment and fire department access and the location of fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.
13. An approved Building Information Card that contains, but is not limited to, the following information:
 - 13.1. General building information that includes:

property name, address, the number of floors in the building above and below grade, use and occupancy classification (for mixed uses, identify the different types of occupancies on each floor), and the estimated building population during the day, night and weekend.

13.2. Building emergency contact information that includes: a list of the building's emergency contacts including but not limited to building manager and building engineer and their respective work phone number, cell phone number, e-mail address.

13.3. Building construction information that includes: the type of building construction including but not limited to floors, walls, columns, and roof assembly.

13.4. Exit access and exit stairway information that includes: number of exit access and exit stairways in the building, each exit access and exit stairway designation and floors served, location where each exit access and exit stairway discharges, interior exit stairways that are pressurized, exit stairways provided with emergency lighting, each exit stairway that allows reentry, exit stairways providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve; location of elevator machine rooms, control rooms and control spaces; location of sky lobby, location of freight elevator banks.

13.5. Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator, location of natural gas service.

13.6. Fire protection system information that includes: location of standpipes, location of fire pump room, location of fire department connections, floors protected by automatic sprinklers, location of different types of automatic sprinkler systems installed including, but not limited to, dry, wet, and pre-action.

13.7 Hazardous material information that includes: location of hazardous material, quantity of hazardous material.

14. Work table.

15. Generator supervision devices, manual start and transfer features.

16. Public address system, where specifically required by other sections of this code.

17. Elevator fire recall switch in accordance with ASME A17.1 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders*.

18. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

19. *A master switch for unlocking elevator lobby doors permitted by Section 4008.1.9.421010.1.9.10.*

[SFM] Fire command centers shall not be used for the housing of any boiler, heating unit, generator, combustible storage, or similar hazardous equipment or storage.

911.1.7 Ventilation. *The Fire Command Center shall be provided with an independent ventilation or air-conditioning system.*

912.4 Access. Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be *approved* by the fire chief.

Exceptions:

1. *Fences, where provided with an access gate equipped with a sign complying with the legend requirements of Section 912.4912.5 and a means of emergency operation. The gate and the means of emergency operation shall be approved by the fire chief and maintained operational at all times.*

2. *When acceptable to the fire authority having jurisdiction, fire department connections for Group I-3 detention facilities may be located inside all security walls or fences on the property.*

912.6 Backflow protection. The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by ~~the International Plumbing Code~~ *Health and Safety Code Section 13114.7.*

913.6 Fire pumps in high-rise buildings. *Engine-driven fire pumps and electric drive fire pumps supplied by generators shall both be provided with an on-premises fuel supply, sufficient for not less than 8-hour full-demand operation at 100% of the rated pump capacity in addition to all other required supply demands in accordance with Sections 9.6 and 11.4.2 of NFPA 20 and this Section. (Also see Section 604.2.14.1.1604.1.4.1 of the California Fire Code.)*

916.1 General. Emergency responder radio coverage shall be provided in all new buildings in accordance with Section 510 of the ~~International~~ *California Fire Code.*

CHAPTER 10

MEANS OF EGRESS

1001.3 Maintenance. Means of egress shall be maintained in accordance with the *International California Fire Code*.

1001.4 Fire safety and evacuation plans. Fire safety and evacuation plans shall be provided for all occupancies and buildings where required by the *International California Fire Code*. Such fire safety and evacuation plans shall comply with the applicable provisions of Sections 401.2 and 404 of the *International California Fire Code*.

1003.1 Applicability. The general requirements specified in Sections 1003 through 1015 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

Exception: *Exiting requirements for Fixed Guideway Transit Systems shall be as per Section 433.3443.*

1003.2 Ceiling height. The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

Exceptions:

1. Sloped ceilings in accordance with Section 1208.2.
2. Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section 1208.2.
3. Allowable projections in accordance with Section 1003.3.
4. Stair headroom in accordance with Section 1011.3
5. Door height in accordance with Section 1010.1.1.
6. Ramp headroom in accordance with Section 1012.5.2.
7. The clear height of floor levels in vehicular and pedestrian traffic areas of public and private parking garages in accordance with Section 406.4.1.
8. Areas above and below *mezzanine* floors in accordance with Section 505.2.
9. *In Group I-2, I-2.1 and I-3 occupancies, the means of egress shall have a ceiling height of not less than 8 feet (2439 mm).*

1003.3 Protruding objects. Protruding objects on circulation paths shall comply with the requirements of Sections 1003.3.1 through 1003.3.4.

Exception: *In Group I-2 and Group I-2.1 occupancies, protruding objects shall not extend more than 12 inches (305 mm) below the minimum ceiling height required by Section 1003.2.*

1003.3.3.1 Horizontal projections for Group I-2 and I-2.1 occupancies. *Structural elements, fixtures or furnishings shall not project horizontally from either side more than 1-1/2 inches (38 mm) into the required width of an exit access corridor serving any area caring for one or more nonambulatory or bedridden persons.*

Exceptions:

1. *Handrails are permitted to protrude 31/2 inches (89 mm) from the wall.*
2. *Alcohol-based hand-rub dispensers are permitted to protrude 4 inches.*
3. *Manual fire alarm boxes with a protective cover installed are permitted to protrude 4 inches.*

1003.5 Elevation change. Where changes in elevation of less than 12 inches (305 mm) exist in the *means of egress*, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal (5-percent slope), *ramps* complying with Section 1012 shall be used. Where the difference in elevation is 6 inches (152 mm) or less, the *ramp* shall be equipped with either handrails or floor finish materials that contrast with adjacent floor finish materials.

Exceptions:

1. A single step with a maximum riser height of 7 inches (178 mm) is permitted for buildings with occupancies in Groups F, H, R-2, R-3, S and U at exterior doors not required to be accessible by Chapter 44 *11A or 11B*.
2. A stair with a single riser or with two risers and a tread is permitted at locations not required to be accessible by Chapter 44 *11A or 11B* where the risers and treads comply with Section 1011.5, the minimum depth of the tread is 13 inches (330 mm) and not less than one handrail complying with Section 1014 is provided within 30 inches (762 mm) of the centerline of the normal path of egress travel on the stair.

3. A step is permitted in aisles serving seating that has a difference in elevation less than 12 inches (305 mm) at locations not required to be accessible by Chapter 44 11A or 11B, provided that the risers and treads comply with Section 1029.13 and the aisle is provided with a handrail complying with Section 1029.15.

Throughout a story in a Group I-2 ~~occupancy~~ and Group I-2.1 occupancies, any change in elevation in portions of the means of egress that serve nonambulatory persons shall be by means of a ramp or sloped walkway.

[Editorial Note: Remove existing amendments to Section 1004.1.1.1-1004.1.1.3. Model code now matches old CA amendments.]

1004.1.1.1 Intervening spaces or accessory areas. Where occupants egress from one or more rooms, areas or spaces through others, the design occupant load shall be the combined occupant load of interconnected accessory or intervening spaces. Design of egress path capacity shall be based on the cumulative portion of occupant loads of all rooms, areas or spaces to that point along the path of egress travel.

~~1004.1.1.1 Intervening spaces or accessory areas. Where occupants egress from one or more rooms, areas or spaces through others, the design occupant load shall be the combined occupant load of interconnected accessory or intervening spaces. Design of egress path capacity shall be based on the cumulative portion of occupant loads of all rooms, areas or spaces to that point along the path of egress travel.~~

1004.1.1.2 Adjacent levels for mezzanines. That portion of the occupant load of a mezzanine with required egress through a room, area or space on an adjacent level shall be added to the occupant load of that room, area or space.

~~1004.1.1.2 Adjacent levels for mezzanines. That portion of occupant load of a mezzanine with all required egress through a room, area or space on an adjacent level shall be added to the occupant load of that room, area or space.~~

1004.1.1.3 Adjacent stories. Other than for the egress components designed for convergence in accordance with Section 1005.6, the occupant load from separate stories shall not be added.

~~1004.1.1.3 Adjacent stories. Other than for the egress components designed for convergence in accordance with Section 1005.6, the occupant load from separate stories shall not be added.~~

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR ^a
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats	
Concentrated (chairs only-not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and	

for additional areas	7 net
Business areas	100 gross
Courtrooms-other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Laboratory	
Educational	50 net
Laboratories, non-educational	100 net
Laboratory suite ^{a,b}	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings – covered and open	See Section 402.8.2
Mercantile	
Areas on other floors	60 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m².

^a Floor area in square feet per occupant.

^b See Section 453.2.

1005.3.2 Other egress components. The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress

capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

2. Facilities with smoke-protected assembly seating shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped aisles for means of egress components other than stairways where the entire path for means of egress from the seating to the exit discharge is provided with a smoke control system complying with Section 909.

3. Facilities with outdoor smoke-protected assembly seating shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped aisles for means of egress components other than stairways where the entire path for means of egress from the seating to the exit discharge is open to the outdoors.

~~2.3.~~ For Group H-1, H-2, H-3 and H-4 occupancies the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.4 inches (5.08 mm) per occupant.

~~3.4.~~ 3. Means of egress complying with Section ~~4028-1029~~.

1005.7.1 Doors. Doors, when fully opened, shall not reduce the required width by more than 7 inches (178 mm). Doors in any position shall not reduce the required width by more than one-half.

Exceptions:

1. In other than Group I-2 occupancies, surface-mounted latch release hardware shall be exempt from inclusion in the 7-inch maximum (178 mm) encroachment where both of the following conditions exist:

1.1. The hardware is mounted to the side of the door facing away from the adjacent wall where the door is in the open position.

1.2. The hardware is mounted not less than 34 inches (865 mm) nor more than 48 inches (1219 mm) above the finished floor.

2. The restrictions on door swing shall not apply to doors within individual dwelling units and sleeping units of Group R-2 occupancies and dwelling units of Group R-3 occupancies.

1005.7.2 Other projections. Handrail projections shall be in accordance with the provisions of Section 1014.8. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width not more than 1 1/2 inches (38 mm) on each side.

~~Exception:~~ Projections are permitted in corridors within Group I-2 Condition 1 in accordance with Section 407.4.3.

~~4045.4~~ **1006.2.1 Egress based on occupant load and common path of egress travel distance.** Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1.

Exceptions:

1. In Group R-2 and R-3 occupancies, one means of egress is permitted within and from individual dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped through- out with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the common path of egress travel does not exceed 125 feet (38 100 mm).

2. Care suites in Group I-2 occupancies complying with Section 407.4.

~~4.3.~~ In detention and correctional facilities and holding cells, such as are found in courthouse buildings, when the occupant load is more than 20, see Section 408.3.11.

[Editorial Note: CA amendments to section Table 1006.2.1.1 are relocated from 2013 CBC Tables 1014.3 and 1015.1]

TABLE ~~4044.3~~ 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)	
		WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

		Occupant Load		SYSTEM (feet)
		≤30	>30	
A ^c , E, M	49	75	75	75 ^a
B	49	100	75	100 ^a
F	49	75	75	100 ^a
H-1, H-2, H-3	3	NP	NP	25 ^b
H-4, H-5	10	NP	NP	75 ^b
I-1, I-2 ^d , I-2.1, I-4	10	NP	NP	75 ^a
I-3	10	NP	NP	100 ^a
R-1	10	NP	NP	75 ^a
R-2	10	NP	NP	125 ^a
R-2.1	10	NP	NP	75
R-3 ^e , R-3.1 ^g	10	NP	NP	125 ^{a,g}
R-4 ^h	10	75 NP	75 NP	125 ^{a,g}
S ^f	29	100	75	100 ^a
U	49	100	75	75 ^a
L	See Section 453.6.1			

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having fixed seating, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The length of common path of egress travel distance in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 congregate living facility.

f. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

g. For the travel distance limitations in Group R-3 and R-4 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, see Section 1006.2.2.6

h. For holding cells, see Section 408.3.11.

1006.2.2 Egress based on use. The numbers of exits or access to exits shall be provided in the uses described in Sections 1006.2.2.1 through 1006.2.2.7.

1006.2.2.3 Refrigerated rooms or spaces. Rooms or spaces having a floor area larger than 1,000 square feet (93 m²), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two exits or exit access doorways.

Exit access travel distance shall be determined as specified in Section 1017.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an exit or exit access doorway where such rooms are not protected by an approved automatic sprinkler system. Egress is allowed through adjoining refrigerated rooms or spaces.

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the International California Mechanical Code.

1006.2.2.4 Day care means of egress. Day care facilities, rooms or spaces where care is provided for more than 10 children that are 24/2-years of age or less, shall have access to not less than two exits or exit access doorways.

1006.2.2.6 Group R-3 and R-4. Where Group R-3 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-3 shall not be more than 125 feet. Where Group R-4 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-4 shall not be more than 75 feet.

1006.2.2.7 Large family day-care home. Every story or basement of a large family day-care home shall be provided with two exits which are remotely located from each other. Every required exit shall be of a size to permit the

installation of a door not less than 32 inches (813 mm) in clear width and not less than 6 feet 8 inches (2,032 mm) in height. A manually operated horizontal sliding door may be used as one of the two required exits.

Where basements are used for day-care purposes, one of the two required exits shall provide access directly to the exterior without entering the first story. The second exit from the basement may either pass through the story above or exit directly to the exterior.

Rooms used for day-care purposes shall not be located above the first story.

Exception: Buildings equipped with an automatic sprinkler system throughout and which have at least one of the required exits providing access directly to the exterior. NFPA 13R may be used in large family day-care homes. The sprinkler omissions of NFPA 13R shall not apply unless approved by the enforcing agency.

Exit doors, including manually operated horizontal sliding doors, shall be openable from the inside without use of a key or any special knowledge or effort.

Tables ~~4021.4~~1006.3.2(1) and ~~4021.2~~1006.3.2(2) are not applicable to this occupancy classification.

TABLE ~~4021.2(1)~~1006.3.2(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 AND R-3 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane above-grade plane	R-2 ^{a,b} R-3 ^a	4 dwelling units NA	125 feet NA
Fourth story above grade plane above-grade plane and higher higher	NP, R-3 ^a	NA	NA 125 feet

For SI: 1 foot = 3048 mm.

NP – Not Permitted

NA – Not Applicable

a. Buildings classified as Group R-2 or R-3, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.

b. This table is used for R-2 occupancies consisting of dwelling units. For R-2 occupancies consisting of sleeping units, use Table 1006.3.2(2).

TABLE ~~4021.2(2)~~1006.3.2(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)
First story above above or below grade plane below grade plane	A, B ^b , E ^b , F ^b , M, U	49 occupants	75 feet
	H-2, H-3	3 occupants	25 feet
	H-4, H-5, I, R-1, R-2 ^{a,c} , R-4	10 occupants	75 feet
	I-2, I-2.1	7 occupants	50 feet
	S	29 occupants	75 feet
Second story above grade plane above-grade plane	B, F, M, S ^d	29 occupants	75 feet
Third story above grade plane above-grade plane and higher higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP – Not Permitted

NA – Not Applicable

- a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.
- b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum exit access travel distance of 100 feet.
- c. This table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1006.3.2(1).
- d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

4006.41008.2 Illumination required. Illumination required. The means of egress serving a room or space shall be illuminated at all times that the room or space is occupied..

Exceptions:

1. Occupancies in Group U.
2. Aisle accessways in Group A.
3. Dwelling units and sleeping units in Groups R-1, R-2 and R-3.
4. Sleeping units of Group I, *R-2.1 and R-4 occupancies.*

4007.41009.1 Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one *means of egress* are required by Section 1006.2 or 1006.3 from any accessible space, each accessible portion of the space shall be served by ~~not less than two~~ accessible means of egress *in at least the same number as required by Section 4015.41006.2 or 4021.41006.3. In addition to the requirements of this chapter, means of egress, which provide access to, or egress from, buildings for persons with disabilities, shall also comply with the requirements of Chapter 11A or 11B as applicable.*

Exceptions:

1. Accessible means of egress are not required to be provided in existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1009.3, 1009.4 or 1009.5, *and Chapter 11A or 11B, as applicable.*
3. In assembly areas with ramped aisles or stepped aisles, one accessible means of egress is permitted where the common path of egress travel is accessible and meets the requirements in Section 1029.8, *and Chapter 11A or 11B, as applicable.*

4007.41009.4 Elevators. In order to be considered part of an accessible means of egress, an elevator shall comply with the emergency operation and signaling device requirements of ~~Section 2.27 of ASME A17.1~~ *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.* Standby power shall be provided in accordance with Chapter 27 and Section 3003. The elevator shall be accessed from an area of refuge complying with Section 1009.6.

Exceptions:

1. Areas of refuge are not required at the elevator in open parking garages.
2. Areas of refuge are not required in buildings and facilities equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Areas of refuge are not required at elevators not required to be located in a shaft in accordance with Section 712.
4. Areas of refuge are not required at elevators serving smoke-protected assembly seating areas complying with Section 1029.6.2.
5. Areas of refuge are not required for elevators accessed from a refuge area in conjunction with a horizontal exit.

4007.5 1009.5 Platform lifts. Platform lifts shall be permitted to serve as part of an accessible means of egress, where allowed as part of a required accessible route in ~~Section 1109.8 of the except for Item 40~~ *Chapter 11B.* Standby power for the platform lift shall be provided in accordance with Chapter 27.

4007.6.41009.6.3 Size. Each area of refuge shall be sized to accommodate ~~one two~~ wheelchair space *of that are not less than 30 inches by 48 inches (762 mm by 1219 mm). The total number of such 30-inch by 48-inch (762 mm by 1219 mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of refuge. for each 200 occupants or portion thereof, based on the occupant load of the area of refuge and areas served by the area of refuge.* Such wheelchair spaces shall not reduce the means of egress minimum width or

required capacity. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space.

Exception: *The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48 inches (762 mm by 1219 mm) on floors where the occupant load is less than 200.*

~~4007.8.4~~**1009.8.1 System requirements** – Two-way communication systems shall provide communication between each required location and the fire command center or and a central control point location approved by the fire department. Where the central control point is not a constantly attended location, a two-way communication system shall have a timed automatic telephone dial-out capability to an approved monitoring location or 9-1-1. The two-way communication system shall include both audible and visible signals.

~~4007.8.2~~**1009.8.2 Directions** – Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system. Signage shall comply with the ICC A117.1 Chapter 11A, Section 1143A requirements for visual characters..

~~4007.12~~**1009.12 Alarms/emergency warning systems/accessibility.** *If emergency warning systems are required, they shall activate a means of warning the hearing impaired. Emergency warning systems as part of the fire-alarm system shall be designed and installed in accordance with NFPA 72 as amended in Chapter 35.*

~~4008.1.4.4~~**1010.1.1.1 Projections into clear width.** There shall not be projections into the required clear width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

Exceptions:

1. Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.
2. *In a Group I-2 or I-2.1 occupancy, there shall be no projections into the clear width of doors used for the movement of beds and litter patients in the means of egress.*

[Editorial Note: Relocate existing amendments from Section 1010.1.2 to 1010.1.2.1 due to section split.]

1010.1.2.1 Direction of swing. Pivot or side-hinged swinging doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy. For Group L occupancies, see Section 453.6.2.

In a Group I-2 occupancy, all required exterior egress doors shall open in the direction of egress regardless of the occupant load served.

~~4008.1.4.4.1~~**1010.1.4.4.1 Special provisions school classrooms.** *School classrooms constructed after January 1, 1990, not equipped with automatic sprinkler systems, which have metal grilles or bars on all their windows and do not have at least two exit doors within 3 feet (914 mm) of each end of the classroom opening to the exterior of the building or to a common hallway used for evacuation purposes, shall have an inside release for the grilles or bars on at least one window farthest from the exit doors. The window or windows with the inside release shall be clearly marked as emergency exits.*

~~4008.1.9.4~~**1010.1.9.1 Hardware.** Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11A or 11B shall not require tight grasping, tight pinching or twisting of the wrist to operate.

These design requirements for door handles, pulls, latches, locks and other operating devices, intended for use on required means of egress doors in other than Group R and M occupancies with an occupant load of 10 or less, shall comply with SFM Standard 12-10-2, Section 12-10-202 contained in the CCR, Title 24, Part 12, California Referenced Standards Code.

~~4010.1.9.6~~**Controlled egress doors in Groups I-1 and I-2.** ~~Electric locking systems, including electromechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system~~

installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:

1. The door locks shall unlock on actuation of the automatic sprinkler system or automatic fire detection system.
2. The door locks shall unlock on loss of power controlling the lock or lock mechanism.
3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.
4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress locking system before entering an exit.
5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
6. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.
7. Emergency lighting shall be provided at the door.
8. The door locking system units shall be listed in accordance with UL 294.

