

File No. 190961 Committee Item No. 3  
 Board Item No. 20

**COMMITTEE/BOARD OF SUPERVISORS**  
 AGENDA PACKET CONTENTS LIST

Committee: Land Use and Transportation Committee Date October 28, 2019

Board of Supervisors Meeting Date November 5, 2019  
 Cmte Board

- |                                     |                                     |  |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/>            | <input type="checkbox"/>            | Motion                                       |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Resolution                                   |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Ordinance                                    |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Legislative Digest                           |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Budget and Legislative Analyst Report        |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Youth Commission Report                      |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Introduction Form                            |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Department/Agency Cover Letter and/or Report |
| <input type="checkbox"/>            | <input type="checkbox"/>            | MOU  |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Grant Information Form                       |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Grant Budget                                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Subcontract Budget                           |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Contract/Agreement                           |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Form 126 – Ethics Commission                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Award Letter                                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Application                                  |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Public Correspondence                        |

**OTHER (Use back side if additional space is needed)**

- |                                     |                                     |  |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>DRAFT 2019 SFEC</u>                       |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>Exhibit A Findings</u>                    |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>2019 CEC &lt;-- ***CLICK HERE TO VIEW</u> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>BIC Ltr 081219</u>                        |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>DBI Ltr 092019</u>                        |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>Referral CEQA 100819</u>                  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>CEQA Determination 101519</u>             |
| <input type="checkbox"/>            | <input type="checkbox"/>            | <u> </u>                                     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | <u> </u>                                     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | <u> </u>                                     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | <u> </u>                                     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | <u> </u>                                     |

Completed by: Erica Major Date October 24, 2019  
 Completed by: Erica Major Date 11/5/2019

\*\*\* PATH NAME:  
<https://sfgov.legistar.com/View.ashx?M=F&ID=7729686&GUID=246054E1-D1EC-4B19-AD7C-B45F0664BBEC>

1 [Electrical Code - Repeal of Existing 2016 Code and Enactment of 2019 Edition]

2  
3 **Ordinance repealing the 2016 Electrical Code in its entirety and enacting a 2019**  
4 **Electrical Code consisting of the 2019 California Electrical Code as amended by San**  
5 **Francisco, adopting environmental findings and findings of local conditions under the**  
6 **California Health and Safety Code; providing an operative date of January 1, 2020; and**  
7 **directing the Clerk of the Board of Supervisors to forward the legislation to the**  
8 **California Building Standards Commission as required by State law.**

9 **NOTE:** **Unchanged Code text and uncodified text** are in plain Arial font.  
10 **Additions to Codes** are in *single-underline italics Times New Roman font*.  
11 **Deletions to Codes** are in ~~*italics Times New Roman font*~~.  
12 **Board amendment additions** are in Arial font.  
13 **Board amendment deletions** are in ~~Arial font~~.  
14 **Asterisks (\* \* \* \*)** indicate the omission of unchanged Code  
15 subsections or parts of tables.

16 Be it ordained by the People of the City and County of San Francisco:

17 Section 1. Environmental Findings. The Planning Department has determined that the  
18 actions contemplated in this ordinance comply with the California Environmental Quality Act  
19 (California Public Resources Code Sections 21000 et seq.). Said determination is on file with  
20 the Clerk of the Board of Supervisors in File No. 190961 and is incorporated herein by  
21 reference. The Board affirms this determination.

22 Section 2. General Findings.

23 (a) The California Building Standards Code is contained in Title 24 of the California  
24 Code of Regulations. It consists of 12 Parts, which are based upon model codes that are  
25 amended by the State agencies with jurisdiction over the subject matter. The California  
Electrical Code is Part 3 of Title 24 of the California Code of Regulations.

1 (b) The State of California adopts a new California Building Standards Code every  
2 three years ("triennial CBSC") with supplemental amendments published in intervening years.  
3 The triennial CBSC goes into effect throughout the State of California 180 days after its  
4 publication by the California Building Standards Commission or at a later date established by  
5 the Commission. The 2019 triennial CBSC will go into effect on January 1, 2020.