Exceptions:

1. Items 1 through 4 shall not apply to doors to areas occupied by persons who, because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area.
2. Items 1 through 4 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

Reserved

1010.1.9.10 Locking arrangements in correctional facilities. In occupancies in Groups A-2, A-3, A-4, B, E, F, I-2, I-3, M and S within correctional and detention facilities, doors in means of egress serving rooms or spaces occupied by persons whose movements are controlled for security reasons shall be permitted to be locked where equipped with egress control devices that shall unlock manually and by not less than one of the following means:

1. Activation of an automatic sprinkler system installed in accordance with Section 903.3.1.1.
2. Activation of an approved manual fire alarm box.
3. A signal from a constantly attended location.

Reserved.

1008.1.9.12 1010.1.9.12 Access-controlled elevator lobby egress doors in high-rise office buildings. For elevator lobbies in high-rise office buildings where the occupants of the floor are not required to travel through the elevator lobby to reach an exit, when approved by the fire chief, the doors separating the elevator lobby from the adjacent occupied tenant space that also serve as the entrance doors to the tenant space shall be permitted to be equipped with an approved entrance and egress access control provided all of the following requirements are met:

1. The building is provided throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. A smoke detector is installed on the ceiling on the tenant side of the elevator lobby doors along the center line of the door opening, not less than 1 foot and not more than 5 feet from the door opening, and is connected to the fire alarm system.
3. A remote master switch capable of unlocking the elevator lobby doors shall be provided in the fire command center for use by the fire department.
4. Locks for the elevator lobby shall be U.L. and California State Fire Marshal listed fail-safe type locking mechanisms. The locking device shall automatically release on activation of any fire alarm device on the floor of alarm (waterflow, smoke detector, manual pull stations, etc.). All locking devices shall unlock, but not unlatch, upon activation.
5. A two-way voice communication system, utilizing dedicated lines, shall be provided from each locked elevator lobby to the 24-hour staffed location on site, annunciated as to location. Operating instructions shall be posted above each two-way communication device.

Exception: When approved by the fire chief, two-way voice communication system to an off-site facility may be permitted where means to remotely unlock the access controlled doors from the off-site facility are provided.

6. An approved momentary mushroom-shaped palm button connected to the doors and installed adjacent to each locked elevator lobby door shall be provided to release the door locks when operated by an individual in the elevator lobby. The locks shall be reset manually at the door. Mount palm button so that the center line is 48 inches above the finished floor.

Provide a sign stating:

"IN CASE OF EMERGENCY, PUSH PALM BUTTON,
DOOR WILL UNLOCK AND
SECURITY ALARM WILL SOUND."

The sign lettering shall be 3/4-inch high letters by 1/8-inch width stroke on a contrasting background.

7. Loss of power to that part of the access control system which locks the doors shall automatically unlock the doors.

1008.1.4-1010.1.11 Group E lockable doors from the inside. New buildings that are included in public schools (kindergarten through 12th grade) state funded projects and receiving state funding pursuant to Leroy F. Green, School Facilities Act of 1998, California Education Code Sections 17070.10 through 17079, and that are submitted to the Division of the State Architect for plan review after July 1, 2011 in accordance with Education Code 17075.50, shall include locks that allow doors to classrooms and any room with an occupancy of five or more persons to be locked from the inside. The locks shall conform to the specification and requirements found in Section ~~1008.1.9~~ **1010.1.9**.

Exceptions:

1. Doors that are locked from the outside at all times such as, but not limited to, janitor's closet, electrical room, storage room, boiler room, elevator equipment room, and pupil restroom.
2. Reconstruction projects that utilize original plans in accordance with California Administrative Code, Section 4-314.
3. Existing relocatable buildings that are relocated within same site in accordance with California Administrative Code, Section 4-314.

1009.7.2-1011.5.2 Riser height and tread depth. Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

Exceptions:

1. Spiral stairways in accordance with Section 1011.10.
 2. Stairways connecting stepped aisles to cross aisles or concourses shall be permitted to use the riser/tread dimension in Section 1029.13.2.
 3. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7 3/4 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing projection not less than 3/4 inch (19.1 mm) but not more than 1 1/4 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
- ~~6.4. See Section 3404.1 California Fire Code Chapter 11 and California Existing Building Code 403.4 of the International Existing Building Code for the replacement of existing stairways. [DSA-AC] For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see Chapter 11B, Section 11B-202.~~
- ~~7.5. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).~~
- ~~8.6. [SFM] Stairways providing access to lifeguard towers not open to the public, not more than 250 square feet (23 m2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).~~

1009.8-1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall be not less than the width of stairways served. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exceptions:

1. Where stairways connect stepped aisles to cross aisles or concourses, stairway landings are not required at the transition between stairways and stepped aisles constructed in accordance with Section 1029.
2. *[SFM] In Group R-3 occupancies a floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs.*

1009.451011.11 Handrails. Stairways shall have handrails on each side and shall comply with Section 1014. Where glass is used to provide the handrail, the handrail shall comply with Section 2407.

Exceptions:

1. Stairways within dwelling units and spiral stairways are permitted to have a handrail on one side only.
2. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
- 4.3. *[SFM] In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails a continuous run of treads or flight of stairs with less than four risers does not require handrails.*
4. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

1044.41013.1 Where required. Exits and exit access doors shall be marked by an approved exit sign readily visible from any direction of egress travel. The path of egress travel to exits and within exits shall be marked by readily visible exit signs to clearly indicate the direction of egress travel in cases where the exit or the path of egress travel is not immediately visible to the occupants. Intervening means of egress doors within exits shall be marked by exit signs. Exit sign placement shall be such that no point in an exit access corridor or exit passageway is more than 100 feet (30 480 mm) or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign.

Exceptions:

1. Exit signs are not required in rooms or areas that require only one exit or exit access.
2. Main exterior exit doors or gates that are obviously and clearly identifiable as exits need not have exit signs where approved by the building official.
3. Exit signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2, ~~or R-3 or R-3.1.~~
4. Exit signs are not required *where inmates are housed, or held* in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.
5. In occupancies in Groups A-4 and A-5, exit signs are not required on the seating side of vomitories or openings into seating areas where exit signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.

1044.21013.2 Floor-level exit signs in Group R-1. ~~Where exit signs are required in Group R-1 occupancies by Section 1013.1, additional low-level exit signs shall be provided in all areas serving guest rooms in Group R-1 occupancies and shall comply with Section 1013.5.~~

~~The bottom of the sign shall be not less than 10 inches (254 mm) nor more than 12 inches (305 mm) above the floor level. The sign shall be flush mounted to the door or wall. Where mounted on the wall, the edge of the sign shall be within 4 inches (102 mm) of the door frame on the latch side. See Section 1011.7 1013.7~~

1044.41013.4 Raised character and braille exit signs. ~~A sign stating EXIT in visual characters, raised characters and Braille and complying with ICC A117.1 shall be provided adjacent to each door to an area of refuge, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway and the exit discharge. Tactile exit signs shall be required at the following locations:~~

1. *Each grade-level exterior exit door that is required to comply with Section 1044.41013.1, shall be identified by a tactile exit sign with the word, "EXIT."*
2. *Each exit door that is required to comply with Section 1044.41013.1, and that leads directly to a grade-level exterior exit by means of a stairway or ramp shall be identified by a tactile exit sign with the following words as appropriate:*

2.1. "EXIT STAIR DOWN"

2.2. "EXIT RAMP DOWN"

2.3. "EXIT STAIR UP"

2.4. "EXIT RAMP UP"

3. Each exit door that is required to comply with Section ~~4011.4~~**1013.1**, and that leads directly to a grade-level exterior exit by means of an exit enclosure or an exit passageway shall be identified by a tactile exit sign with the words, "EXIT ROUTE."

4. Each exit access door from an interior room or area to a corridor or hallway that is required to comply with Section ~~4011.4~~**1013.1**, shall be identified by a tactile exit sign with the words "EXIT ROUTE."

5. Each exit door through a horizontal exit that is required to comply with Section ~~4011.4~~**1013.1**, shall be identified by a sign with the words, "TO EXIT."

Raised character and Braille exit signs shall comply with Chapter 11B.

~~4011.7~~1013.7 Floor-level exit signs. Where exit signs are required by Chapter 10, additional approved low-level exit signs which are internally or externally illuminated photoluminescent or self-luminous, shall be provided in all interior corridors of Group A, E, I and R-2.1 occupancies and in all areas serving guest rooms of hotels in Group R, Division 1 occupancies.

Exceptions:

1. Group A occupancies that are protected throughout by an approved supervised fire sprinkler system.
2. Group E Occupancies where direct exits have been provided from each classroom.
3. Group I and R-2.1 occupancies which are provided with smoke barriers constructed in accordance with Section 407.5.
4. Group I-3 occupancies.

The bottom of the sign shall not be less than 6 inches (152 mm) or more than 8 inches (203 mm) above the floor level and shall indicate the path of exit travel. For exit and exit-access doors, the sign shall be on the door or adjacent to the door with the closest edge of the sign or marker within 4 inches (102 mm) of the door frame.

Note: Pursuant to Health and Safety Code Section 13143, this California amendment applies to all newly constructed buildings or structures subject to this section for which a building permit is issued (or construction commenced, where no building permit is issued) on or after January 1, 1989.

~~4011.8~~1013.8 Path marking. When exit signs are required by Chapter 10, in addition to approved floor-level exit signs, approved path marking shall be installed at floor level or no higher than 8 inches (203 mm) above the floor level in all interior rated exit corridors of unsprinklered Group A, R-1 and R-2 occupancies.

Such marking shall be continuous except as interrupted by door-ways, corridors or other such architectural features in order to provide a visible delineation along the path of travel.

Note: Pursuant to Health and Safety Code Section 13143, the California amendments of this section shall apply to all newly constructed buildings or structures subject to this section for which a building permit is issued (or construction commenced, where no building permit is issued) on or after January 1, 1989.

~~4012.8~~1014.8 Projections. On ramps and on ramped aisles that are part of an accessible route, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of aisles, stairways and ramps at each side shall not exceed 4 1/2 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1011.3. Projections due to intermediate handrails shall not constitute a reduction in the egress width. Where a pair of intermediate handrails are provided within the stairway width without a walking surface between the pair of intermediate handrails and the distance between the pair of intermediate handrails is greater than 6 inches (152 mm), the available egress width shall be reduced by the distance between the closest edges of each such intermediate pair of handrails that is greater than 6 inches (152 mm).

In Group I-2 occupancy ramps required for exit access shall not be less than 8 ft in width and handrails are permitted to protrude 31/2 inches from the wall on both sides. Ramps used as exits and stairways used for the movement of bed and litter patients, the clear width between handrails shall be 44 inches (1118 mm) minimum.

[Editorial Note: Remove 2013 CBC amendments to Table 1015.1. It has merged with another table and created 1006.2.1.]

TABLE 1015.1

SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD
A, B, E, F, M, U	49
H 1, H 2, H 3	3
H 4, H 5, I 1/ 2, I 3, I 4, R	40
S	29
L	See Section 443.6.1

a. For holding cells, see 408.3.11.

[Editorial Note: Remove 2013 CBC amendments to 1015.2 and 1015.2.2. 2015 IBC now addresses. See 1007.]

~~1015.2 Exit access doorways, contributing to the total number of exits or exit access doorways required by Sections 1015.1 and 1015.1.1, shall lead to separate exits.~~

~~1015.2.2. Additional required exit or exit access doorways shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.~~

[Editorial Note: Remove 2013 CBC amendments to 1016.2.2. CA Amendments matches new model code language located at 1017.2.2.]

~~1016.2.2 Group F-1 and S-1 increase. The maximum exit access travel distance shall be 400 feet (122 m) in Group F-1 or S-1 occupancies where all of the following are met:~~

- ~~1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height;~~
- ~~2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315 mm); and~~
- ~~3. The building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1.~~

~~4043.3~~**1015.3 Height.** Required guards shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On stairways and stepped aisles, from the line connecting the leading edges of the tread nosings.
3. On ramps and ramped aisles, from the ramp surface at the guard.

Exceptions:

~~1. For occupancies in Group R-3 not more than three stories above grade in height and within individual dwelling units in occupancies in Group R-2 not more than three stories above grade in height with separate means of egress, required guards shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or adjacent fixed seating.~~

~~2.1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.~~

~~3.2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.~~

~~4.3. The guard height in assembly seating areas shall comply with Section 1029.16.~~

~~5.4. Along alternating tread devices and ships ladders, guards where the top rail also serves as a handrail, shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread nosing.~~

~~4043.4~~**1015.4 Opening limitations.** Required guards shall not have openings that allow passage of a sphere 4 inches (102 mm) in diameter from the walking surface to the required guard height.

Exceptions:

1. From a height of 36 inches (914 mm) to 42 inches (1067 mm), guards shall not have openings that allow passage of a sphere 43/8 inches (111 mm) in diameter.
2. The triangular openings at the open sides of a stair, formed by the riser, tread and bottom rail shall not allow passage of a sphere 6 inches (152 mm) in diameter.
3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall not have openings that allow passage of a sphere 21 inches (533 mm) in diameter.
4. In areas that are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices and ships ladders, guards shall not have openings that allow passage of a sphere 21 inches (533 mm) in diameter.
5. In assembly seating areas, guards at the end of aisles in accordance with Section 1029.16.4 shall not have openings that allow passage of a sphere 4 inches (102 mm) in diameter up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, guards shall not have openings that allow passage of a sphere 8 inches (203 mm) in diameter.
6. Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, guards on the open sides of stairs shall not have openings that allow passage of a sphere 43/8 (111 mm) inches in diameter.
7. *In lifeguard towers not open to the public, guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.*

~~404.2.2~~**1016.2.2** *Basement exits in Group I-2 occupancies. For additional requirements for occupancies in Group I-2 or I-2.1, see Sections 407.*

TABLE ~~404.2.2~~1017.2****
EXIT ACCESS TRAVEL DISTANCE^a

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200 ^e	250 ^b
I-1 R-2.1	Not Permitted	250 ^{bc}
B	200	300 ^c
F-2, S-2, U	300	400 ^c
H-1	Not Permitted	75 ^d
H-2	Not Permitted	100 ^d
H-3	Not Permitted	150 ^d
H-4	Not Permitted	175 ^d
H-5	Not Permitted	200 ^d
I-2, I-2.1 , I-3 ^{eff} , I-4	Not Permitted	200 ^c
L	Not Permitted	200 ^c

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to exit access travel distance requirements:

- Section 402.8: For the distance limitation in malls.
- Section 404.9: For the distance limitation through an atrium space.
- Section 407.4: For the distance limitation in Group I-2 or I-2.1.
- Section 408.3.10: *For increased limitation in Group I-3.*
- Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
- Section 411.4: For the distance limitation in special amusement buildings.
- Section 412.7: For the distance limitations in aircraft manufacturing facilities.
- Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
- Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
- Section 1006.3.2: For buildings with one exit.
- ~~Section 1016.2.2: For increased limitation in Groups F-1 and S-1.~~
- Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
- Section 1029.7: For increased limitation in assembly seating.
- Section 3103.4: For temporary structures.
- Section 3104.9: For pedestrian walkways.

- b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1
- d. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.
- e. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.
- d.f. Not permitted in nonsprinklered Group I-3 Occupancies.

1019.3 Occupancies other than Groups I-2, I-2.1, and I-3, and R-2.1. In other than Group I-2, I-2.1, and I-3, and R-2.1 occupancies, floor openings containing exit access stairways or ramps that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. Exit access stairways and ramps that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2, R-2.1, or R-3 or R-3.1 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
3. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. Exit access stairways and ramps within an atrium complying with the provisions of Section 404.
6. Exit access stairways and ramps in open parking garages that serve only the parking garage.
7. Exit access stairways and ramps serving open-air seating complying with the exit access travel distance requirements of Section 1029.7.
8. Exit access stairways and ramps serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.
9. Fixed guideway transit stations, constructed in accordance with Section 443.

1019.4 Group I-2, I-2.1, and I-3, and R-2.1 occupancies. In Group I-2, I-2.1, and I-3, and R-2.1 occupancies, floor openings between stories containing exit access stairways or ramps are required to be enclosed with a shaft enclosure constructed in accordance with Section 713.

Exception: In Group I-3 occupancies, exit access stairways or ramps constructed in accordance with Section 408 are not required to be enclosed.

TABLE 4018.4 1020.1
CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system ^c
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5, L	Greater than 30	Not Permitted	1
A ^d , B, F, M, S, U	Greater than 30	1	0
R-1, R-2, R-3, R-3.1, R-4	Greater than 10	Not Permitted ^{1d}	0.51
I-2 ^a , I-2.1, I-4	All Greater than 6	Not Permitted	1
I-1, I-3, R-2.1	All Greater than 6	Not Permitted	1 ^b
E	Greater than 10	1	1

- a. For requirements for occupancies in Group I-2 and I-2.1, see Sections 407.2 and 407.3.
- b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Sections 408.1.2 and 408.8.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for

occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

f. [SFM] See Section 40281029.

TABLE 4048.21020.2
MINIMUM CORRIDOR WIDTH

OCCUPANCY	WIDTH (minimum)
Any facilities not listed below	44 inches
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24 inches
With an occupant load of less than 50	36 inches
Within a dwelling unit	36 inches
In Group E with a corridor having an occupant load of 100 or more	72 inches
In corridors and areas serving stretcher traffic in ambulatory care facilities	72 inches
Group I-2 in areas where required for bed movement	96 inches
<i>Corridors in Group I-2 and I-3 occupancies serving any area caring for one or more nonambulatory persons.</i>	96 inches

For SI: 1 inch = 25.4 mm.

4048.41020.4 Dead ends. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet (6096 mm) in length.

Exceptions:

1. In occupancies in Group I-3 of Condition 2, 3 or 4, the dead end in a corridor shall not exceed 50 feet (15 240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, R-2.1, R-4, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet (15 240 mm).
3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.

4048.51020.5 Air movement in corridors. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

Exceptions:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, ~~smoking lounges~~ and janitor closets, shall be permitted, provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of 1,000 square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.
4. Incidental air movement from pressurized rooms within health care facilities, provided that the corridor is not the primary source of supply or return to the room.
5. *For health care facilities under the jurisdiction of the Office of Statewide Health Planning and Development (OSHPD), see the California Mechanical Code.*

4048.5.11020.5.1 Corridor ceiling. Use of the space between the corridor ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:

1. The corridor is not required to be of fire-resistance-rated construction.
2. The corridor is separated from the plenum by fire-resistance-rated construction.

3. The air-handling system serving the corridor is shut down upon activation of the air-handling unit smoke detectors required by the *International California Mechanical Code*.
4. The air-handling system serving the corridor is shut down upon detection of sprinkler water flow where the building is equipped throughout with an automatic sprinkler system.
5. The space between the corridor ceiling and the floor or roof structure above the corridor is used as a component of an approved engineered smoke control system.

1018-61020.6 Corridor continuity. Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms. Where the path of egress travel within a fire-resistance-rated corridor to the exit includes travel along unenclosed exit access stairways or ramps, the fire resistance-rating shall be continuous for the length of the stairway or ramp and for the length of the connecting corridor on the adjacent floor leading to the exit.

Exceptions:

1. Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.
2. Enclosed elevator lobbies as permitted by Item 1 of Section 1016.2 shall not be construed as intervening rooms.
- 2.3. [SFM] In fully sprinklered office buildings, corridors may lead through enclosed elevator lobbies if all areas of the building have access to at least one required exit without passing through the elevator lobby.

[Editorial Note: Remove 2013 CBC amendments to 1021.1. CA Amendments relocated to 1006.3 or covered with model code language in 1006.3.1.]

1021.1 General. ~~Each story and occupied roof shall have the minimum number of independent exits, or access to exits, as specified in this section Table 1021.1. A single exit or access to a single exit shall be permitted in accordance with Section 1021.2. The required number of exits, or exit access stairways or ramps providing access to exits, from any story shall be maintained until arrival at grade or a public way. Exits or access to exits from any story shall be configured in accordance with this section. Each story above the second story of a building shall have a minimum of one interior or exterior exit stairway, or interior or exterior exit ramp. At each story above the second story that requires a minimum of three or more exits, or access to exits, a minimum of 50 percent of the required exits shall be interior or exterior exit stairways, or interior or exterior exit ramps.~~

Exceptions:

1. Interior exit stairways and interior exit ramps are not required in open parking garages where the means of egress serves only the open parking garage.
2. Interior exit stairways and interior exit ramps are not required in outdoor facilities where all portions of the means of egress are essentially open to the outside.

[Editorial Note: Remove existing amendments to Table 1021.1. Model code Table has been removed and relocated and amendment no longer applies.]