6 (c) Local jurisdictions must enforce the California Building Standards Code but they  
7 may also enact more restrictive building standards that are reasonably necessary because of  
8 local climate, geologic, or topographical conditions. Local amendments may be made both to  
9 a triennial CBSC and to its individual Parts during the intervening years; however, local  
10 amendments previously adopted are not automatically applicable to a triennial CBSC. Rather,  
11 they must be re-enacted with the required findings of local climate, geologic, or topographical  
12 conditions, expressly made applicable to the new triennial CBSC, and with an operative date  
13 no earlier than the effective date of the triennial CBSC.

14 (d) As in past triennial CBSC adoption cycles, by this ordinance the Board of  
15 Supervisors repeals the 2016 San Francisco Electrical Code in its entirety, enacts the 2019  
16 San Francisco Electrical Code, and re-enacts the existing local amendments to make them  
17 applicable to the 2019 California Electrical Code.

18 (e) Pursuant to Charter Section D3.750-5, the Building Inspection Commission  
19 considered and approved San Francisco's amendments to the 2019 California Electrical Code  
20 at a duly noticed public hearing that was held on July 17, 2019.

21  
22 Section 3. Findings regarding Local Conditions.

23 (a) California Health and Safety Code Sections 17958.7 and 18941.5 provide that  
24 before making any changes or modifications to the California Electrical Code and any other  
25 applicable provisions published by the California Building Standards Commission, the

1 governing body must make an express finding that each such change or modification is  
2 reasonably necessary because of specified local conditions. The local amendments together  
3 with the required findings must be filed with the California Building Standards Commission  
4 before the local changes or modifications can go into effect.

5 (b) The City and County of San Francisco is unique among California communities  
6 with respect to local climate, geologic, topographical, and other conditions. A specific list of  
7 findings that support San Francisco's modifications to the 2019 California Electrical Code, with  
8 a section-by-section correlation of each modification with a specific numbered finding, are  
9 contained in Exhibit A entitled "Standard Findings for San Francisco Building Standards Code  
10 Amendments."

11 (c) Pursuant to California Health and Safety Code Sections 17958.7 and 18941.5,  
12 the Board of Supervisors finds and determines that the local conditions described in Exhibit A  
13 constitute a general summary of the most significant local conditions giving rise to the need  
14 for modification of the 2019 California Electrical Code provisions published by the California  
15 Building Standards Commission. The Board of Supervisors further finds and determines that  
16 the proposed modifications are reasonably necessary based upon the local conditions set  
17 forth in Exhibit A.

18  
19 Section 4. Repeal of 2016 San Francisco Electrical Code and Enactment of the 2019  
20 San Francisco Electrical Code.

21 (a) The 2016 San Francisco Electrical Code is hereby repealed in its entirety. The  
22 San Francisco Electrical Code being repealed was enacted on November 22, 2016, by  
23 Ordinance No. 227-16, with an operative date of January 1, 2017. It was amended by  
24 Ordinance Nos. 0095-18 and 0065-19. These ordinances are available on the Board of  
25 Supervisors' website.

1 (b) The 2019 San Francisco Electrical Code is hereby enacted. It consists of the  
2 2019 California Electrical Code and San Francisco's existing local amendments, which are re-  
3 enacted and expressly made applicable to the 2019 California Electrical Code. Copies of the  
4 2019 California Electrical Code and the stand-alone San Francisco amendments are declared  
5 to be part of Board File No. 190961 and are incorporated into this ordinance by reference as  
6 though fully set forth. Existing San Francisco amendments that are being made applicable to  
7 the 2019 California Electrical Code are shown in unformatted ("plain") text and may include  
8 bold and/or italicized type; new San Francisco amendments are underlined; and deleted San  
9 Francisco amendments are in strikeout text.

10  
11 Section 5. Continuation of Actions Under Prior Code. Nothing contained in this  
12 ordinance shall be construed as abating any action now pending under or by virtue of any  
13 ordinance of the City and County of San Francisco hereby repealed, nor shall this ordinance  
14 be construed as discontinuing, abating, modifying or altering any penalties accruing, or to  
15 accrue, or as waiving any right of the City under any such ordinance.