TABLE 1021.1
MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY

<i>Occupant Load per Story</i>	<i>Minimum Number of Exits or Access to Exits From Story</i>
<i>1-500</i>	<i>2</i>
<i>501-1,000</i>	<i>3</i>
<i>More than 1,000</i>	<i>4</i>

[Editorial Note: Remove 2013 CBC amendments to 1021.2. CA Amendments relocate to more appropriate section. See 1006.3.2.]

1021.2 Single exits from stories. ~~A single exit or access to a single exit shall be permitted~~ Two exits, or exit access stairways or ramps providing access to exits, from any story or occupied roof, shall be provided where one of the following conditions exists:

1. The occupant load, or number of dwelling units ~~and exit access travel distance does not exceed one of the values in Table 1021.2(1) or 1021.2(2).~~

~~2. The exit access travel distance exceeds that specified in Table 1021.2(1) or 1021.2(2) as determined in accordance with the provisions of Section 1016.1.~~

~~3. Helistop landing areas located on buildings or structures shall be provided with two exits, or exit access stairways or ramps providing access to exits, s one of the values in Table 1021.2(1) or 1021.2(2).~~

Exceptions:

~~12. Rooms, areas and spaces complying with Section 1015.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.~~

~~23. Group R-3 occupancy buildings shall be permitted to have one exit where each individual story complies with Table 1021.2(1).~~

~~34. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.~~

~~4. Air traffic control towers shall be provided with the minimum number of exits specified in Section 412.3.~~

~~5. Individual dwelling units in compliance with Section 1021.2.3.~~

~~65. Group R-3 and R-4 congregate residences shall be permitted to have one exit where each individual story complies with Table 1021.2(1) or 1021.2(2).~~

[Editorial Note: Remove section 1021.2.2. Model code was also removed from the 2012 IBC (section 1021.2.2)]

~~1021.2.2 Exits from specific space.~~ ~~Exits serving specific spaces or areas need not be accessed by the remainder of the story when all of the following are met:~~

~~1. The number of exits from the entire story complies with Section 1021.4.1 1021.1;~~

~~2. The access to exits from each individual space in the story complies with Section 1015.1; and~~

~~3. All spaces within each portion of a story shall have access to the minimum number of approved independent exits based on the occupant load of that portion of the story but not less than two exits.~~

~~1022.21023.2 Construction.~~ Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Interior exit stairways and ramps shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.

Exceptions:

1. Interior exit stairways and ramps in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.

2. Interior exit stairways within an atrium enclosed in accordance with Section 404.6.

~~2.3. Fixed guideway transit stations, constructed in accordance with Section 433443.~~

~~1022.91023.9 Stairway identification signs.~~ A sign shall be provided at each floor landing in an interior exit stairway and ramp connecting more than three stories designating the floor level, the terminus of the top and bottom of the interior exit stairway and ramp and the identification of the stairway or ramp. The signage shall also state the story of, and the direction to, the exit discharge and the availability of roof access from the interior exit stairway and ramp for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. ~~In addition to the stairway identification sign, a floor level sign in raised characters and braille complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the interior exit stairway and ramp into the corridor to identify the floor level.~~

In addition to the stairway identification sign, raised characters and braille floor identification signs that comply with Chapter 11B shall be located at the landing of each floor level, placed adjacent to the door on the latch side, in all enclosed stairways in buildings two or more stories in height to identify the floor level. At the exit discharge level, the sign shall include a raised five pointed star located to the left of the identifying floor level. The outside diameter of the star shall be the same as the height of the raised characters.

~~1022.9.11023.9.1 Signage requirements.~~ Stairway identification signs shall comply with all of the following requirements:

1. The signs shall be a minimum size of 18 inches (457 mm) by 12 inches (305 mm).

2. The letters designating the identification of the interior exit stairway and ramp, *such as STAIR NO. 1 or WEST STAIR, shall be placed at the top of the sign and shall be not less than 1 1/2 inches (38 mm) in height block lettering with 1/4-inch (6 mm) strokes.*

3. The number designating the floor level shall be not less than 5 inches (127 mm) in height with 3/4-inch (19 mm) strokes and located in the center of the sign. The mezzanine levels shall have the letter "M" preceding the floor level. Basement levels shall have the letter "B" preceding the floor number.

4. Other lettering and numbers shall be not less than 1 inch (25 mm) in height.

5. The stairway's upper terminus, such as ROOF ACCESS or NO ROOF ACCESS, shall be placed under the stairway identification in 1-inch-high (25 mm) block lettering with 1/4-inch (6 mm) strokes.

6. The lower and upper terminus of the stairway shall be placed at the bottom of the sign in 1-inch-high (25 mm) block lettering with 1/4-inch (6 mm) strokes.

5.7. Characters and their background shall have a nonglare finish. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.

6.8. Where signs required by Section 1023.9 are installed in the interior exit stairways and ramps of buildings subject to Section 1025, the signs shall be made of the same materials as required by Section 1025.4.

[Editorial Note: 2013 CBC amendments no longer necessary for Section 1023.11.]

~~4022.40~~**1023.11 Smokeproof enclosures.** Where required by Section 403.5.4 or 405.7.2, interior exit stairways and ramps shall be smokeproof enclosures in accordance with Section 909.20.

[Editorial Note: 2013 CBC amendments no longer necessary for Section 1023.11.1.]

~~4022.40.4~~**1023.11.1 Termination and extension.** A smokeproof enclosure shall terminate at an exit discharge or a public way. The smokeproof enclosure shall be permitted to be extended by an exit passageway in accordance with Section 1023.3. The exit passageway shall be without openings other than the fire door assembly required by Section 1023.3.1 and those necessary for egress from the exit passageway. The exit passageway shall be separated from the remainder of the building by 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

Exceptions:

1. Openings in the exit passageway serving a smokeproof enclosure are permitted where the exit passageway is protected and pressurized in the same manner as the smokeproof enclosure, and openings are protected as required for access from other floors.

2. The fire barrier separating the smokeproof enclosure ~~or pressurized stairway~~ from the exit passageway is not required, provided the exit passageway is protected and pressurized in the same manner as the smokeproof enclosure.

3. A smokeproof enclosure shall be permitted to egress through areas on the level of discharge or vestibules as permitted by Section 1027.

~~4022.40.2~~**1023.11.2 Enclosure access.** Access to the stairway or ramp within a smokeproof enclosure shall be by way of a vestibule or an open exterior balcony.

Exception: Access is not required by way of a vestibule or exterior balcony for stairways and ramps using the pressurization alternative complying with Section 909.20.5.

~~4023.2~~**1024.2 Width.** The required capacity of exit passageways shall be determined as specified in Section 1005.1 but the minimum width shall be not less than 44 inches (1118 mm), except that exit passageways serving an occupant load of less than 50 shall be not less than 36 inches (914 mm) in width. The minimum width or required capacity of exit passageways shall be unobstructed.

Exception: Encroachments complying with Section 1005.7

The clear width of exit passageways in a Group I-2 occupancy used for the movement of beds and litters shall be 44-inch (1118) minimum.

[Editorial Note: 2013 CBC amendments for Section 1026.4 relocated to 1026.4.2]

~~4025.4~~**1026.4 Refuge area.** The refuge area of a horizontal exit shall be a space occupied by the same tenant or a public area and each such refuge area shall be adequate to accommodate the original occupant load of the refuge area plus the occupant load anticipated from the adjoining compartment. The anticipated occupant load from the adjoining compartment shall be based on the capacity of the horizontal exit doors entering the refuge area.

~~4027.4~~**1028.1 General.** Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide a direct path of egress travel ~~path of egress travel~~ to grade. The exit discharge shall not

reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and capacity of the required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of interior exit stairways and ramps is permitted to egress through areas on the level of discharge provided all of the following conditions are met:

1.1. Discharge of interior exit stairways and ramps shall be provided with a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the enclosure.

1.2. The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for the enclosure.

1.3. The egress path from the interior exit stairway and ramp on the level of exit discharge is protected throughout by an approved automatic sprinkler system. Portions of the level of exit discharge with access to the egress path shall be either equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of interior exit stairways or ramps.

1.4. Where a required interior exit stairway or ramp and an exit access stairway or ramp serve the same floor level and terminate at the same level of exit discharge, the termination of the exit access stairway or ramp and the exit discharge door of the interior exit stairway or ramp shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the interior exit stairway or ramp and the last tread of the exit access stairway or termination of slope of the exit access ramp.

2. Not more than 50 percent of the number and minimum width or required capacity of the interior exit stairways and ramps is permitted to egress through a vestibule provided all of the following conditions are met:

2.1. The entire area of the vestibule is separated from areas below by construction conforming to the fire-resistance rating of the interior exit stairway or ramp enclosure.

2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).

2.3. The area is separated from the remainder of the level of exit discharge by a fire partition constructed in accordance with Section 708.

Exception: The maximum transmitted temperature rise is not required.

2.4. The area is used only for means of egress and exits directly to the outside.

3. Horizontal exits complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

~~1027.5~~**1028.5 Access to a public way.** The exit discharge shall provide a direct and unobstructed access to a public way.

Exception: Where access to a public way cannot be provided, a safe dispersal area shall be provided where all of the following are met:

1. The area shall be of a size to accommodate not less than 5 square feet (0.46 m²) for each person.

2. *For other than Group E buildings, the area shall be located on the same lot not less than 50 feet (15 240 mm) away from the building requiring egress. For Group E buildings, the area shall be located on the same lot at least 50 feet (15 240 mm) away from any building.*

3. The area shall be permanently maintained and identified as a safe dispersal area.

4. The area shall be provided with a safe and unobstructed path of travel from the building.

1029.1 General. A room or space used for assembly purposes that contains seats, tables, displays, equipment or other material shall comply with this section.

Exception: *Group A occupancies within Group I-3 facilities are exempt from egress requirements of 1028.*

~~1028.2~~**1029.2 Assembly main exit.** A building, room or space used for assembly purposes that has an occupant load of greater than 300 and is provided with a main exit, that main exit shall be of sufficient capacity to

accommodate not less than one half of the occupant load, but such capacity shall be not less than the total required capacity of all means of egress leading to the exit. Where the building is classified as a Group A occupancy, the main exit shall front on not less than one street or an unoccupied space of not less than ~~10 feet (3048 mm)~~ 20 feet (6096 mm) in width that adjoins a street or public way. In a building, room or space used for assembly purposes where there is not a well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total capacity of egress is not less than 100 percent of the required capacity and ~~at least~~ not less than one exit shall discharge on a street or an unoccupied space of not less than 20 feet (6096 mm) in ~~width~~ capacity that adjoins a street or publicway. Smoke-protected seating shall comply with Section ~~4028.6.2~~ 1029.6.2.

~~4028.3~~ 1029.3 Assembly other exits. In addition to having access to a main exit, each level in a building used for assembly purposes having an occupant load greater than 300 and provided with a main exit, shall be provided with additional means of egress that shall provide an egress capacity for not less than one-half of the total occupant load served by that level and shall comply with Section 1007.1. ~~At least~~ Not less than one-half of the additional means of egress required by this section shall be directly to an exit, or through a lobby, that is not used to access the main exit, to an exit, or to a one hour rated corridor to an exit. In a building used for assembly purposes where there is not a well-defined main exit or where multiple main exits are provided, exits for each level shall be permitted to be distributed around the perimeter of the building, provided that the total width of egress is not less than 100 percent of the required width and ~~at least~~ not less than one exit shall discharge on a street or an unoccupied space of not less than 20 feet (6096 mm) in ~~width~~ capacity that adjoins a street or publicway. Smoke-protected seating shall comply with Section ~~4028.6.2~~ 1029.6.2.

~~4028.3.4~~ 1029.3.1 Occupant loads 300 or less. Group A occupancies or assembly occupancies accessory to Group E occupancies that have an occupant load of 100 or more and 300 or less, shall have ~~at least~~ not less than one of the required means of egress directly to an exit, or through a lobby, that is not used to access the other required exit, to an exit, or to a one-hour rated corridor to an exit or continuous through a one-hour rated lobby to an exit. ~~At least~~ Not less than one exit shall discharge on a street or an unoccupied space of not less than 20 feet (6096 mm) in ~~width~~ capacity that adjoins a street or public way.

~~4028.6.4~~ 1029.6.4 Public address system. See section 907.2.1.3.

~~4028.9.4~~ 1029.9.1 Minimum aisle width. The minimum clear width for aisles shall comply with one of the following:

1. Forty-eight inches (1219 mm) for stepped aisles having seating on each side.

Exception: Thirty-six inches (914 mm) where the stepped aisles serve less than 50 seats.

2. Thirty-six inches (914 mm) for stepped aisles having seating on only one side.

Exception: Twenty-three inches (584 mm) between an aisle stair handrail and seating where a stepped aisle does not serve more than five rows on one side.

3. Twenty-three inches (584 mm) between a stepped aisle handrail or guard and seating where the stepped aisle is subdivided by a mid-aisle handrail.

4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.

Exceptions:

1. Thirty-six inches (914 mm) where the aisle serves less than 50 seats.

2. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.

5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.

Exception: For other than ramped aisles that serve as part of an accessible route, 30 inches (762 mm) where the ramped aisle does not serve more than 14 seats.

6. Libraries with open book stacks shall have main aisles not less than 44 inches (1118 mm) in width, and side, range and end aisles not less than 36 inches (914 mm) in width.

1029.11030.1 General. In addition to the means of egress required by this chapter, provisions shall be made for emergency escape and rescue openings in Group R-2 occupancies in accordance with ~~Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies.~~ Basements and sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.

Exceptions:

1. *In Groups R-1 and R-2 occupancies constructed of Type I, Type IIA, Type IIIA or Type IV construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1*

1-2. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue openings.

2-3. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, court or exterior exit balcony that opens to a public way.

3-4. Basements without habitable spaces and having not more than 200 square feet (18.6 m²) in floor area shall not be required to have emergency escape and rescue openings.

1029.11030.4 Operational constraints. Emergency escape and rescue openings *and any exit doors* shall be maintained free of any obstructions other than those allowed by this section and shall be operational from the inside of the room ~~without the use of keys or tools.~~ Bars, grilles, grates or similar devices are permitted to be placed over emergency escape and rescue openings provided the minimum net clear opening size complies with Section 1030.2 and such devices shall be releasable or removable from the inside without the use of a key, tool, *special knowledge or effort* or force greater than that which is required for normal operation of the emergency escape and rescue opening. Where such bars, grilles, grates or similar devices are installed *in existing buildings*, smoke alarms shall be installed in accordance with Section 907.2.11 regardless of the valuation of the alteration. *The release mechanism shall be maintained operable at all times.*

Such bars, grills, grates or any similar devices shall be equipped with an approved exterior release device for use by the fire department only when required by the authority having jurisdiction.

Where security bars (burglar bars) are installed on emergency egress and rescue windows or doors, on or after July 1, 2000, such devices shall comply with California Building Standards Code, Part 12, Chapter 12-3 and other applicable provisions of Part 2.

Exception: *Group R-1 occupancies provided with a monitored fire sprinkler system in accordance with Section 903.2.8 and designed in accordance with NFPA 13 may have openable windows permanently restricted to a maximum 4-inch (102 mm) open position.*

CHAPTER 11 ACCESSIBILITY

(Note: Chapter 11 will not be printed in the California Building Code.)

CHAPTER 12 INTERIOR ENVIRONMENT

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the ~~International~~ *California Mechanical Code*.

Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure 0.2 inch w.c. (50 Pa) in accordance with ~~Section 402.4.1.2 of the International~~ *California Energy Conservation Code- Residential Provisions*, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403 of the ~~International~~ *California Mechanical Code*. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the ~~International~~ *California Mechanical Code*.

1203.2.1 Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of not less than 1/16 inch (1.6 mm) and not more than 1/4 inch (6.4 mm) shall be permitted. Openings for ventilation having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least dimension of not less than 1/16 inch (1.6 mm) and not more than 1/4 inch (6.4 mm). Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *InternationalCalifornia Mechanical Code*.

1203.4.2 Exceptions. The following are exceptions to Sections 1203.4 and 1203.4.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. The total area of ventilation openings is permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with a Class I vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.
3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m²) of crawlspace floor area and the ground surface is covered with a Class I vapor retarder.
4. Ventilation openings are not required where the ground surface is covered with a Class I vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the *InternationalCalifornia Energy Conservation Code*.
5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.

1203.5.2 Contaminants exhausted. Contaminant sources in naturally ventilated spaces shall be removed in accordance with the *InternationalCalifornia Mechanical Code* and the *InternationalCalifornia Fire Code*.

1203.5.2.1 Bathrooms. Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the *InternationalCalifornia Mechanical Code*.

1203.6 Other ventilation and exhaust systems. Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *InternationalCalifornia Mechanical Code* or the *InternationalCalifornia Fire Code* shall be provided as required by both codes.

1205.4.1 Controls. The control for activation of the required stairway lighting shall be in accordance with the *NEPA 70California Electrical Code*.

1206.3.3 Court drainage. The bottom of every court shall be properly graded and drained to a public sewer or other approved disposal system complying with the *InternationalCalifornia Plumbing Code*.

1209.3 Mechanical appliances. Access to mechanical appliances installed in under-floor areas, in attic spaces and on roofs or elevated structures shall be in accordance with the *InternationalCalifornia Mechanical Code*.

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

1503.4 Roof drainage. Design and installation of roof drainage systems shall comply with Section 1503 of this code and Sections 1106 and 1108, as applicable, of the *InternationalCalifornia Plumbing Code*.

TABLE 1505.1^{a-b}
MINIMUM ROOF COVERING CLASSIFICATION
FOR TYPES OF CONSTRUCTION

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
B	B	B	C ⁻⁶	B	C ⁻⁶	B	B	C ⁻⁶

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929m².

- a. Unless otherwise required in accordance with *Chapter 7A, the International Wildland-Urban Interface Code* or due to the location of the building within a fire district in accordance with Appendix D.
- b. Nonclassified roof coverings shall be permitted on buildings of Group R-3 and Group U occupancies, where there is a minimum fire separation distance of 6 feet measured from the leading edge of the roof.
- c. Buildings that are not more than two stories above grade plan and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles construed in accordance with Section 1505.7.

1505.1.1 Roof coverings within very high fire hazard severity zones. The entire roof covering of every existing structure where more than 50 percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class A.

Exception: The requirements shall not apply in any jurisdiction that adopts the model ordinance approved by the State Fire Marshal pursuant to Section 51189 of the Government Code or an ordinance that substantially conforms to the model ordinance and transmits a copy to the State Fire Marshal.

1505.1.2 Roof coverings within state responsibility areas. The entire roof covering of every existing structure where more than 50 percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure shall be a fire-retardant roof covering that is at least Class B.

Exception: Areas designated as moderate fire hazard severity zones.

1505.1.3 Roof coverings within all other areas. The entire roof covering of every existing structure where more than 50 percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class C.

1505.1.4 Roofing requirements in a Wildland-Urban Interface Fire Area. Roofing requirements for structures located in a Wildland-Urban Interface Fire Area shall also comply with Section 705A.

1505.6 Fire-retardant-treated wood shakes and shingles. Fire-retardant-treated wood shakes and shingles shall be treated by impregnation with chemicals by the full-cell vacuum-pressure process, in accordance with AWPA C1. Each bundle shall be marked to identify the manufactured unit and the manufacturer, and shall also be labeled to identify the classification of the material in accordance with the testing required in Section 1505.1, the treating company and the quality control agency are wood shakes and shingles complying with UBC Standard 15-3 or 15-4 which are impregnated by the full-cell vacuum-pressure process with fire-retardant chemicals, and which have been qualified by UBC Standard 15-2 for use on Class A, B or C roofs.

Fire-retardant-treated wood shakes and shingles shall comply with ICC-ES EG107 and with the weathering requirements contained in Health and Safety Code Section 13132.7(j). Each bundle shall bear labels from an ICC accredited quality control agency identifying their roof-covering classification and indicating their compliance with ICC-ES EG107 and with the weathering requirements contained in Health and Safety Code Section 13132.7(j).

Health and Safety Code Section 13132.7(j). No wood roof covering materials shall be sold or applied in this state unless both of the following conditions are met:

- (1) The materials have been approved and listed by the State Fire Marshal as complying with the requirements of this section.
- (2) The materials have passed at least five years of the 10-year natural weathering test. The 10-year natural weathering test required by this subdivision shall be conducted in accordance with standard 15-2 of the 1994 edition of the Uniform Building Code at a testing facility recognized by the State Fire Marshal.

1512.1 Solar photovoltaic panels and modules. Photovoltaic panels and modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of this code (see Section 3111) and the *International California Fire Code*.

CHAPTER 21
MASONRY

2113.9.2 Spark arrestors. *[SFM] All chimneys attached to any appliance or fireplace that burns solid fuel shall be equipped with an approved spark ~~arrestor~~arrestor. Where a spark arrestor is installed on a masonry chimney the spark arrestor shall meet all of the following requirements:*

1. The net free area of the spark arrestor shall be not less than four times the net free area of the outlet of the chimney ~~flue it serves~~.
2. The spark arrestor screen shall have heat and corrosion resistance equivalent to 12 gage wire, 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter larger than 1/2 inch (12.7 mm) nor block the passage of spheres having a diameter less than 3/8 inch (9.5 mm).
- ~~1. The net free area of the spark arrestor shall not be less than four times the net free area of the outlet of the chimney.~~
- ~~2. The spark arrestor screen shall have heat and corrosion resistance equivalent to 12 gage wire, 19 gage galvanized wire or 24 gage stainless steel.~~
- ~~3. Openings shall not permit the passage of spheres having a diameter larger than 1/2 inch (12.7 mm) and shall not block the passage of spheres having a diameter of less than 3/8 inch (9.5 mm).~~
4. The spark arrestor shall be accessible for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

2113.11.1.2 Gas appliances. Flue lining systems for gas appliances shall be in accordance with the ~~International Fuel Gas~~California Mechanical Code.

2113.15 Flue area (appliance). Chimney flues shall not be smaller in area than the area of the connector from the appliance. Chimney flues connected to more than one appliance shall be not less than the area of the largest connector plus 50 percent of the areas of additional chimney connectors.

Exceptions:

1. Chimney flues serving oil-fired appliances sized in accordance with NFPA 31.
2. Chimney flues serving gas-fired appliances sized in accordance with the ~~International Fuel Gas~~California Mechanical Code.

CHAPTER 21A
MASONRY

2113A.9.2 Spark arrestors. *[SFM] All chimneys attached to any appliance or fireplace that burns solid fuel shall be equipped with an approved spark ~~arrestor~~arrestor. Where a spark arrestor is installed on a masonry chimney the spark arrestor shall meet all of the following requirements:*

1. The net free area of the spark arrestor shall be not less than four times the net free area of the outlet of the chimney ~~flue it serves~~.
2. The spark arrestor screen shall have heat and corrosion resistance equivalent to 12 gage wire, 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter larger than 1/2 inch (12.7 mm) nor block the passage of spheres having a diameter less than 3/8 inch (9.5 mm).
- ~~1. The net free area of the spark arrestor shall not be less than four times the net free area of the outlet of the chimney.~~
- ~~2. The spark arrestor screen shall have heat and corrosion resistance equivalent to 12 gage wire, 19 gage galvanized wire or 24 gage stainless steel.~~
- ~~3. Openings shall not permit the passage of spheres having a diameter larger than 1/2 inch (12.7 mm) and shall not block the passage of spheres having a diameter of less than 3/8 inch (9.5 mm).~~
4. The spark arrestor shall be accessible for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

CHAPTER 26 PLASTIC

2603.4.1.12 Interior signs. Foam plastic used for interior signs in *covered mall buildings* in accordance with Section 402.6.4 shall be permitted without a thermal barrier. Foam plastic signs that are not affixed to interior building surfaces shall comply with Chapter 8 of the *InternationalCalifornia Fire Code*.

CHAPTER 27 ELECTRICAL

2701.1 Scope. This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of the *NFPA-70California Electrical Code*.

2702.1 Installation. Emergency power systems and standby power systems required by this code shall comply with Sections 2702.1.1 through 2702.1.7. *InternationalCalifornia Fire Code*.

2702.1.2 Electrical. Emergency power systems and standby power systems required by this code or the *InternationalCalifornia Fire Code* shall be installed in accordance with the *InternationalCalifornia Fire Code*, *NFPA 70California Electrical Code*, NFPA 110 and NFPA 111.

2702.2.3 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems required in Section 915 and the *InternationalCalifornia Fire Code*. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

2702.2.8 Hazardous materials. Emergency or standby power shall be provided in occupancies with hazardous materials where required by the *InternationalCalifornia Fire Code*.

2702.2.9 High-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access. Emergency and standby power shall be provided in high-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access as required in section 403.4.88. .

2702.2.12 Membrane structures. Standby power shall be provided for auxiliary inflation systems in permanent membrane structures are required in Section 3102.8.2. Standby power shall be provided for a duration of not less than 4 hours. Auxiliary inflation systems in temporary air supported and air-inflated membrane structures shall be provided in accordance with Section 3103.10.4 of the *InternationalCalifornia Fire Code*.

2702.2.13 Pyrophoric materials. Emergency power shall be provided for occupancies with silane gas in accordance with the *InternationalCalifornia Fire Code*.

2702.2.17 Group L-Occupancy. Emergency power shall be provided in Group L occupancies in accordance with this chapter and Section 443.4.6.1453.4.6.1.

[Editorial Note: 2013 CBC amendments for Section 2702.2.11 and 2702.2.12 is being removed. These sections are no longer within the model code.]

~~**2702.2.11 Highly toxic and toxic materials.** Emergency power shall be provided for occupancies with highly toxic or toxic materials in accordance with the *InternationalCalifornia Fire Code*.~~

~~**2702.2.12 Organic peroxides.** Standby power shall be provided for occupancies with silane gas in accordance with the *InternationalCalifornia Fire Code*.~~

2702.4 Maintenance. Emergency and standby power systems shall be maintained and tested in accordance with the *InternationalCalifornia Fire Code*.

CHAPTER 28 MECHANICAL SYSTEMS

2801.1 Scope. Mechanical appliances, equipment and systems shall be constructed, installed and maintained in accordance with the *International/California Mechanical Code and the International Fuel Gas Code*. Masonry chimneys, fireplaces and barbecues shall comply with the *International/California Mechanical Code* and Chapter 21 of this code.

2802 Spark Arrestor. ~~arrestor~~. [SFM] All chimneys attached to any appliance or fireplace that burns solid fuel shall be equipped with an approved spark ~~arrestor~~, the spark arrestor shall meet all of the following requirements:

1. The net free area of the spark ~~arrestor~~ shall be not be less than four times the net free area of the outlet of the chimney.
2. The spark ~~arrestor~~ screen shall have heat and corrosion resistance equivalent to 12-gage wire, 19-gage steel galvanized wire or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter larger than 1/2 inch (12.7 mm) nor and shall not block the passage of spheres having a diameter of less than 3/8 inch (9.5 mm).
4. The spark arrestor shall be accessible for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

CHAPTER 30 ELEVATORS AND CONVEYING SYSTEMS

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1/CSA B44, ASME A17.7/CSA B44.7 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders*, ASME A90.1, ASME B20.1, ALI ALCTV, and ASCE 24 for construction in flood hazard areas established in Section 1612.3.

3001.4 Change in use. A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with ~~Section 8.7 of ASME A17.1/CSA B44~~ *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders*.

3001.5 Elevators utilized to transport hazardous materials. Elevators utilized to transport hazardous materials shall also comply with the *California Fire Code Section 2703.10.4*.

The following California sections replace the corresponding model code section for applications specified in section 1.11 for the Office of the State Fire Marshal.

3002.4a General Stretcher Requirements. All buildings and structures with one or more passenger service elevators shall be provided with not less than one medical emergency service elevator to all landings meeting the provisions of Section 3002.4a.

Exceptions:

1. Elevators in structures used only by maintenance and operating personnel.
2. Elevators in jails and penal institutions.
3. Elevators in buildings or structures where each landing is at ground level or is accessible at grade level or by a ramp.
4. Elevator(s) in two-story buildings or structures equipped with stairs of a configuration that will accommodate the carrying of the gurney or stretcher as permitted by the local jurisdictional authority.
5. Elevators in buildings or structures less than four stories in height for which the local jurisdictional authority has granted an exception in the form of a written document.

3002.4.1a Gurney size. The medical emergency service elevator shall accommodate the loading and transport of an ambulance gurney or stretcher [maximum size 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners] in the horizontal position.

3002.4.2a Hoistway doors. The hoistway landing openings shall be provided with power-operated doors.

3002.4.3a Elevator entrance openings and car size. The elevator car shall be of such a size and arrangement to accommodate a 24-inch by 84-inch (610 mm by 2134 mm) ambulance gurney or stretcher with not less than 5-inch (127 mm) radius corners, in the horizontal, open position, shall be provided with a minimum clear distance between

walls or between walls and door excluding return panels not less than 80 inches by 54 inches (2032 mm by 1372 mm), and a minimum distance from wall to return panel not less than 51 inches (1295 mm) with a 42-inch (1067 mm) side slide door.

Exception: The elevator car dimensions and/or the clear entrance opening dimensions may be altered where it can be demonstrated to the local jurisdictional authority's satisfaction that the proposed configuration will handle the designated gurney or stretcher with equivalent ease. Documentation from the local authority shall be provided to the Occupational Safety and Health Standards Board.

3002.4.4a Elevator recall. The elevator(s) designated the medical emergency elevator shall be equipped with a key switch to recall the elevator nonstop to the main floor. For the purpose of this section, elevators in compliance with Section 3003.2 shall be acceptable.

3002.4.5a Designation. Medical emergency elevators shall be identified by the international symbol (Star of Life) for emergency medical services.

3002.4.6a Symbol size. The symbol shall not be less than 3 inches (76 mm) in size.

3002.4.7a Symbol location. A symbol shall be permanently attached to each side of the hoistway door frame on the portion of the frame at right angles to the hallway or landing area. Each symbol shall be not less than 78 inches (1981 mm) and not more than 84 inches (2134 mm) above the floor level at the threshold.

3002.5 Emergency doors. ~~Where an elevator is installed in a single blind hoistway or on the outside of a building, there shall be installed in the blind portion of the hoistway or blank face of the building, an emergency door in accordance with ASME A17.1/CSA B44. Emergency doors in blind hoistways as described in ASME A17.1-2004, section 2.11.1.2, and access panels as described in ASME A17.1-2004, section 2.11.1.4, are prohibited in accordance with California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.~~

3002.9-3002.10 Photoelectric Tube Bypass Switch.

~~3002.9-1~~**3002.10.1** Elevators equipped with photoelectric tube devices which control the closing of automatic, power-operated car or hoistway doors, or both, shall have a switch in the car which, when actuated, will render the photoelectric tube device ineffective.

~~3002.9-2~~**3002.10.2** The switch shall be constant-pressure type, requiring not less than 10 pounds (44.5N) or more than 15 pounds (66.7 N) pressure to actuate.

~~3002.9-3~~**3002.10.3** The switch shall be located not less than 6 feet (1829 mm) or more than 6 feet 6 inches (1981 mm) above the car floor and shall be located in or adjacent to the operating panel.

~~3002.9-4~~**3002.10.4** The switch shall be clearly labeled TO BE USED IN CASE OF FIRE ONLY.

~~3002.9-5~~**3002.10.5** Switches shall be kept in working order or be removed when existing installations are arranged to comply with Section ~~3002.9-5~~**3002.10.5**, Exception 1 or 2.

Exceptions

1. Elevators installed and maintained in compliance with Section 3003.
2. Where alternate means acceptable to the fire authority having jurisdiction are provided that will ensure the doors can close under adverse smoke conditions.

3003.2 Fire-fighters' emergency operation. Elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1/CSA B44California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.

3003.2.1 Floor numbers. Elevator hoistways shall have a floor number not less than 4 inches (102 mm) in height, placed on the walls and/or doors of the hoistway at intervals such that a person in a stalled elevator, upon opening the car door, can determine the floor position.

3003.2.1.1 Fire signs. All automatic elevators shall have not less than one sign at each landing printed on a contrasting background in letters not less than 1/2 inch (12.7 mm) high to read: IN CASE OF FIRE USE STAIRWAY FOR EXIT. DO NOT USE ELEVATOR.

3003.2.1.2 Call and Car Operation Buttons. Automatic passenger elevators shall have call and car operation buttons within 60 inches (1524 mm) of the floor. Emergency telephones shall also be within 60 inches (1524 mm) of the floor.

3003.3 Standardized fire service elevator keys. All elevators shall be equipped to operate with a standardized fire service elevator key in accordance with the *International California Fire Code*.

[Editorial Note: 2013 CBC amendments for 2013 Section 3004.1 and 3004.3.1 is being removed. These sections are no longer within the code.]

3004.1 Vents required. Hoistways of elevators and dumbwaiters penetrating more than three stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

Exceptions:

1. In occupancies of other than Groups R-1, R-2, I-1R-2.1, I-2 and similar occupancies with overnight sleeping units, venting of hoistways is not required where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Sidewalk elevator hoistways are not required to be vented.
3. Elevators contained within and serving open parking garages only.
4. Elevators within individual residential dwelling units.

3004.3.1 Reduced vent area. Where mechanical ventilation conforming to the *International California Mechanical Code* is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:

1. The occupancy is not in Group R-1, R-2, I-1R-2.1 or I-2 or of a similar occupancy with overnight sleeping quarters.
2. The vents required by Section 3004.2 do not have outside exposure.
3. The hoistway does not extend to the top of the building.
4. The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.
5. Equivalent venting of the hoistway is accomplished.

3006.4.13005.4.1 Automatic sprinkler system. Automatic sprinklers shall not be required to be installed in the elevator hoistway, elevator machine room, elevator machinery space, elevator control space, ~~or~~and elevator control room where all the following are met:

1. Approved smoke detectors shall be installed in the elevator hoistway, elevator machine room, elevator machinery spaces, elevator control spaces, ~~or~~and elevator control rooms and connected to the building fire alarm system in accordance with Section 907.
2. Activation of any smoke detector located in the elevator hoistway, elevator machine room, elevator machinery space, elevator control space, ~~or~~and elevator control room shall cause the actuation of the building fire alarm notification appliances in accordance with 907.
3. Activation of any smoke detector located in the elevator hoistway, elevator machine room, elevator machinery space, elevator control space, ~~or~~and elevator control room shall cause all elevators having any equipment located in that elevator hoistway, elevator machine room, elevator machinery space, elevator control space, ~~or~~and elevator control room to recall nonstop to the appropriate designated floor in accordance with CCR Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.
4. The elevator machine room, elevator machinery space, elevator control space, ~~or~~and elevator control room shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. The fire-resistance rating shall not be less than the required rating of the hoistway enclosure served by the machinery. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors. The exceptions to Section 3006.4.13005.4 shall not apply.
5. The building fire alarm system shall be monitored by an approved supervising station in accordance with 907.
6. An approved sign shall be permanently displayed in the elevator machine room, elevator machinery space, elevator control space, ~~or~~and elevator control room in a conspicuous location with a minimum of 1½ inch letters on a contrasting background, stating:

NO COMBUSTIBLE STORAGE
PERMITTED IN THIS ROOM
By Order of the Fire Marshal [or name of fire authority]

3005.5 Shunt trip. Where elevator hoistways, elevator machine rooms, control rooms and control spaces containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with Section 21.4 of NFPA 72 shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of automatic sprinklers outside the hoistway, machine room, machinery space, control room or control space shall not disconnect the main line power supply

3006.1 General. Elevator hoistway openings and enclosed elevator lobbies shall be provided in accordance with the following:

1. Where hoistway opening protection is required by Section 3006.2, such protection shall be in accordance with Section 3006.3.
2. Where enclosed elevator lobbies are required for underground buildings, such lobbies shall comply with Section 405.4.3.
3. Where an area of refuge is required and an enclosed elevator lobby is provided to serve as an area of refuge, the enclosed elevator lobby shall comply with Section 1009.6.
4. Where fire service access elevators are provided, enclosed elevator lobbies shall comply with Section 3007.6. 5. Where occupant evacuation elevators are provided, enclosed elevator lobbies shall comply with Section 3008.6.

3006.2 Hoistway opening protection required. Elevator hoistway door openings shall be protected in accordance with Section 3006.3 where an elevator hoistway connects more than ~~three stories~~ *two stories in Group A, E, H, I, L, R-1, R-2 and R-2.1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, and more than three stories for all other occupancies*, is required to be enclosed within a shaft enclosure in accordance with Section 712.1.1 and any of the following conditions apply:

1. The building is not protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
- ~~2. The building contains a Group I-1 Condition 2 occupancy.~~
- ~~3. The building contains a Group I-2 occupancy.~~
- ~~4. The building contains a Group I-3 occupancy.~~
- ~~5. The building is a high-rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the lowest floor to the highest floor of the floors served by the hoistway.~~
2. *Group A occupancies;*
3. *Group E occupancies;*
4. *Group H occupancies;*
5. *Group I occupancies;*
6. *Group L occupancies;*
7. *Group R-1, R-2 and R-2.1 occupancies; and*
8. *High-rise buildings.*

See Section 403.6 for additional requirements for high-rise buildings.

Exceptions:

1. Protection of elevator hoistway door openings is not required where the elevator serves only open parking garages in accordance with Section 406.5.
2. Protection of elevator hoistway door openings is not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required on levels where the elevator hoistway opens to the exterior.

3006.3 Hoistway opening protection. Where Section 3006.2 requires protection of the elevator hoistway door opening, the protection shall be provided by one of the following:

1. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by fire partitions in accordance with Section 708. In addition, doors protecting openings in the elevator

lobby enclosure walls shall comply with Section 716.5.3 as required for corridor walls. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.

2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by smoke partitions in accordance with Section 710 where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition, doors protecting openings in the smoke partitions shall comply with Sections 710.5.2.2, 710.5.2.3 and 716.5.9. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.

3. Additional doors shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such door shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.

4. The [SFM] When approved, in other than Group I-2 occupancies elevator hoistway shall be pressurized in accordance with Section 909.21.

5. [SFM] Enclosed elevator lobbies are not required where the hoistway door has a fire-protection rating as required by Section 708.7 and the hoistway door opening is also protected by a listed and labeled smoke containment system complying with ICC ES AC 77.

3007.1 General. Where required by Section 403.6.1, every floor of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44 California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.

[Editorial Note: 2013 CBC amendments for 2013 Section 3007.2 is being removed. This section is no longer within the code.]

~~**3007.2 Phase I Emergency recall operation.** Actuation of any building fire alarm initiating device shall initiate Phase I emergency recall operation on all fire service access elevators in accordance with the requirements in ASME A17.1/CSA B44 California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders. All other elevators shall remain in normal service unless Phase I emergency recall operation is manually initiated by a separate, required three position, key operated "Fire Recall" switch or automatically initiated by the associated elevator lobby, hoistway or elevator machine room smoke detectors. In addition, if the building also contains occupant evacuation elevators in accordance with Section 3008, an independent, three position, key operated "Fire Recall" switch conforming to the applicable requirements in ASME A17.1/CSA B44 California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders shall be provided at the designated level for each fire service access elevator.~~

~~**3007.6.1 Access to interior exit stairway or ramp**~~**smokeproof enclosure.** The fire service access elevator lobby shall have direct access ~~stairway from the enclosed elevator lobby to an enclosure for an interior exit stairway or ramp~~ smokeproof enclosure complying with Section 909.20.

~~**Exception:** Access to an interior exit stairway or ramp~~ **smokeproof enclosure** shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

~~**Exception:** Access to a smokeproof enclosure shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.~~

3007.6.4 Lobby size. Regardless of the number of fire service access elevators served by the same elevator lobby, the ~~Regardless of the number of fire service access elevators served by the same elevator lobby, the~~ enclosed fire service access elevator lobby shall be a less than 150 square feet (14 m²) in an area with dimension of not less than 8 feet (2440 mm).

3008.1.2 Fire safety and evacuation plan. The building shall have an *approved* fire safety and evacuation plan in accordance with the applicable requirements of Section 404 of the *International California Fire Code*. The fire safety and evacuation plan shall incorporate specific procedures for the occupants using evacuation elevators.

[Editorial Note: 2013 CBC amendments for 2013 Section 3008.2 and 3008.2.1 is being removed. This section is no longer within the code.]

~~**3008.2 Phase I Emergency recall operation.** An independent, three position, key-operated "Fire Recall" switch complying with ASME A17.1/CSA B44 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders* shall be provided at the designated level for each occupant evacuation elevator.~~

~~**3008.2.1 Operation.** The occupant evacuation elevators shall be used for occupant self-evacuation only in the normal elevator operating mode prior to Phase I Emergency Recall Operation in accordance with the requirements in ASME A17.1/CSA B44 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders* and the building's fire safety and evacuation plan.~~

3008.2.1 Prohibited locations. Automatic sprinklers shall not be installed in elevator machine rooms, machinery spaces, control rooms, control spaces and elevator hoistways of occupant evacuation elevators *in accordance with this Section and 3006.4.1.*

[Editorial Note: 2013 CBC amendments for 2013 Section 3008.7.6 is being removed. This section is no longer within the code.]