16  
17 Section 6. Severability. If any section, subsection, sentence, clause, or phrase of this  
18 ordinance is, for any reason, held to be invalid, such decision shall not affect the validity of the  
19 remaining portions of this ordinance. The Board of Supervisors hereby declares that it would  
20 have passed this ordinance, and each section, subsection, sentence, clause, or phrase of this  
21 Ordinance, irrespective of the fact that any one or more sections, subsections, sentences,  
22 clauses, or phrases be declared invalid.

23  
24 Section 7. Effective and Operative Dates. This ordinance shall become effective 30  
25 days after enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor

1 returns the ordinance unsigned or does not sign the ordinance within ten days of receiving it,  
2 or the Board of Supervisors overrides the Mayor's veto of the ordinance. This ordinance shall  
3 take effect and be in full force on and after either January 1, 2020 or its effective date if the  
4 effective date is later.

5  
6 Section 8. Directions to Clerk. Upon final passage of this ordinance, the Clerk of the  
7 Board of Supervisors is hereby directed to transmit to the California Building Standards  
8 Commission pursuant to the applicable provisions of State law 1) this ordinance, 2) the Exhibit  
9 A attachment, and 3) the San Francisco amendments to the 2019 California Electrical Code.

10  
11 APPROVED AS TO FORM:  
12 DENNIS J. HERRERA, City Attorney

13 By:

  
14 JUDITH A. BOYAJIAN  
15 Deputy City Attorney

16 n:\legana\as2019\1900415\01384331.docx

## LEGISLATIVE DIGEST

[Electrical Code - Repeal of Existing 2016 Code and Enactment of 2019 Edition]

**Ordinance repealing the 2016 Electrical Code in its entirety and enacting a 2019 Electrical Code consisting of the 2019 California Electrical Code as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing an operative date of January 1, 2020; and directing the Clerk of the Board of Supervisors to forward the legislation to the California Building Standards Commission as required by State law.**

### Existing Law

The Electrical Code regulates equipment, wiring, and systems of electrical installations. The existing San Francisco Electrical Code consists of the 2016 California Electrical Code (which incorporates the 2014 National Electrical Code as amended by California) and San Francisco's local amendments to the California Electrical code.

### Amendments to Current Law

Every three years the State of California adopts a new California Building Standards Code ("triennial CBSC"), which amends the California Electrical Code and the other state codes that constitute the CBSC. The 2019 triennial CBSC will go into effect throughout the State on January 1, 2020. As in past triennial CBSC adoption cycles, San Francisco will repeal its existing Electrical Code in its entirety and adopt a new Electrical Code that applies San Francisco's existing local amendments to the new California Electrical Code. Except for non-substantive or technical modifications required by amendments to the state code, there are no changes to the existing San Francisco Electrical Code amendments being carried forward.

### Background Information

Local jurisdictions are required to enforce the California Building Standards Code but they may also enact more restrictive building standards that are reasonably necessary because of local climate, geology, or topography. Local amendments may be made to a triennial CBSC and also throughout the intervening years. However, local amendments previously adopted are not automatically transferred to a new triennial CBSC. Rather, they must be re-enacted with the required findings of local climate, geologic, or topographical conditions, expressly made applicable to the new triennial CBSC, and with an operative date no earlier than the effective date of the new State Code.

BOARD of SUPERVISORS



City Hall  
Dr. Carlton B. Goodlett Place, Room 244  
San Francisco 94102-4689  
Tel. No. 554-5184  
Fax No. 554-5163  
TDD/TTY No. 554-5227

October 8, 2019

File No. 190959-190964

Lisa Gibson  
Environmental Review Officer  
Planning Department  
1650 Mission Street, Ste. 400  
San Francisco, CA 94103

Dear Ms. Gibson:

On October 1, 2019, the Building Inspection Commission submitted the proposed legislation:

**File No. 190959**

**Ordinance repealing the 2016 Building Code in its entirety and enacting a 2019 Building Code consisting of the 2019 California Building Code and the 2019 California Residential Code, as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing for an operative date of January 1, 2020; and directing the Clerk of the Board to forward the legislation to the California Building Standards Commission as required by State law.**