~~**3008.7.6 Lobby status indicator.** Each occupant evacuation elevator lobby shall be equipped with a status indicator arranged to display all of the following information:~~

- ~~1. An illuminated green light and the message, "Elevators available for occupant evacuation" when the elevators are operating in normal service and the fire alarm system is indicating an alarm in the building.~~
- ~~2. An illuminated red light and the message, "Elevators out of service, use exit stairs" when the elevators are in Phase I emergency recall operation or Phase II firefighters' emergency operation in accordance with the requirements in ASME A17.1/CSA B44 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders*.~~
- ~~3. No illuminated light or message when the elevators are operating in normal service.~~

~~**3008.8.1 Elevator recall.** The fire command center or an alternative location approved by the fire department shall be provided with the means to manually initiate a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1/CSA B44 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders*.~~

CHAPTER 31 SPECIAL CONSTRUCTION

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane-covered cable, membrane-covered frame and tensile membrane structures, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *International California Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy, are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

3102.3.1 Membrane and interior liner material. Membranes and interior liners shall be either noncombustible as set forth in Section 703.5 or ~~meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 and the manufacturer's test protocol. shall be flame resistant in accordance with appropriate standards~~ *the provisions set forth in CCR, Title 19, Division 1, Chapter 8. Tops and sidewalls shall be made either from fabric which has been flame resistant treated with an approved exterior chemical process by an approved application concern, or from inherently flame resistant fabric approved and listed by the State Fire Marshal (see CCR, Title 19, Division 1, Chapter 8).*

Exception: Plastic less than 20 mil (0.5 mm) in thickness used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

3103.1 General. The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the *International California Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

3105.4 Awnings and canopy materials. ~~Awnings and canopies shall be provided with an approved covering that meets the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 or has a flame spread index not greater than 25 when tested in accordance with ASTM E 84 or UL 723. All fabrics and all interior decorative fabrics or materials shall be flame resistant in accordance with the provisions appropriate standards set forth in CCR, Title 19, Division 1, Chapter 8. Tops and sidewalls shall be made either from fabric which has been flame resistant treated with an approved exterior chemical process by an approved application concern, or from inherently flame resistant fabric approved and listed by the State Fire Marshal (see CCR, Title 19, Division 1, Chapter 8).~~

Exception: The fire propagation performance and flame spread index requirements shall not apply to awnings installed on detached one- and two-family dwellings.

3111.1 General. Photovoltaic panels/modules shall comply with the requirements of this code, and the *International California Fire Code* and the *California Electrical Code*.

~~**3111.1 Solar photovoltaic power systems.** Solar photovoltaic power systems shall be installed in accordance with Sections 3111.1 through 3111.3 and the *California Electrical Code*.~~

3111.1.1 Rooftop-mounted photovoltaic panels and modules. Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall also comply with the requirements of Chapter 15 and the *International California Fire Code*.

3111.2 Access and pathways. Roof access, pathways, and spacing requirements shall be provided in accordance with Sections 3111.2.1 through 3111.2.3.3.

Exceptions:

1. Detached, nonhabitable Group U structures including, but not limited to, parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways, and spacing requirements need not be provided where the fire chief has determined rooftop operations will not be employed.

3111.2.1 Roof access points. Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

3111.2.2 Solar photovoltaic systems for Group R-3 buildings. Solar photovoltaic systems for Group R-3 buildings shall be provided in accordance with Sections 3111.2.2.1 through 3111.2.2.4.

Exception: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

3111.2.2.1 Size of solar photovoltaic array. Each photovoltaic array shall be limited to 150 feet (45 720 mm) by 150 feet (45 720 mm). Multiple arrays shall be separated by a 3-foot-wide (914 mm) clear access pathway.

3111.2.2.2 Hip roof layouts. Panels and modules installed on Group R-3 buildings with hip roof layouts shall be located in a manner that provides a 3-foot-wide (914 mm) clear access pathway from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.

Exception: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

3111.2.2.3 Single ridge roofs. Panels and modules installed on Group R-3 buildings with a single ridge shall be

located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels and modules are located.

Exception: This requirement shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

3111.2.2.4 Roofs with hips and valleys. Panels and modules installed on Group R-3 buildings with roof hips and valleys shall be located no closer than 18 inches (457 mm) to a hip or a valley where Panels and modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.

Exception: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

3111.2.2.5 Allowance for smoke ventilation operation. Panels and modules installed on Group R-3 buildings shall be located no less than 3 feet (914 mm) from the ridge in order to allow for fire department smoke ventilation operations.

Exception: Panels and modules shall be permitted to be located up to the roof ridge where an alternative ventilation method approved by the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be employed.

3111.2.3 Other than Group R-3 buildings. Access to systems for buildings other than those containing Group R-3 occupancies shall be provided in accordance with Sections 3111.2.3.1 through 3111.2.3.3.

Exception: Where it is determined by the fire code official that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 3111.2.2.1 through 3111.2.2.5 shall be permitted to be used.

3111.2.3.1 Access. There shall be a minimum 6-foot-wide (1829 mm) clear perimeter around the edges of the roof.

Exception: Where either axis of the building is 250 feet (76 200 mm) or less, the clear perimeter around the edges of the roof shall be a minimum 4-foot-wide (1290 mm).

3111.2.3.2 Pathways. The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:

1. The pathway shall be over areas capable of supporting the live load of fire fighters accessing the roof.
2. The centerline axis pathways shall be provided in both axes of the roof. Centerline axis pathways shall run where the roof structure is capable of supporting the live load of fire fighters accessing the roof.
3. Shall be a straight line not less than 4 feet (1290 mm) clear to skylights or ventilation hatches.
4. Shall be a straight line not less than 4 feet (1290 mm) clear to roof standpipes.
5. Shall provide not less than 4 feet (1290 mm) clear around roof access hatch with at least one not less than 4 feet (1290 mm) clear pathway to parapet or roof edge.

3111.2.3.3 Smoke ventilation. The solar installation shall be designed to meet the following requirements:

1. Arrays shall be no greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in distance in either axis in order to create opportunities for fire department smoke ventilation operations.
2. Smoke ventilation options between array sections shall be one of the following:
 - 2.1. A pathway 8 feet (2438 mm) or greater in width.
 - 2.2. A 4-foot (1290 mm) or greater in width pathway and bordering roof skylights or smoke and heat vents.
 - 2.3. A 4-foot (1290 mm) or greater in width pathway and bordering 4-foot by 8-foot (1290 mm by 2438 mm) "venting cutouts" every 20 feet (6096 mm) on alternating sides of the pathway.

3111.3 Ground-mounted photovoltaic arrays. Ground-mounted photovoltaic arrays shall comply with this section and the California Electrical Code. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays. A clear, brush-free area of 10 feet (3048 mm) shall be required for ground mounted photovoltaic arrays.

CHAPTER 33

SAFEGUARDS DURING CONSTRUCTION

3309.2 Fire hazards. The provisions of this code and the *International California Fire Code* shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

CHAPTER 34 RESERVED

[Editor's Note: 2013 CBC Chapter 34 was relocated to California Fire Code Chapter 11 and California Existing Building Code]

~~**3401.3 Compliance.** Alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy in the *International California Fire Code*, *International Fuel Gas Code*, *International California Mechanical Code*, *International California Plumbing Code*, *International Property Maintenance Code*, *International Private Sewage Disposal Code*, *International California Residential Code* and *NEPA 70 California Electrical Code*.~~

~~**3401.6**~~**3401.7 Existing Group R-3 Occupancies. [SFM]** See the *California Residential Code* for existing Group R-3 occupancies or Chapter 46 of the *California Fire Code* for all other existing Group R occupancies.

~~**3411.8.2 Elevators.** Altered elements of existing elevators shall comply with ASME A17.1 *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders* and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.~~

SECTION 3413 EXISTING GROUP R-1 AND GROUP R-2 OCCUPANCIES [SFM]

~~**3413.1 Scope.** The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings classified as Group R Occupancies.~~

~~**3413.1.1 Application.** In accordance with Health and Safety Code Section 13143.2, the provisions of Sections 3413.2 through 3413.12 shall only apply to multiple-story structures existing on January 1, 1975, let for human habitation, including, and limited to, apartment houses, hotels, and motels wherein rooms used for sleeping are let above the ground floor.~~

~~**3413.2 Number of exits.** Every apartment and every other sleeping room shall have access to not less than two exits when the occupant load is 10 or more (exits need not be directly from the apartment or sleeping room). A fire escape as specified herein may be used as one required exit.~~

~~Subject to approval of the authority having jurisdiction, a ladder device as specified herein may be used in lieu of a fire escape when the construction feature or the location of the building on the property cause the installation of a fire escape to be impractical.~~

~~**3413.3 Stair construction.** All stairs shall have a minimum run of 9 inches (229 mm) and a maximum rise of 8 inches (203 mm) and a minimum width exclusive of handrails of 30 inches (762 mm). Every stairway shall have at least one handrail. A landing having a minimum horizontal dimension of 30 inches (762 mm) shall be provided at each point of access to the stairway.~~

~~**3413.4 Interior stairways.** Every interior stairway shall be enclosed with walls of not less than one-hour fire-resistive construction. Where existing partitions form part of a stairwell enclosure, wood lath and plaster in good condition will be acceptable in lieu of one-hour fire-resistive construction. Doors to such enclosures shall be protected by a self-closing door equivalent to a solid wood door with a thickness of not less than 1 3/4 inches (44.5 mm).~~

~~Enclosures shall include all landings between flights and any corridors, passageways or public rooms necessary for continuous exit to the exterior of the buildings. The stairway need not be enclosed in a continuous shaft if cut off at each story by the fire-resistive construction required by this subsection for stairwell enclosures. Enclosures shall not be required if an automatic sprinkler system is provided for all portions of the building except bedrooms, apartments and rooms accessory thereto. Interior stairs and vertical openings need not be enclosed in two-story buildings.~~

~~3413.5 Exterior stairways. Exterior stairways shall be noncombustible or of wood of not less than 2-inch (51 mm) nominal thickness with solid treads and risers.~~

~~3413.6 Fire escapes, exit ladder devices. Fire escapes may be used as one means of egress if the pitch does not exceed 60 degrees, the width is not less than 18 inches (457 mm), the treads are not less than 4 inches (102 mm) wide, and they extend to the ground or are provided with counterbalanced stairs reaching to the ground. Access shall be by an opening having a minimum dimension of 29 inches (737 mm) when open. The sill shall not be more than 30 inches (762 mm) above the floor and landing.~~

~~A ladder device, when used in lieu of a fire escape, shall conform to Section 3413.6.1 and the following:~~

~~Serves an occupant load of nine people or less or a single dwelling unit or hotel room.~~

~~The building does not exceed three stories in height.~~

~~The access is adjacent to an opening as specified for emergency egress or rescue or from a balcony.~~

~~The device does not pass in front of any building opening below the unit being served.~~

~~The availability of activating the ladder device is accessible only to the opening or balcony served.~~

~~The device as installed will not cause a person using it to be within 12 feet (3658 mm) of exposed energized high-voltage conductors.~~

3413.6.1 Exit ladder devices.

~~3413.6.1.1 Scope. This standard for exit ladder devices is applicable where such devices are permitted by the building official for installation on existing apartment houses and hotels in conformance with the California Building Code.~~

~~3413.6.1.2 Instructions. Installation shall be in accordance with the manufacturer's instructions. Instructions shall be illustrated and shall include directions and information adequate for attaining proper and safe installation of the product. Where exit ladder devices are intended for mounting on different support surfaces, specific installation instructions shall be provided for each surface.~~

~~3413.6.1.3 General design. All load-bearing surfaces and supporting hardware shall be of noncombustible materials. Exit ladder devices shall have a minimum width of 12 inches (305 mm) when in the position intended for use. The design load shall not be less than 400 pounds (1780N) for 16-foot (4877 mm) length and 600 pounds (2699N) for 25-foot (7620 mm) length.~~

3413.6.1.4 Performance.

~~3413.6.1.4.1 Exit ladder devices shall be capable of withstanding an applied load of four times the design load when installed in the manner intended for use. Test loads shall be applied for a period of one hour.~~

~~3413.6.1.4.2 Exit ladder devices of the retractable type shall, in addition to the static load requirements of Section 413.6.1.4.1, be capable of withstanding the following tests:~~

- ~~1. Rung strength~~
- ~~2. Rung to side rail shear strength~~
- ~~3. Release mechanism~~
- ~~4. Low temperature~~

~~3413.6.1.5 Rung strength test. Rungs of retractable exit ladder devices shall be capable of withstanding a load of 1,000 pounds (4448N) when applied to a 3 1/2-inch-wide (89 mm) block resting at the center of the rung. The test load shall be applied for a period of one hour. The ladder shall remain operational following this test.~~

~~3413.6.1.6 Rung to side rail shear test. Rungs of retractable exit ladder devices shall be capable of withstanding 1,000 (4448N) when applied to a 3 1/2-inch-wide (89 mm) block resting on the center rung as near the side rail as possible. The test load shall be applied for a period of one hour. Upon removal of the test load the fasteners attaching the rung to the side rail shall show no evidence of failure. The ladder shall remain operational following the test.~~

~~3413.6.1.7 Release mechanism test. The release mechanism of retractable exit ladder devices shall operate with an average applied force of not more than 5 pounds (22.2N) for hand-operated releasing mechanisms and an average~~

~~applied force of not more than 25 pounds (111N) for foot pedal types of releasing mechanisms. For these tests, a force gauge shall be applied to the release mechanism, and the average of three consecutive readings shall be computed.~~

~~**3413.6.1.8 Low temperature operation test.** Representative samples of the exit ladder devices shall be subjected to a temperature of -40°C in an environmental chamber for a period of 24 hours. The release mechanism shall be operated immediately upon removal from the chamber. The ladder device shall function as intended without any restriction of operation.~~

~~**3413.7 Doors and openings.** Exit doors and openings shall meet the requirements of Sections 1008.1.2, 1008.8.1.8, 1008.1.9 and 708.6. Doors shall not reduce the required width of stairway more than 6 inches (152 mm) when open. Transoms and openings other than doors from corridors to rooms shall be fixed closed and shall be covered with a minimum of 3/4 inch (19 mm) plywood or 1/2 inch (13 mm) gypsum wallboard or equivalent material.~~

Exceptions:

- ~~1. Existing solid-bonded wood-core doors 13/8 inches thick (34.9 mm), or their equivalent may be continued in use.~~
- ~~2. Where the existing frame will not accommodate a door complying with Section 708.6, a 13/8-inch-thick (35 mm) solid-bonded wood-core door may be used.~~

~~**3413.8 Exit signs.** Every exit doorway or change of direction of a corridor shall be marked with a well-lighted exit sign having letters at least 5 inches (127 mm) high.~~

~~**3413.9 Enclosure of vertical openings.** Elevators, shafts, ducts and other vertical openings shall be enclosed as required for stairways in Section 3413.5 or by wired glass set in metal frames. Doors shall be noncombustible or as regulated in Section 3413.5.~~

~~**3413.10 Separation of occupancies.** Occupancy separations shall be provided as specified in Section 508. Lobbies and public dining rooms, not including cocktail lounges, shall not require a separation if the kitchen is so separated from the dining room. Every room containing a boiler or central heating plant shall be separated from the rest of the building by not less than a one-hour fire-resistive occupancy separation.~~

~~**Exception:** A separation shall not be required for such rooms with equipment serving only one dwelling unit.~~

~~**3413.11 Equivalent protection.** In lieu of the separation of occupancies required by Section 3413.10, equivalent protection may be permitted when approved by the enforcement agency.~~

~~**Exception:** The provisions of Sections 3413.3 through 3413.11 above shall not apply to any existing apartment house, hotel or motel having floors (as measured from the top of the floor surface) used for human occupancy located more than 75 feet (22 860 mm) above the lowest floor level having building access which is subject to the provisions of Section 33414, California Building Code, relating to existing high-rise buildings.~~

~~**Note:** In accordance with Health and Safety Code Section 17920.7, the provisions of Sections 3413.3 through 3413.11 above shall apply only to multiple-story structures existing on January 1, 1975, let for human habitation including, and limited to, apartments, houses, hotels and motels wherein rooms used for sleeping are let above the ground floor.~~

3413.12 Fire alarms.

~~**3413.12.1 General.** Every apartment house three or more stories in height or containing more than 15 apartments, every hotel three or more stories in height or containing 20 or more guest rooms, shall have installed therein an automatic or manually operated fire alarm system. Such fire alarm systems shall be so designed that all occupants of the building may be warned simultaneously and shall be in accordance with the California Fire Code. See Section 3414.14 for special requirements in buildings over 75 feet (22 860 mm) in height.~~

~~**Exception:** A fire alarm system need not be installed provided such apartment house or hotel is separated by an unpierced wall of not less than four-hour fire resistance in buildings of Type IA, Type IIB, Type III or Type IV construction and two-hour fire resistance in buildings of all other types of construction provided:~~

- ~~1. Areas do not exceed the number of apartments or guest rooms stipulated.~~

- ~~2. The fire-resistive wall conforms to the requirements of Section 706.6.~~
- ~~3. The wall complies with all other applicable provisions of the California Building Code.~~
- ~~4. The wall extends to all outer edges of horizontal projecting elements, such as balconies, roof overhangs, canopies, marquees or architectural projections.~~
- ~~5. No openings are permitted for air ducts or similar penetrations, except that openings for pipes, conduits and electrical outlets of copper, sheet steel or ferrous material shall be permitted through such wall and need not be protected, provided they do not unduly impair the required fire resistance of the assembly.~~
- ~~6. Tolerances around such penetrations shall be filled with approved noncombustible materials.~~

~~**3413.12.2 Installation.** The installation of all fire alarm equipment shall be in accordance with the California Fire Code.~~

~~**3413.13 Existing Group R Occupancy high-rise buildings.**~~

~~**3413.13.1 General.** Regardless of other provisions of these regulations relating to existing high-rise buildings, requirements relative to existing Group R-1 or Group R-2 Occupancies shall not be less restrictive than those established pursuant to Health and Safety Code Section 13143.2.~~

~~**3413.13.2 Corridor openings.** Openings in corridor walls and ceilings shall be protected by not less than 13/4 inch (44.5 mm) solid-bonded wood-core doors, 1/4-inch-thick (6 mm) wired glass conforming to Section 715.1, by approved fire dampers or by equivalent protection in lieu of any of these items. Transoms shall be fixed closed with material having a fire-resistive rating equal to 1/2-inch (12.7 mm) Type X gypsum wallboard or equivalent material installed on both sides of the opening.~~

~~**3413.13.3 Fire alarm systems.** Notwithstanding the provisions of Section 403, every existing high-rise building used for the housing of a Group R-1 or Group R-2 Occupancies shall have installed therein a fire alarm system conforming to this subsection.~~

~~**3413.13.3.1 General.** Every apartment house and every hotel shall have installed therein an automatic or manually operated fire alarm system. Such fire alarm systems shall be so designed that all occupants of the building may be warned simultaneously.~~

~~**3413.13.3.2 Installation.** The installation of all fire alarm equipment shall be in accordance with the California Fire Code.~~

~~**3413.13.3.3 Fire-extinguishing systems.** Automatic fire-extinguishing systems installed in any structure subject to these regulations shall have an approved flow indicator electrically interconnected to the required fire alarm system.~~

SECTION 3414
EXISTING HIGH-RISE BUILDINGS [SFM]

~~**3414.1 Scope and definition.** The provisions of Sections 3414.1 through 3414.27 shall apply to every existing high-rise building of any type of construction or occupancy having floors (as measured from the top of the floor surface) used for human occupancy located more than 75 feet (22 860 mm) above the lowest floor level having building access.~~

~~**Exceptions:**~~

- ~~1. Hospitals, as defined in Section 1250 of the Health and Safety Code.~~
- ~~2. The following structures, while classified as high-rise buildings, shall not be subject to the provisions of Sections 3414.1 through 3414.27, but shall conform to all applicable provisions of these regulations.~~
 - ~~2.1 Building used exclusively as open parking garages.~~
 - ~~2.2 Buildings where all floors above the 75-foot (22 860 mm) level are used exclusively as open parking garages.~~
 - ~~2.3 Floors of buildings used exclusively as open parking garages and located above all other floors used for human occupancy.~~
 - ~~2.4 Buildings such as power plants, look-out towers, steeples, grain houses, and similar structures, when so determined by the enforcing agency.~~
 - ~~2.5 Buildings used exclusively for jails and prisons. For the purposes of this section, "building access" shall mean an exterior door opening conforming to all of the following:~~

- ~~1. Suitable and available for fire department use.~~
- ~~2. Located not more than 2 feet (610 mm) above the adjacent ground level.~~
- ~~3. Leading to a space, room or area having foot traffic communication capabilities with the remainder of the building.~~
- ~~4. Designed to permit penetration through the use of fire department forcible entry tools and equipment unless other approved arrangements have been made with the fire authority having jurisdiction.~~

~~"Existing high-rise structure" means a high-rise structure, the construction of which is commenced or completed prior to July 1, 1974.~~

~~For the purpose of this section, construction shall be deemed to have commenced when plans and specifications are more than 50 percent complete and have been presented to the local jurisdiction prior to July 1, 1974. Actual construction of such buildings shall commence on or before January 1, 1976, unless all provisions for new buildings have been met.~~

~~**Note:** it is the intent of this section that, in determining the level from which the highest occupied floor is to be measured, the enforcing agency should exercise reasonable judgment, including consideration of overall accessibility to the building by fire department personnel and vehicular equipment. When a building is situated on sloping terrain and there is building access on more than one level, the enforcing agency may select the level which provides the most logical and adequate fire department access.~~

~~**3414.2 Compliance data.** Except as may be otherwise specified, existing high-rise building shall conform to the applicable requirements of these regulations by April 26, 1979.~~

~~**Exception:** The period of compliance may be extended upon showing of good cause for such extension if a systematic and progressive plan of correction is submitted to, and approved by, the enforcing agency. Such extension shall not exceed two years from the date of approval of such plan. Any plan of correction submitted pursuant to this exception shall be submitted and approved on or before April 26, 1979.~~

~~**3414.3 Continued use.** Existing high-rise building may have their use continued if they conform, or are made to conform, to the intent of the provisions of Sections 3414.5 through 3414.27 to provide for the safety of the occupants of the high-rise buildings and person involved in fire suppression activities.~~

~~**3414.4 Alternate protection.** Alternate means of egress, fire walls or fire barriers, smoke barriers, automatic fire detection or fire extinguishing systems, or other fire protection devices, equipment or installations may be approved by the enforcing agency to provide reasonable and adequate life safety as intended by Sections 3414.5 through 3414.27 for existing high-rise buildings.~~

~~**3414.5 Basic provisions.** The provisions outlined in Sections 3414.1 through 3414.27 are applicable to every existing highrise building.~~

~~**3414.6 Minimum construction.** Existing wood lath and plaster, existing 1/2 inch (12.7 mm) gypsum wallboard, existing installations of 1/2 inch thick (12.7 mm) wired glass which are or are rendered inoperative and fixed in a closed position, or other existing materials having similar fire resistive capabilities shall be acceptable. All such assemblies shall be in good repair, free of any condition which would diminish their original fire resistive characteristics.~~

~~Where 13/4 inch (44.5 mm) solid-bonded wood-core doors are specified in these regulations for existing high-rise buildings, new or existing 13/8 inch (34.9 mm) doors shall be acceptable where existing framing will not accommodate a 13/4 inch (44.5 mm) door.~~

~~**Note:** It is the intent of this provisions that existing wood frames may have their use continued.~~

~~**3414.7 New construction.** All new construction shall be composed of materials and assemblies of materials conforming to the fire resistive provisions of these regulations. In no case shall enclosure walls be required to be of more than one-hour fire resistive construction.~~

~~**Exception:** When approved by the enforcing agency, materials specified in Section 3414.6 may be used for new construction when necessary to maintain continuity of design and measurement of existing construction.~~

~~**3414.8 Exits.** Every floor from an existing high-rise building shall have access to two separate means of egress, one of which, when approved by the enforcing agency, may be an existing exterior fire escape. New installations of smoke-proof enclosures shall not be required.~~

~~**Note:** In determining the adequacy of exits and their design, Chapter 10 may be used as a guide. It is the intent of this section that every existing high-rise building need not mandatorily conform or be made to conform with the requirements for new high-rise buildings. Reasonable judgment in the application of requirements must be exercised by the enforcing agency.~~

~~**3414.9 Fire escapes.** An existing fire escape in good structural condition may be acceptable as one of the required means of egress from each floor. Access to such fire escapes may be by any one of the following:~~

~~Through a room between the corridor and the fire escape if the door to the room is operable from the corridor side without the use of any key, special knowledge or effort.~~

~~By a door operable to a fire escape from the interior without the use of any key, special knowledge or effort.~~

~~By a window operable from the interior. Such window shall have a minimum dimension of 20 inches (737 mm) when open.~~

~~The sill shall not be more than 30 inches (762 mm) above the floor and landing.~~

~~**3414.10 Protection of exterior openings.** When an existing fire escape is accepted as one of the required means of egress, openings onto the fire escape landing and openings within 5 feet (1524 mm) horizontally of the landings shall be protected in a manner acceptable to the enforcing agency.~~

~~**3414.11 Locking of stairway doors.** When exit doors from corridors to exit stairways are locked to prohibit access from the stairway side, the locking mechanisms shall be retracted to the unlocked position upon failure of electrical power and a telephone or other two-way communication system connected to an approved emergency service that operates continuously shall be provided at not less than every fifth floor in each required stairway. In lieu thereof, master keys which will unlock all such doors from the stairway side shall be provided in such numbers and locations as approved by the enforcing agency.~~

~~**3414.12 Enclosures.** Interior vertical shafts, including but not limited to, elevators, stairway and utility, shall be enclosed with construction as set forth in Section 3414.6.~~

~~**3414.13 Opening protection.** Doors in other than elevators, which shall be of a type acceptable to the enforcing agency, shall be approved one-hour, fire-rated, tight-fitting or gasketed doors or equivalent protection, and shall be of the normally closed type, self-closing or a type which will close automatically in accordance with Section 715.~~

~~**Exception:** In lieu of stairway enclosures, smoke barriers may be provided in such a manner that fire and smoke will not spread to other floors or otherwise impair exit facilities. In these instances, smoke barriers shall not be less than one-hour fire resistive with openings protected by not less than approved one-third-hour, fire-rated, tight-fitting or gasketed doors. Such doors shall be of the self-closing type or of a type which will close automatically in the manner specified in Section 715.~~

~~Doors crossing corridors shall be provided with wired-glass vision panels set in approved steel frames. Doors for elevators shall not be of the open-grille type.~~

~~**3414.14 Fire alarm system.** Every existing high-rise building shall be provided with an approved fire alarm system. In department stores, retail sales stores and similar occupancies where the general public is admitted, such systems shall be of a type capable of alerting staff and employees. In office buildings and all other high-rise buildings, such systems shall be of a type capable of alerting all occupants simultaneously.~~

Exceptions:

~~1. In areas of public assemblage, the type and location of audible appliances shall be as determined by the enforcing agency.~~

~~2. When acceptable to the enforcing agency, the occupant voice notification system required by Section 3414.17~~3414.20~~ may be used in lieu of the fire alarm system required by Section 3414.14.~~

~~**3414.15 Existing systems.** Existing fire systems, when acceptable to the enforcing agency, shall be deemed as conforming to the provisions of these regulations. For requirements for existing Group R-1 Occupancies, see Section 3412.13.~~

~~**3414.16 Annunciation.** When a new fire alarm system is installed, it shall be connected to an annunciator panel installed in a location approved by the enforcing agency. For purposes of annunciation, zoning shall be in accordance with Section 907.6.3. 907.6.4.4.~~

~~**3414.17 Monitoring.** Shall be in accordance with Section 907.6.5 907.6.6.~~

~~**3414.18 Systems interconnection.** When an automatic fire detection system or automatic extinguishing system is installed, activation of such system shall cause the sounding of the fire alarm notification appliances at locations designated by the enforcing agency.~~

~~**3414.19 Manual fire alarm boxes.** A manual fire alarm box shall be provided in the locations designated by the enforcing agency. Such locations shall be where boxes are readily accessible and visible and in normal paths of daily travel by occupants of the building.~~

~~**3414.20 Emergency voice/alarm communication system.** An approved emergency voice/alarm system shall be provided in every existing high-rise building which exceeds 150 feet (45 720 mm) in height measured in the manner set forth in Section 3412.1. Such system shall provide communication from a location available to and designated by the enforcing agency to not less than all public areas. The emergency voice/alarm system may be combined with a fire alarm system provide the combined system has been approved and listed by the State Fire Marshal. The sounding of a fire alarm signal in any given area or floor shall not prohibit voice communication to other areas of floors. Combination systems shall be designed to permit voice transmission to override the fire alarm signal, but the fire alarm signal shall not terminate in less than three minutes.~~

~~**3414.21 Fire department system.** When it is determined by test that portable fire department communication equipment is ineffective, a communication system acceptable to the enforcing agency shall be installed within the building to permit emergency communication between fire suppression personnel.~~

~~**3414.22 Interior wall and ceiling finish.** Interior wall and ceiling finish of exitways shall conform to the provisions of Chapter 8. Where the materials used in such finishes do not conform to the provisions of Chapter 8, such finishes may be surfaced with an approved fire-retardant coating.~~

~~**3414.23 Ventilation.** Natural or mechanical ventilation for the removal of products of combustion shall be provided in every story of an existing high-rise building. Such ventilation shall be any one or combination of the following: Panels or windows in the exterior wall which can be opened. Such venting facilities shall be provided at the rate of at least 20 square feet (1.86m²) of opening per 50 lineal feet (15 240 lineal mm) of exterior wall in each story, distributed around the perimeter at not more than 50-foot (15 240 mm) intervals on at least two sides of the building. Approved fixed tempered glass may be used in lieu of openable panels or windows. When only selected panels or windows are of tempered glass, they shall be clearly identified as required by the enforcing agency. Any other design which will produce equivalent results.~~

~~**3414.24 Smoke control systems.** Existing air circulation systems shall be provided with an override switch in a location approved by the enforcing agency which will allow for the manual control of shutdown of the systems.~~

~~**Exception:** Systems which serve only a single floor, or portion thereof, without any penetration by ducts or other means into adjacent floors.~~

~~**3414.25 Elevator recall smoke detection.** Smoke detectors for emergency operation of elevators shall be provided as required by Section 3003.~~

~~**3414.26 Exit signs and illumination.** Exits and stairways shall be provided with exit signs and illumination as required by Sections 1011.1 and 1011.2.~~

~~**3414.27 Automatic sprinkler system Existing high-rise buildings.** Regardless of any other provisions of these regulations, every existing high-rise building of Type II-B, Type III-B or Type V-B construction shall be provided with an approved automatic sprinkler system conforming to NFPA 13.~~

SECTION 3415
EXISTING GROUP I OCCUPANCIES [SFM]

~~**3415.1 General.** Existing buildings housing existing protective social care homes or facilities established prior to March 4, 1972 may have their use continued if they conform, or are made to conform, to the following provisions:~~

~~**3415.2 Use of floors.** The use of floor levels in buildings of Type III, IV or V nonfire-rated construction may be as follows: Nonambulatory—first floor only; Ambulatory—not higher than the third-floor level, provided walls and partitions are constructed of materials equal in fireresistive quality to that of wood lath and plaster in good repair and all walls are firestopped at each floor level.~~

~~**3415.3 Enclosure of exits and vertical openings.** Except for two-story structures housing ambulatory guests, all interior stairs shall be enclosed in accordance with Chapter 10. In lieu of stairway enclosures, floor separations or smoke barriers may be provided in such a manner that fire and smoke will not spread rapidly to floors above or otherwise impair exit facilities. In these instances, floor separations or smoke barriers shall have a fire resistance equal to not less than 1/2 inch (13 mm) gypsum wall board on each side of wood studs with openings protected by not less than a 13/4 inch (44.5 mm) solid bonded wood core door of the self-closing type. All other vertical openings shall be enclosed in accordance with the provisions of Section 3414.6 and 3414.13.~~

~~**3415.4 Exit access.** Each floor or portion thereof of buildings used for the housing of existing protective social care homes or facilities shall have access to not less than two exits in such a manner as to furnish egress from the building or structure in the event of an emergency substantially equivalent to the provisions of Chapter 10.~~

~~**3415.5 Corridor openings.** Openings from rooms to interior corridors shall be protected by not less than 13/4 inch (44.5 mm) solid bonded wood core doors. Transoms and other similar openings shall be sealed with materials equivalent to existing corridor wall construction.~~

~~**3415.6 Interior finishes.** Interior wall and ceiling finishes shall conform to the requirements for a Group R-1 Occupancy as specified in Chapter 8.~~

~~**3415.7 Automatic fire sprinklers.** Automatic sprinkler systems shall be installed in existing protective social care occupancies in accordance with the provisions of Section 903.2.6.~~

~~**3415.8 Fire alarm systems.** Automatic fire alarm systems shall be installed in existing protective social care homes or facilities in accordance with the provisions of Section 907.2.6.~~

~~**Exception:** When an approved automatic sprinkler system conforming to Section 903.2.6 is installed, a separate fire alarm system as specified in this section need not be provided.~~

SECTION 3416
EXISTING GROUP L OCCUPANCIES [SFM]

~~**3416 Existing Group L Occupancies.**~~

~~**3416.1 Repairs general.** Additions, alterations or repairs may be made to any building or structure without requiring the existing building or structure to comply with all the requirements of this code section, provided the addition, alteration, or repair conforms to the requirements of this section.~~

~~**3416.2 Unsafe condition.** Additions, repairs or alterations shall not be made to an existing building or structure that will cause the existing building or structure to be in violation of any of the provisions of this code, nor shall such additions or alterations cause the existing building or structure to become unsafe, or to be in violation of any of the provisions of this code. An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded; will not provide adequate egress in compliance with the provisions of this code or will obstruct existing exits; will create a fire hazard; will reduce required fire resistance or will otherwise create conditions dangerous to human life.~~

~~**3416.3 Changes in use or occupancy.** Any buildings that have alterations or additions, which involves a change in use or occupancy, shall not exceed the height, number of stories and area permitted for new buildings~~

3416.4 Buildings not in compliance with code. Additions or alterations shall not be made to an existing building or structure when such existing building or structure is not in full compliance with the provisions of this code except when such addition or alteration will result in the existing building or structure being no more hazardous, based on life safety, fire safety and sanitation, than before such additions or alterations are undertaken.

3416.5 Maintenance of structural and fire resistive integrity. Alterations or repairs to an existing building or structure that are nonstructural and do not adversely affect any structural member of any part of the building or structure having required fire resistance may be made with the same materials of which the building or structure is constructed. The installation or replacement of glass shall be as required for new installations.

3416.6 Continuation of existing use. Buildings in existence at the time of the adoption of this code may have their existing use or occupancy continued if such use or occupancy was legal at the time of the adoption of this code, provided such continued use is not dangerous to life.

3416.7 Maximum allowable quantities. Laboratory suites approved prior to January 1, 2008 shall not exceed the maximum allowable quantities listed in Tables 3416.1 and 3416.2.

**TABLE 3416.7(1) EXEMPT AMOUNTS OF HAZARDOUS MATERIALS, LIQUIDS AND CHEMICALS
PRESENTING A PHYSICAL HAZARD BASIC QUANTITIES PER LABORATORY SUITE¹**
When two units are given, values within parentheses are in cubic feet (Cu. Ft.) or pounds (Lbs.)

CONDITION		STORAGE			USE CLOSED SYSTEMS			USE OPEN SYSTEMS		
MATERIAL	CLASS	Solid Lbs. (Cu. Ft.)	Liquid Gallons (Lbs.)	Gas Cu. Ft.	Solid Lbs. (Cu. Ft.)	Liquid Gallons (Lbs.)	Gas Cu. Ft.	Solid Lbs. (Cu. Ft.)	Liquid Gallons (Lbs.)	Gas Cu. Ft.
1.1 Combustible liquid	II	—	120 ²	—	—	120	—	—	30	—
	III-A	—	330 ²	—	—	330	—	—	80	—
	III-B	—	13,200 ²	—	—	13,200	—	—	3,300	—
1.2 Combustible dust lbs./1000 cu. ft.		4	—	—	4	—	—	4	—	—
1.3 Combustible fiber (loose) (baled)		(100)	—	—	(100)	—	—	(20)	—	—
		(1,000)	—	—	(1,000)	—	—	(200)	—	—
1.4 Cryogenic, flammable or oxidizing			45	—	—	45	—	—	10	—
2.1 Explosives		12	(1) ²	—	1/4	(1/4)	—	1/4	(1/4)	—
3.1 Flammable solid		125 ²	—	—	25	—	—	25	—	—
3.2. Flammable gas (gaseous) (liquefied)		—	—	750 ²	—	—	750 ²	—	—	—
		—	15 ²	—	—	15 ²	—	—	—	—
3.3 Flammable liquid Combination I-A, I-B, I-C	I-A	—	30 ²	—	—	30	—	—	10	—
	I-B	—	60 ²	—	—	60	—	—	15	—
	I-C	—	90 ²	—	—	90	—	—	20	—
		—	120 ²	—	—	120	—	—	30	—
4.1 Organic peroxide, unclassified detonatable		1 ²	(1) ²	—	1/4	(1/4)	—	1/4	(1/4)	—
4.2 Organic peroxide	I	5 ²	(5) ²	—	(1)	(1)	—	1	1	—
	II	50 ²	(50) ²	—	50	(50)	—	10	(10)	—
	III	125 ²	(125) ²	—	125	(125)	—	25	(25)	—
	IV	500	(500)	—	500	(500)	—	100	(100)	—
	V	N.L.	N.L.	—	N.L.	N.L.	—	N.L.	N.L.	—

4.3 Oxidizer	4	1 ²	(1) ²	—	1/4 ²	(1/4)	—	1/4	(1/4)	—
	3	10 ²	(10) ²	—	2	(2)	—	2	(2)	—
	2	250 ²	(250) ²	—	50	(250)	—	50	(50)	—
	1	1,000 ²	(1,000) ²	—	1,000	(1,000)	—	200	(200)	—
4.4 Oxidizer Gas (gaseous) (liquefied)		—	—	1,500 ²	—	— ²	1,500 ²	—	—	—
		—	15 ²	—	—	15 ²	—	—	—	—
5.1 Pyrophoric		4 ²	(4) ²	50 ²	4	(4)	10 ²	0	0	0
6.1 Unstable (reactive)	4	1 ²	(1) ²	10 ²	1/4	(1/4)	2 ²	1/4	(1/4)	0
	3	5 ²	(5) ²	50 ²	1	(1)	10 ²	1	(1)	0
	2	50 ²	(50) ²	250 ²	50	(50)	250 ²	10	(10)	0
	1	125 ²	(125) ²	750 ²	125	(125)	750 ²	25	(25)	0
7.1 Water (reactive)	3	5 ²	(5) ²	—	5	(5)	—	1	(1)	—
	2	50 ²	(50) ²	—	50	(50)	—	10	(10)	—
	1	125 ²	(125) ²	—	125	(125)	—	25	(25)	—

¹ A laboratory suite is a space up to 10,000 square feet (929 m²) bounded by not less than a one-hour fire-resistive occupancy separation within which the exempt amounts of hazardous materials may be stored, dispensed, handled or used. Up through the third floor and down through the first basement floor, the quantity in this table shall apply. Fourth, fifth and sixth floors and the second and third basement floor level quantity shall be reduced to 75 percent of this table. The seventh through 10th floor and below the third basement floor level quantity shall be reduced to 50 percent of this table.

² Quantities may be increased 100 percent when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

**TABLE 3416.7(2) EXEMPT AMOUNTS OF HAZARDOUS MATERIALS, LIQUIDS AND CHEMICALS
PRESENTING A HEALTH HAZARD MAXIMUM QUANTITIES PER LABORATORY SUITE¹
When two units are given, values within parentheses are in pounds (Lbs.)**

MATERIAL	STORAGE			USE CLOSED SYSTEMS			USE OPEN SYSTEMS	
	Solid Lbs.	Liquid Gallons (Lbs.)	Gas Cu. Ft.	Solid Lbs.	Liquid Gallons (Lbs.)	Gas Cu. Ft.	Solid Lbs.	Liquid Gallons (Lbs.)
1. Corrosives	5,000	500	650 ²	5,000	500	650	1,000	100
2a. Highly toxics ²	40	10	65	5	1	65	2	1/4
2b. Toxics	500	50	650 ²	500	50	650	5	1/2
3. Irritants	5,000	500	650	5,000	500	650	1,000	100
4. Sensitizers	5,000	500	650	5,000	500	650	1,000	100
5. Other health hazards	5,000	500	650	5,000	500	650	1,000	100

¹ A laboratory suite is a space up to 10,000 square feet (929 m²) bounded by not less than a one-hour fire-resistive occupancy separation within which the exempt amounts of hazardous materials may be stored, dispensed, handled or used. Up through the third floor and down through the first basement floor, the quantity in this table shall apply. Fourth, fifth and sixth floors and the second and third basement floor level quantity shall be reduced to 75 percent of this table. The seventh through 10th floor and below the third basement floor level quantity shall be reduced to 50 percent of this table.

² Permitted only when stored or used in approved exhausted gas cabinets, exhausted enclosures or fume hoods. Quantities of high toxics in use in open systems need not be reduced above the third floor or below the first basement floor level. Individual container size shall be limited to 2 pounds (0.91 kg) for solids and 1/4 gallon (0.95 L) for liquids.

CHAPTER 35 REFERENCED STANDARDS

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Sections 1.1.5, 1.1.7 and 102.4.

ASME American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Standard reference number	Title	Referenced in code section number
A17.1/CSA B44 <u>California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders</u> BPE – 2009	Safety Code for Elevators and Escalators	1607.9.1
	Bio-processing Equipment Standard	

ASTM ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
E648-04	Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	804.4.1, 804.4.2
E662-09	Standard Test Method for Specific Optical Density..... of Smoke Generated by Solid Materials	804.4.1, 804.4.2

FM Factory Mutual
Standards Laboratories Department
1151 Boston-Providence Turnpike
Norwood, MA 02062

Standard reference number	Title	Referenced in code section number
3260-00	Radiant Energy-Sensing Fire Detectors for Automatic Fire Alarm Signaling.	
3011-99	Approval Standard for Central Station Service for Fire Alarm and Protective Equipment Supervision	
4430-80	Acceptance Criteria for Smoke and Heat Vents.....	910.3.1

ICC International Code Council, Inc.
500 New Jersey Ave, NW 6th Floor
Washington, DC 20001

Standard	Referenced
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STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

reference number	Title	in code section number
ICC ES AC 331	Vents.....	Acceptance Criteria for Smoke and Heat 910.3.1
ICC ES AC77	Acceptance Criteria for Smoke Containment Systems Used with Fire-resistance-rated Elevator Hoistway Doors and Frames.....	707.14.1
ICC/ANSI A117.1—09	Accessible and Usable Buildings and Facilities	406.2.2, 907.5.2.3.4, 1007.9, 1010.1, 1010.6.5, 1010.9, 1011.3, 1022.8, 1101.2, 1102.1, 1104.4, 1106.7, 1107.2, 1108.2.2, 1108.2.3, 1108.4.1.1, 1108.4.1.2, 1108.4.1.4, 1108.4.1.5, 1109.1, 1109.2, 1109.2.1.1, 1109.2.2, 1109.2.3, 1109.3, 1109.4, 1109.8, 1109.13, 2902.4, 3001.3, 3008.13.1, 3008.13.2, 3411.6, 3411.8.2, 3411.8.3, E101.2, E104.2, E104.2.1, E104.3, E104.3.4, E105.1, E105.2.1, E105.2.2, E105.3, E105.4, E105.6, E106.2, E106.3, E106.4, E106.4.9, E106.5, E107.2, E107.3, E108.3, E108.4, E109.2.1, E109.2.2.1, E109.2.2.2, E109.2.2.3, E109.2.3, E109.2.5, E109.2.6, E109.2.8, E110.2, E110.4
IECC—15	International Energy Conservation Code®	101.4.6, 1203.3.2, 1301.1.1
IFC—15	International Fire Code®	101.4.5, 102.6, 201.3, 307.1, Table 307.1(1), Table 307.1(2), 307.1.1, 307.2, 403.4.4, 404.2, 406.5.1, 406.6.1, 410.3.6, 411.1, 412.1, 412.6.1, 413.1, 414.1.1, 414.1.2, 414.1.2.1, 414.2, 414.2.5, Table 414.2.5(1), Table 414.2.5(2), 414.3, 414.5, 414.5.1, Table 414.5.1, 414.5.2, 414.5.4, 414.5.5, 414.6, 415.1, 415.2, 415.3, 415.3.1, Table 415.3.1, Table 415.3.2, 415.6, 415.6.1, 415.6.1.4, 415.6.2, 415.6.2.3, 415.6.2.5, 415.6.2.7, 415.6.2.8, 415.6.2.9, 415.6.3, 415.6.4, 415.7, 415.8.1, 415.8.2.7, 415.8.5.1, 415.8.7.2, 415.8.9.3, 415.8.10.1, 416.1, 421.1, 421.7, 507.3, 707.1, 901.2, 901.3, 901.5, 901.6.2, 903.2.7.1, Table 903.2.11.6, 903.2.12, 903.5, 904.2.1, 905.1, 905.3.6, 906.1, 907.1.8, 907.2.5, 907.2.13.2, 907.2.15, 907.2.16, 907.6.5, 907.8, 909.20, 910.2.2, 1001.3, 1203.4.2, 1203.5, 2702.1, 2702.2.9, 2702.2.11, 2702.2.12, 2702.2.13, 2702.3, 3102.1, 3103.1, 3309.2, 3401.3, 3412.3.2, 3412.6.8.1, 3412.6.14, 3412.6.14.1
IFGC—15	International Fuel Gas Code®	101.4.1, 201.3, Table 307.1(1), 415.6.3, 2113.11.1.2, 2113.15, 2801.1, 3401.3, A101.2
IMC—15	International Mechanical Code®	101.4.2, 201.3, 307.1, Table 307.1(1), 406.4.2, 406.6.3, 406.6.5, 409.3, 412.6.6, 414.1.2, 414.3, 415.6.1.4, 415.6.2, 415.6.2.8, 415.6.3, 415.6.4, 415.8.11.1, 416.3, 421.5, 603.1, 603.1.1, 603.1.2, 708.2, 716.2.2, 716.5.4, 716.6.1, 716.6.2, 716.6.3, 717.5, 719.1, 719.7, 903.2.11.4, 904.2.1, 904.11, 908.6, 909.1, 909.10.2, 1015.5, 1018.5.1, 1203.1, 1203.2.1, 1203.4.2, 1203.4.2.1, 1203.5, 1209.3, 2304.5, 2801.1, 3004.3.1, 3401.3, 3412.6.7.1, 3412.6.8, 3412.6.8.1, A101.2
IPC—15	International Plumbing Code®	101.4.3, 201.3, 415.6.4, 717.5, 903.3.6, 912.5, 1206.3.3, 1503.4, 1805.4.3, 2901.1, Table 2902.1, 3305.1, 3401.3, A101.2
IPMC—15	International Property Maintenance Code®	101.4.4, 102.6, 103.3, 3401.3, 3412.3.2
IPSDC—15	International Private Sewage Disposal Code®	101.4.3, 2901.1, 3401.3
IRC—15	International Residential Code®	101.2, 308.2, 308.5, 310.1, 2308.1, 3401.3
IWUIC—15	International Wildland Urban Interface Code™	Table 1505.1

NFPA National Fire Protection Association
1 Batterymarch Park

Quincy, MA 02269-9101

Standard reference number	Title	Referenced in code section number
10—13	Portable Fire Extinguishers	
11—10	Low- Medium- and High- Medium- and High -Expansion Foam	
13—13.16	Installation of Sprinkler Systems as amended*	708.2, 903.3.1.1, 903.3.2, 903.3.5.1.1, 903.3.5.2, 904.11, 905.3.4, 907.6.3, 1613.6.3, 1616.9.5, 1616.10.17

***NFPA 13, Amended Sections as follows:**

Revise Section 2.2 and add publications as follows:

2.2 NFPA Publications.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2013 California edition.

Revise Section 8.15.1.2.15 as follows:

8.15.1.2.15 Exterior columns under 10 ft² (0.93m²) in total area, formed by studs or wood joist, with no sources of ignition within the column, supporting exterior canopies that are fully protected with a sprinkler system, shall not require sprinkler protection.

Revise Section 8.15.5.6.17 as follows: Add new Sections 8.15.5.6.1 as follows:

8.15.5.6.1 The sprinkler required at the top and bottom of the elevator hoistway by 8.15.5.6 shall not be required where permitted by Chapter 30 of the California Building Code.

Revise Section 8.15.7.1* as follows:

8.15.7.1* Unless the requirements of 8.15.7.2 or 8.15.7.3 are met, sprinklers shall be installed under exterior roofs, canopies, porte-cochere, balconies, decks, or similar projections exceeding 4 ft (1.2 m) in width.

Revise Section 8.15.7.2* as follows:

8.15.7.2* Sprinklers shall be permitted to be omitted where the exterior canopies, roofs, porte-cocheres, balconies, decks, or similar projections are constructed with materials that are noncombustible, limited-combustible, or fire retardant treated wood as defined in NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*.

Delete Section A.8.15.7.2 of Annex

Revise Section 8.15.7.3

8.15.7.3 Sprinklers shall be permitted to be omitted from below the canopies, roofs, balconies, decks, or similar projections are combustible construction, provided the exposed finish material on the roof, or canopy is noncombustible, limited-combustible, or fire retardant treated wood as defined in NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*, and the roofs, or canopies contains only sprinklered concealed spaces or any of the following unsprinklered combustible concealed spaces:

- (1) Combustible concealed spaces filled entirely with noncombustible insulation
- (2) Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached to the bottom of solid wood joists so as to create enclosed joist spaces 160 ft³ (4.5 m³) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered attic [See ~~11.2.3.1.4(8)(d)~~ 11.2.3.1.5.2(9)].
- (3) Concealed spaces over isolated small roofs, or canopies not exceeding 55 ft² (5.1m²)

Delete language to section 8.15.7.4 and reserve section number.

8.15.7.4 Reserved.

Revise Annex Section A.8.15.7.5 as follows:

A. 8.15.7.5 The presence of planters, newspaper machines and similar items, should not be considered storage .

Add new Sections 8.15.7.6 as follows:

8.15.7.6 Sprinklers may be omitted for following structures:

- (1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.
- (2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

Add new Sections 8.16.1.1.1.4 and 8.16.1.1.1.5 as follows:

8.16.1.1.1.4 Where a system includes floor control valves, a hydraulic design information sign containing information for the floor shall be provided at each floor control valve. A hydraulic design information sign shall be provided for each area calculated. The installing contractor shall identify a hydraulically designed sprinkler system with a permanently marked weatherproof metal or rigid plastic sign secured with corrosion resistant wire, chain, or other approved means. Such signs shall be placed at the alarm valve, dry pipe valve, preaction valve, or deluge valve supplying the corresponding hydraulically designed area.

8.16.1.1.1.5 Control valves, check valves, drain valves, antifreeze valves shall be readily accessible for inspection, testing, and maintenance. Valves located more than 7 feet above the finished floor shall be provided with a means of opening and closing the valve from the floor level.

Add new Sections ~~8.16.1.7, 8.16.1.7.1, 8.16.1.7.1.1, 8.16.1.7.1.2, 8.16.1.7.1.2, 8.16.1.7.1.3, 8.16.1.7.2, 8.16.1.6, 8.16.1.6.1, 8.16.1.6.1.1, 8.16.1.6.1.2, 8.16.1.6.1.3, 8.16.1.6.2~~ as follows:

~~8.16.1.7.2~~ 8.16.1.6 Sectional Valves.

~~8.16.1.7.4~~ 8.16.1.6.1 Private fire service main systems shall have sectional control valves at appropriate points in order to permit sectionalizing the system in the event of a break or for the making of repairs or extensions.

~~8.16.1.7.4~~ 8.16.1.6.1.1 Sectional control valves are not required when the fire service main system serves less than six fire appurtenances.

~~8.16.1.7.4~~ 8.16.1.6.1.2 Sectional control valves shall be indicating valves in accordance with Section ~~6.7.1.36~~ 6.1.3.

~~8.16.1.7.4~~ 8.16.1.6.1.3 Sectional control valves shall be located so that no more than five fire appurtenances are affected by shut-down of any single portion of the fire service main. Each fire hydrant, fire sprinkler system riser, and standpipe riser shall be considered a separate fire appurtenance. In-rack sprinkler systems shall not be considered as a separate appurtenance.

~~8.16.1.7.4~~ 8.16.1.6.1.4 The number of fire appurtenances between sectional control valves is allowed to be modified by the authority having jurisdiction.

~~8.16.1.7.2~~ 8.16.1.6.2 A valve shall be provided on each bank where a main crosses a body of water or outside the building foundation(s) where the main or section of main runs under a building.

Add new Section 9.1.3.9.1.1 as follows:

9.1.3.9.1.1 Powder-driven studs used for attaching hangers to the building structure are prohibited in Seismic design Categories C, D, E and F.

Revise Section 9.3.5.11.4 as follows:

9.3.5.11.4 Where threaded pipe is used for sway bracing, it shall have a wall thickness of not less ~~than~~ than Schedule 40.

Replace Section ~~9.3.5.12~~ 9.3.5.12.5 as follows:

~~9.3.5.12.5~~ Lag screws or power-driven fasteners shall not be used to attach braces to the building structure.

Add language to the beginning of ~~Replace~~ Section ~~9.3.5.12~~ 9.3.5.12.6 as follows:

~~9.3.5.12.6~~ 9.3.5.12.6 Fastening methods other than those identified in ~~9.3.5.9~~ 9.3.5.12 shall not apply to other fastening methods, which shall be acceptable for use if certified by a registered professional engineer to support the loads determined in accordance with the criteria in 9.3.5.6. Calculations shall be submitted to the authority having jurisdiction.

Revise Section 9.3.5.12.7.2*9.3.5.12.8.4 as follows:

9.3.5.12.7.2*9.3.5.12.8.4 Concrete anchors other than those shown in Figure 9.3.5.12.4 Table 9.3.5.12.2(a) through Table 9.3.5.12.2(f) and identified in 9.3.5.11.11 shall be acceptable for use where designed in accordance with the requirements of the building code and certified by a registered professional engineer.

Revise Section 9.3.6.1(3) as follows:

9.3.6.1*(3) No. 12, 440 lb (200 Kg) wire installed at least 45 degrees from the vertical plane and anchored on both sides of the pipe. Powder-driven fasteners for attaching restraint is allowed to be used provided that the restraint component does not support the dead load.

Revise Section 40.6.410.4.3.1.1 as follows:

40.6.410.4.3.1.1 Pipe joints shall not be located under foundation footings. The pipe under the building or building foundation shall not contain mechanical joints.

Exceptions:

1. Where allowed in accordance with 40.6.210.4.3.2
2. Alternate designs may be utilized where designed by a registered professional engineer and approved by the enforcing agency.

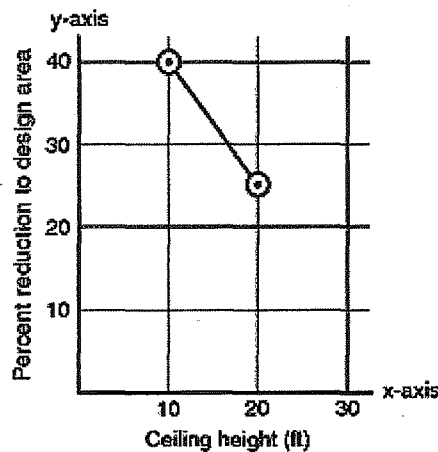
Revise Section 11.2.3.1.4(4)(i)11.2.3.1.5.2(9) as follows:

11.2.3.1.4(4)(i)11.2.3.1.5.2(9) Exterior columns under 10 ft² (0.93m²) in total area, formed by studs or wood joist, with no sources of ignition within the column, supporting exterior canopies that are fully protected with a sprinkler system.

Revise Section 11.2.3.2.3.1 as follows:

11.2.3.2.3.1 Where listed quick-response sprinklers, excluding extended coverage quick-response sprinklers, are used throughout a system or portion of a system having the same hydraulic design basis, the system area of operation shall be permitted to be reduced without revising the density as indicated in Figure 11.2.3.2.3.1 when all of the following conditions are satisfied:

- (1) Wet pipe system
- (2) Light hazard occupancy
- (3) 20 ft (6.1 m) maximum ceiling height
- (4) There are no unprotected ceiling pockets as allowed by 8.6.7 and 8.8.7 exceeding 32 ft² (3 m²)



Note: $y = \frac{-3x}{2} + 55$

For ceiling height ≥ 10 ft and ≤ 20 ft, $y = \frac{-3x}{2} + 55$

For ceiling height < 10 ft, $y = 40$

For ceiling height > 20, $y = 0$

For SI units, 1 ft = 0.31 m.

FIGURE 11.2.3.2.3.1 Design Area Reduction for Quick-Response Sprinklers.
[Editorial Note: Delete Figure 11.2.3.2.3.1]

Revise Section 11.2.3.2.3.2 as follows:

11.2.3.2.3.2 The number of sprinklers in the design area shall never be less than seven.

Revise Section 12.1.1.2 as follows:

12.1.1.2 Early suppression fast-response (ESFR) sprinklers shall not be used in buildings with automatic heat or smoke vents unless the vents use a standard-response operating mechanism *with a minimum temperature rating of 360°F (182°C) or 100°F (56°C) above the operating temperature of the sprinklers, whichever is higher.*

Add Section 25.4(5) Revise Section 25.1 as follows:

25.1 Approval of Sprinkler Systems and Private Fire Service Mains. The installing contractor shall do the following:

- (1) Notify the authority having jurisdiction and the property owner or property owner's authorized representative of the time and date testing will be performed.
- (2) Perform all required testing (see Section 24.2.25.2)
- (3) Complete and sign the appropriate contractor's material and test certificate(s) (see Figure 24.4.25.1)
- (4) Remove all caps and straps prior to placing the sprinkler system in service
- (5) Upon system acceptance by the authority having jurisdiction a label prescribed by Title 19 California Code of Regulations, Chapter 5 shall be affixed to each system riser.

Revise Section 25.4(2) and Add Section 24.5(3) as follows:

25.4 Instructions. The installing contractor shall provide the property owner or the property owner's authorized representative with the following:

- (1) All literature and instructions provided by the manufacturer describing proper operation and maintenance of any equipment and devices installed
- (2) NFPA 25, *Standard for the Inspection, testing, and maintenance of Water-Based Fire Protection Systems*, 2013 California Edition
- (3) Title 19, California Code of Regulations, Chapter 5, "Fire Extinguishing Systems".

Add sentence at the end of Revise Section 25.5.1 as follows:

25.5.1 The installing contractor shall identify a hydraulically designed sprinkler system with a permanently marked weatherproof metal or rigid plastic sign secured with corrosion resistant wire, chain, or other approved means. Such signs shall be placed at the alarm valve, dry pipe valve, preaction valve, or deluge valve supplying the corresponding hydraulically designed area. Pipe schedule systems shall be provided with a sign indicating that the system was designed and installed as a pipe schedule system and the hazard classification(s) included in the design."

Revise Section 25.5.2(3) and Add Sections 25.5.2(7) to (14) as follows:

25.5.2 The sign shall include the following information:

- (1) Location of the design area or areas
- (2) Discharge densities over the design area or areas
- (3) Required flow and pressure of the system at the base of the riser
- (4) Occupancy classification or commodity classification and maximum permitted storage height and configuration
- (5) Hose stream allowance included in addition to the sprinkler demand
- (6) The name of the installing contractor
- (7) Required flow and pressure of the system at the water supply source.
- (8) Required flow and pressure of the system at the discharge side of the fire pump where a fire pump is installed.
- (9) Type or types and number of sprinklers or nozzles installed including the orifice size, temperature rating, orientation, K-Factor, sprinkler identification number (SIN) for sprinkler heads when applicable, and response type.
- (10) The minimum discharge flow rate and pressure required from the hydraulically most demanding sprinkler.
- (11) The required pressure settings for pressure reducing valves.
- (12) For deluge sprinkler systems, the required flow and pressure at the hydraulically most demanding sprinkler or nozzle.
- (13) The protection area per sprinkler based on the hydraulic calculations
- (14) The edition of NFPA 13 to which the system was designed and installed.

Revise Section 25.6.1 as follows:

25.6.1 The installing contractor shall provide a general information sign used to determine system design basis and information relevant to the inspection, testing, and maintenance requirements required by *California Edition NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2013 California Edition*.

13D—1316

Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes as amended*R313.1.1, R313.2.1, R313.3.1, R313.3.2, R313.3.2.3.1, R313.3.2.4.2, R313.3.6

***NFPA 13D, Amended Sections as follows:**

Revise Section 6.2.2, 6.2.2.1, 6.2.4 to read as follows:

6.2.2 Where a well, pump, tank or combination thereof is the source of supply for a fire sprinkler system, the water supply shall serve both domestic and fire sprinkler systems, and the following shall be met:

- (1) A test connection shall be provided downstream of the pump that creates a flow of water equal to the smallest sprinkler on the system. The connection shall return water to the tank.
- (2) Any disconnecting means for the pump shall be approved.
- (3) A method for refilling the tank shall be piped to the tank.
- (4) A method of seeing the water level in the tank shall be provided without having to open the tank.
- (5) The pump shall not be permitted to sit directly on the floor.

Add new Section 6.2.2.1 as follows:

6.2.2.1 Where a fire sprinkler system is supplied by a stored water source with an automatically operated means of pressurizing the system other than an electric pump, the water supply may serve the sprinkler system only.

Add new Section 6.2.4 as follows:

6.2.4 Where a water supply serves both domestic and fire sprinkler systems, 5 gpm (19 L/min) shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler.

Revise Section 8.3.4 to read as follows:

8.3.4* Sprinklers shall not be required in detached garages, open attached porches, carports with no habitable space above, and similar structures.

Add new Section 8.4.4.8, 8.3.10 and 8.3.10.1 as follows:

8.3.10 Solar photovoltaic panel structures

8.4.4.8, 8.3.10.1 Sprinklers shall be permitted to be omitted for from the following structures:

(1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.

(2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

13R—1316

Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height as amended903.3.1.2, 903.3.5.1.1, 903.3.5.1.2, 903.4

***NFPA 13R, Amended Sections as follows:**

Revise Section 2.2 and add publications as follows:

2.2 NFPA Publications.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2013 California edition.

Add new Sections 6.6.96, 6.10 and 6.10.1 as follows:

6.6.10 Solar photovoltaic panel structures

6.6.96.6.10.1 Sprinklers shall be permitted to be omitted ~~for~~ from the following structures:

(1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.

(2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

Revise Section 11.4 as follows:

11.4 Instructions.

The installing contractor shall provide the property owner or the property owner's authorized representative with the following:

(1) All literature and instructions provided by the manufacturer describing proper operation and maintenance of any equipment and devices installed

(2) NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems 2013 California Edition and Title 19, California Code of Regulations, Chapter 5.

(3) Once the system is accepted by the authority having jurisdiction a label as prescribed by Title 19, California Code of Regulations, Chapter 5, shall be affixed to each system riser.

14—1343 Installation of Standpipe and Hose System, as amended*905.2, 905.3.4, 905.4.2, 905.8

***NFPA 14, Amended Sections as follows:**

Replace Section 6.3.7.1

6.3.7.1 System water supply valves, isolation control valves, and other valves in fire mains shall be supervised in an approved manner in the open position by one of the following methods:

(1) Where a building has a fire alarm system or a sprinkler monitoring system installed, the valve shall be supervised by:

(a) a central station, proprietary, or remote supervising station, or

(b) a local signaling service that initiates an audible signal at a constantly attended location.

(2) Where a building does not have a fire alarm system or a sprinkler monitoring system installed, the valve shall be supervised by:

(a) Locking the valves in the open position, or

(b) Sealing of valves and a approved weekly recorded inspection where valves are located within fenced enclosures under the control of the owner.

20—1316 Installation of Stationary Pumps for Fire.....913.1, 913.2.1, 913.5, 913.6

22—1343 Water Tanks for Private Fire Protection

24—1316 Installation of Private Fire Service Mains and Their Appurtenances, as amended*

***NFPA 24, Amended Sections as follows:**

Amend Section 4.2.1 as follows:

Section 4.2.1. Installation work shall be done by fully experienced and responsible contractors. Contractors shall be appropriately licensed in the State of California to install private fire service mains and their appurtenances.

Revise Section 4.2.2 as follows:

4.2.2 Installation or modification of private fire service mains shall not begin until plans are approved and appropriate permits secured from the authority having jurisdiction.

Add Section 4.2.2.1 as follows:

4.2.2.1 As approved by the authority having jurisdiction, emergency repair of existing system may start immediately, with plans being submitted to the authority having jurisdiction within 96 hours from the start of the repair work.

Revise Section 5.9.1.2 as follows:

Section 5.9.1.2 Fire department connections shall be properly supported and ~~protected from mechanical damage.~~

Revise Section 5.9.5.1 as follows:

5.9.5.1 Fire department connections shall be on the street side of buildings and as approved by the authority having jurisdiction.

Revise Section 6.5.1 as follows:

6.5.1 Private fire service main systems shall have sectional controlling valves at appropriate points in order to permit sectionalizing the system in the event of a break or for the making of repairs or extensions.

Add Section 6.5.2.1—6.5.2.36.5.2.46.6.1.1, 6.6.1.2, 6.6.1.4, as follows:

6.5.2.46.6.1.1 Sectional control valves are not required when the fire service main system serves less than six fire appurtenances.

6.5.2.26.6.1.2 Sectional control valves shall be indicating valves in accordance with NFPA 13 Section 6.7.1.3.

6.5.2.36.6.1.3 Sectional control valves shall be located so that no more than five fire appurtenances are affected by shut-down of any single portion of the fire service main. Each fire hydrant, fire sprinkler system riser, and standpipe riser shall be considered a separate fire appurtenance. In-rack sprinkler systems shall not be considered as a separate appurtenance.

6.5.2.46.6.1.4 The number of fire appurtenances between sectional control valves is allowed to be modified by the authority having jurisdiction.

Revise Section 6.6.2 as follows:

6.6.2 A sectional valve shall be provided at the following locations:

- (1) On each bank where a main crosses a body of water
- (2) Outside the building foundation(s) where a main or a section of a main runs under a building

Revise Section 40.6.510.4.3.1.1 as follows:

40.6.510.4.3.1.1 Pipe joints shall not be located under foundation footings. The pipe under the building or building foundation shall not contain mechanical joints.

Exceptions:

1. Where allowed in accordance with 40.6.210.4.3.2
2. Alternate designs may be utilized where designed by a registered professional engineer and approved by the enforcing agency.

Revise Section 10.9.1 as follows:

10.9.1 Backfill shall be well tamped in layers or puddle under and around pipes to prevent settlement or lateral movement. Backfill shall consist of clean fill sand or pea gravel to a minimum 6" below and to a minimum of 12" above the pipe and shall contain no ashes, cinders, refuse, organic matter, or other corrosive materials. Other backfill materials and methods are permitted where designed by a registered professional engineer and approved by the enforcing agency.

25—13 CA

California NFPA 25 Edition (Based on the 2013 Edition)

Inspection, Testing and Maintenance of Water-based Fire Protection Systems 507.5.3, Table 901.6.1,

904.7.1, 912.6, 913.5, 1101.1

31—11 44

Installation of Oil-burning Equipment

32—11

Dry Cleaning Plants, as amended* 2101.1.1, 2107.1, 2107.3

***NFPA 32, Amended Sections as follows:**

Delete the following publications from Section 2.2:

2.2 NFPA Publications.

NFPA 10, Standard for Portable Fire Extinguishers, 2010 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2011 edition.
NFPA 70, *National Electrical Code*®, 2011 edition.
NFPA 101®, *Life Safety Code*®, 2009 edition.
NFPA 5000®, *Building Construction and Safety Code*®, 2009 edition.

Revise 4.4.1.1 to read as follows:

4.4.1.1 General building and structure design and construction shall be in accordance with *California Building Code*.

Delete language to section 4.4.1.2 and 4.4.1.3 and reserve section numbers.

4.4.1.2 Reserved

4.4.1.3 Reserved

Revise 4.4.4 to read as follows:

4.4.4 Means of Egress. Means of egress shall conform with the provisions of the *California Building Code*.

Revise 4.6.2 to read as follows:

4.6.2 Automatic Sprinkler Systems. Where required by this standard, automatic sprinkler systems shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*, and periodically inspected, tested, and maintained in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5*.

Revise 4.6.4 to read as follows:

4.6.4 Portable Fire Extinguishers. Suitable numbers and types of portable fire extinguishers shall be installed and maintained throughout the drycleaning plant in accordance *California Code of Regulations, Title 19, Division 1, Chapter 3*.

Revise 7.3.2 to read as follows:

7.3.2 Electrical Installations. Electrical equipment and wiring in a Type II drycleaning room shall comply with the provisions of *California Electrical Code*, for use in Class I, Division 2 hazardous locations.

37—4015
52—13 43
54—4215
61—13 43
72—4316

Installation and Use of Stationary Combustion Engines and Gas Turbines

Vehicular Gaseous Fuel System Code

National Fuel Gas Code

Prevention of Fires and Dust Explosions in Agricultural and Food Product

*National Fire Alarm and Signaling Code, as amended**.....901.6, 903.4.1, 904.3.5, 907.2, 907.2.5, 907.2.11,
907.2.13.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2,
907.5.2.2, 907.6, 907.6.1, 907.6.5, 907.7,
907.7.1, 907.7.2, 911.1.5, 3006.5, 3007.6

***NFPA 72, Amended Sections as follows:**

Revise Section 10.3.1 as follows:

10.3.1 Equipment constructed and installed in conformity with this Code shall be listed for the purpose for which it is used. *Fire alarm Systems and components shall be California State Fire Marshal approved and listed in accordance with California Code of Regulations, Title 19, Division 1.*

Revise Section 10.3.3 as follows:

10.3.3 All devices and appliances that receive their power from the initiating device circuit or signaling line circuit of a control unit shall be *California State Fire Marshal* listed for use with the control unit.

Revise Section 10.7.1 as follows:

10.7.1 Where approved by the authority having jurisdiction, ECS priority signals when evaluated by stakeholders

through risk analysis in accordance with 24.3.11 shall be permitted to take precedence over all other signals.

Revise Section 12.3.8.1 as follows:

12.3.8.1 The outgoing and return (redundant) circuit conductors shall be permitted in the same cable assembly (i.e., multiconductor cable), enclosure, or raceway only under the following conditions:

- (1) For a distance not to exceed 10 ft (3.0 m) where the outgoing and return conductors enter or exit the initiating device, notification appliance, or control unit enclosures
- (2) Single drops installed in the raceway to individual devices or appliances
- (3)*In a single room not exceeding 1000 ft² (93 m²) in area, a drop installed in the raceway to multiple devices or appliances that does not include any emergency control function devices

~~42.3.7~~—(4) Where the vertically run conductors are contained in a 2-hour rated cable assembly, or enclosed (installed) in a 2-hour rated enclosure or a listed circuit integrity (C.I.) cable, which meets or exceeds a 2-hour fire resistive rating.

Revise Section 14.4.6.1 as follows:

14.4.6.1 Testing. Household fire alarm systems shall be tested in accordance with the manufacturer's published instructions according to the methods of Table 14.4.3.2.

Revise Section 17.15 as follows:

17.15 Fire Extinguisher Electronic Monitoring Device. A fire extinguisher electronic monitoring device shall indicate those conditions for a specific fire extinguisher required by *California Code of Regulations, Title 19, Division 1, Chapter 1, Section 574.2 (c)* and *California Fire Code* to a fire alarm control unit.

Revise Section 21.3.6 as follows:

21.3.6 Smoke detectors shall not be installed in unsprinklered elevator hoistways unless they are installed to activate the elevator hoistway smoke relief equipment or where required by Chapter 30 of the *California Building Code*.

Revise Section 23.8.5.1.2 as follows:

23.8.5.1.2 - Where connected to a supervising station, fire alarm systems employing automatic fire detectors or waterflow detection devices shall include a manual fire alarm box to initiate a signal to the supervising station.

Exception: Fire alarm systems dedicated to elevator recall control, supervisory service and fire sprinkler monitoring as permitted in section 21.3 of NFPA 72.

Revise Section 23.8.5.4.1 as follows:

23.8.5.4.1 Systems equipped with alarm verification features shall be permitted under the following conditions:

- (1) The alarm verification feature is not initially enabled unless conditions or occupant activities that are expected to cause nuisance alarms are anticipated in the area that is protected by the smoke detectors. Enabling of the alarm verification feature shall be protected by password or limited access.
- (2) A smoke detector that is continuously subjected to a smoke concentration above alarm threshold does not delay the system functions of Sections 10.7 through 10.16, 23.8.1.1, or 21.2.1 by more than .30 seconds.
- (3) Actuation of an alarm-initiating device other than a smoke detector causes the system functions of sections 10.7 through 10.16, 23.8.1.1, or 21.2.1 without additional delay.
- (4) The current status of the alarm verification feature is shown on the record of completion (see Figure 7.8.2(a), item 4.3).
- (5) Operation of a patient room smoke detector in I-2 and R-2.1 Occupancies shall not include an alarm verification feature.

Revise Section 29.3.1 as follows:

29.3.1 All devices, combinations of devices, and equipment to be installed in conformity with this chapter shall be approved and listed by the *California State Fire Marshal* for the purposes for which they are intended.

Revise Section 29.5.2.1.1 as follows:

29.5.2.1.1* Smoke and Heat Alarms. Unless exempted by applicable laws, codes, or standards, smoke or heat alarms used to provide a fire-warning function, and when two or more alarms are installed within a dwelling unit, suite of rooms, or similar area, shall be arranged so that the operation of any smoke or heat alarm causes all alarms within these locations to sound.

Exception to 29.5.2.1.1 not adopted by the SFM

Add Section 29.7.2.1 as follows:

29.7.2.1 The alarm verification feature shall not be used for household fire warning equipment.

Add Section 29.7.6.7.1 as follows:

29.7.6.7.1 The alarm verification feature shall not be used for household fire warning equipment.

Revise Section 23.8.5.4 as follows:

29.8.3.4 Specific location requirements. The installation of smoke alarms and smoke detectors shall comply with the following requirements:

- (1) Smoke alarms and smoke detectors shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.
- (2) Smoke alarms and smoke detectors shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F (4°C) or exceed 100°F (38°C).
- (3) Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, smoke alarms and smoke detectors shall be mounted on an inside wall.
- (4) Smoke alarms or smoke detectors shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance.

Exceptions: Ionization smoke alarms with an alarm silencing switch or photoelectric smoke alarms shall be permitted to be installed 10 feet (3 m) or greater from a permanently installed cooking appliance.

Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet (1.8 m) from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 ft distances would prohibit the placement of a smoke alarm or smoke detector required by other sections of the code. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance.

(5) Effective January 1, 2016, smoke alarms and smoke detectors used in household fire alarm systems installed between 6 ft (1.8 m) and 20 ft (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be listed for resistance to common nuisance sources from cooking.

(6) Installation near bathrooms. Smoke alarms shall be installed not less than a 3-foot (0.91 m) horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by other sections of the code.

(7) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.

(8) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.

(9) Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction.

(10) For stairways leading up from a basement, smoke alarms or smoke detectors shall be located on the basement ceiling near the entry to the stairs.

(11) For tray-shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 in. (300 mm) vertically down from the highest point.

(12) Smoke alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.7.3.2.4 of NFPA 72.

(13) Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3 of NFPA 72.

80—~~4316~~

Fire Doors and Other Opening Protectives

[Editors Note: Repeal CA amendment adopting NFPA 92. The model code now adopts it.]

~~92—15~~ Standard for Smoke Control Systems

~~92—12~~ ~~Standard for Smoke Control Systems~~

99—~~1542~~ Health Care Facilities Code

101-1542 Life Safety Code 1028.6.2

105—~~4316~~ Installation of Smoke Door Assemblies and Other Opening Protectives

110—~~4316~~ Emergency and Standby Power Systems

111—~~4316~~ Stored Electrical Energy Emergency and Standby Power Systems

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

120—15	Fire Prevention and Control in Coal Mines Fire Prevention and Control in Coal Mines
211—13 43	Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances
259—13 43	Test Method for Potential Heat of Building Materials
275—13 43	Standard Method of Fire Tests for the Evaluation of Thermal Barriers Used Over Foam Plastic Insulation
285—12 12	Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-Bearing Wall Assemblies Containing Combustible Components
288—12	Standard Method of Fire Tests of Horizontal Horizontal Fire Door Assemblies Installed in Horizontal Horizontal Fire-resistance-rated Assemblies Assemblies
289—13 43	Standard Method of Fire Test for Individual Fuel Packages
409—14 16	Aircraft Hangars
502—14	Standard for Road Tunnels, Bridges, and Other Limited Access Highways
654—13 43	Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids
720—15 42	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment
1124—06 13	Manufacture, Transportation, Storage and Retail Sales of Fireworks and Pyrotechnic Articles
2001—15 42	Clean Agent Fire Extinguishing Systems as amended*Table 901.6.1, 904.10

*NFPA 2001, Amended Sections as follows:

Add Section 4.3.5.1.1 and 4.3.5.2.1 to read as follows:

4.3.5.1.1 Alarms signals from the fire extinguishing system shall not interfere with the building fire alarm signal.

4.3.5.2.1. The lens on visual appliances shall be "red" in color.

Exception: Other lens colors are permitted where approved by the enforcing agency.

State of California
Department of Forestry and Fire Protection
Office of the State Fire Marshal
P.O. Box 944246
Sacramento, CA 94246-2460

SFM

Standard reference number	Title	Referenced in code section number
SFM 12-3	Releasing Systems for Security Bars in Dwellings	
SFM 12-7-3	Fire-testing Furnaces	
SFM 12-7A-1	Exterior Wall Siding and Sheathing	
SFM 12-7A-2	Exterior Window	
SFM 12-7A-3	Under Eave	
SFM 12-7A-4	Decking	
SFM 12-7A-4A	Decking Alternate Method A	
SFM 12-7A-5	Ignition Resistant Building Material	
SFM 12-8-100	Room Fire Tests for Wall and Ceiling Materials	
SFM 12-10-1	Power Operated Exit Doors	
SFM 12-10-2	Single Point Latching or Locking Devices	
SFM 12-10-3	Emergency Exit and Panic Hardware	

(The Office of the State Fire Marshal standards referred to above are found in the California Code of Regulations, Title 24, Part 12.)

STATE OF CALIFORNIA
BUILDING STANDARDS COMMISSION

International Code Council, Inc.
500 New Jersey Avenue, NW 6th Floor
Washington, DC 20001

UBC

Standard reference number	Title	Referenced in code section number
UBC Standard 15-2	Test Standard for determining the Fire Retardancy of Roof-covering Materials.....	1505.6
UBC Standard 15-3	Wood Shakes.....	1505.6
UBC Standard 15-4	Wood Shingles.....	1505.6

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

UL

Standard Reference number	Title	Referenced in code section number
13-96	Power-limited Circuit Cables	
38-99	Manually Actuated Signaling Boxes—with Revisions through February 2, 2005 as amended.*	
<p>*Amend Section 14.1.5 as follows:</p> <p>14.1.5 A signaling box having a glass panel, disc, rod or similar part that must be broken to operate it for a signal or for access to its actuating means shall satisfactorily complete five part-breaking operations using the means provided with the box, without jamming of the mechanism or other interference by broken particles. It shall be practicable to remove and replace the broken parts. A signaling box shall not have a glass panel, disc, rod or similar part requiring a striking action by grasping a tool to operate it for a signal. The force required to activate controls shall be no greater than 5 pounds (22 N) of force.</p> <p>*Add Appendix B chapter to UL 38 (1999) as follows:</p> <p>Appendix B,</p> <p>14.1.5 Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist.</p>		
193-04	Alarm Valves for Fire-Protection Service	
199-95	Automatic Sprinklers for Fire Protection Service—with Revisions through August 19, 2005	
217-06	Single and Multiple Station Smoke Alarms.....	907.2.11
228-97	Door Closers/Holders, with or without Integral Smoke Detectors—with Revisions through January 26, 2006	
260-04	Dry Pipe and Deluge Valves for Fire Protection Service	
262-04	Gate Valves for Fire Protection Service	
268A-98	Smoke Detectors for Duct Application—with Revisions through October 22, 2003	
312-04	Check Valves for Fire-Protection Service	
346-05	Waterflow Indicators for Fire Protective Signaling Systems	
464-03	Audible Signal Appliances—with Revisions through October 10, 2003	
497B-04	Protectors for Data Communication and Fire Alarm Circuits	
521-99	Heat Detectors for Fire Protective Signaling Systems—with Revisions through July 20, 2005	
539-00	Single- and Multiple-Station Heat Detectors—with Revisions through August 15, 2005	
632-00	Electrically Actuated Transmitters	
753-04	Alarm Accessories for Automatic Water Supply Valves for Fire Protection Service	
813-96	Commercial Audio Equipment—with Revisions through December 7, 1999	

864-03 *Control Units for Fire Protective Signaling Systems, as amended**—with Revisions through February 2010 909.12

***Amend No. 55.1 as follows:**
RETARD-RESET-RESTART PERIOD – MAXIMUM 30 SECONDS —No alarm obtained from control unit. Maximum permissible time is 30 seconds.

***Amend Section 55.2.2 as follows:**
Where an alarm verification feature is provided, the maximum retard-reset-restart period before an alarm signal can be confirmed and indicated at the control unit, including any control unit reset time and the power-up time for the detector to become operational for alarm, shall not exceed 30 seconds. (The balance of the section text is to remain unchanged).

***Add Section 55.2.9 as follows:**
Smoke detectors connected to an alarm verification feature shall not be used as releasing devices.
Exception: Smoke detectors which operate their releasing function immediately upon alarm actuation independent of alarm verification feature.

***Amend Section 89.1.10 as follows:**
The existing text of this section is to remain as printed with one editorial amendment as follows:
THE TOTAL DELAY (CONTROL UNIT PLUS SMOKE DETECTORS) SHALL NOT EXCEED 30 SECONDS.
(The balance of the section text is to remain unchanged).

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204