**File No. 190960**

**Ordinance repealing the 2016 Existing Building Code in its entirety and enacting a 2019 Existing Building Code consisting of the 2019 California Existing Building Code as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing for an operative date of January 1, 2020; and directing the Clerk of the Board to forward the legislation to the California Building Standards Commission as required by State law.**

**File No. 190961**

**Ordinance repealing the 2016 Electrical Code in its entirety and enacting a 2019 Electrical Code consisting of the 2019 California Electrical Code as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing an operative date of January 1, 2020; and directing the Clerk of the Board of Supervisors to forward the legislation to the California Building Standards Commission as required by State law.**

File No. 190962

Ordinance repealing the 2016 Mechanical Code in its entirety and enacting a 2019 Mechanical Code consisting of the 2019 California Mechanical Code as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing an operative date of January 1, 2020; and directing the Clerk of the Board of Supervisors to forward the legislation to the California Building Standards Commission as required by State law.

File No. 190963

Ordinance repealing the 2016 Plumbing Code in its entirety and enacting a 2019 Plumbing Code consisting of the 2019 California Plumbing Code as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing an operative date of January 1, 2020; and directing the Clerk of the Board of Supervisors to forward the legislation to the California Building Standards Commission as required by State law.

File No. 190964

Ordinance repealing the 2016 Green Building Code in its entirety and enacting a 2019 Green Building Code consisting of the 2019 California Green Building Standards Code as amended by San Francisco; adopting environmental findings and findings of local conditions under the California Health and Safety Code; providing for an operative date of January 1, 2020; and directing the Clerk of the Board of Supervisors to forward the legislation to the California Building Standards Commission as required by State law.

The above legislation are being transmitted to you for environmental review.

Angela Calvillo, Clerk of the Board



By: Erica Major, Assistant Clerk  
Land Use and Transportation Committee

Attachment

c: Joy Navarrete, Environmental Planning  
Don Lewis, Environmental Planning

Not defined as a project under CEQA Guidelines Sections 15378 and 15060(c)(2) because it would not result in a direct or indirect physical change in the environment.

Joy Navarrete 10/15/2019

**2019**

**San Francisco Electrical Code**

**Amendments to the  
2019 California Electrical Code**

**Operative date: January 1, 2020**

# PROPOSED SAN FRANCISCO ELECTRICAL CODE AMENDMENTS 2019 Edition

## Text Format:

Unchanged language from the 2019 California Code is shaded, and may include **bold** and/or *italicized* formatting.

San Francisco amendments are printed in unformatted ("plain") text, and may include **bold** and/or *italicized* formatting.

Repealed San Francisco amendments appear ~~plain and strikeout~~.

New San Francisco amendments appear underlined.

## Article 89

### GENERAL CODE PROVISIONS

*89.101.1 Replace the first sentence of this section with the following:*

**89.101.1 Title.** The provisions contained in this Code shall be known as the 2016 2019 San Francisco Electrical Code, and may be cited as such and will be referred to as "this code."

*89.115 Add the following section:*

**89.115 Suppression.** This code shall supersede all previous Electrical Codes and ordinances in the City and County of San Francisco. Nothing herein shall require the revision of electrical installation plans submitted prior to the adoption date of this code. Electrical permits obtained prior to the effective date of this code shall comply with the provisions of the Electrical Code, ordinances, regulations and rulings in effect when the permit was granted.

*89.116 Add the following section:*

**89.116 Maintenance.** All electrical equipment, wiring and systems and installations shall be maintained in a safe operating and code-complying condition. The owner or the owner's designated agent, or both, shall be legally responsible for the maintenance of all electrical wiring systems and installations.

Nothing contained in this code shall be construed to require any existing electrical equipment, wiring or systems regulated by this code to be altered, reconstructed, removed or demolished, providing such existing electrical equipment, wiring or system was installed and maintained in accordance with the adopted code in effect at the time of installation or subsequent alteration.

Unused conductors and cables shall be either removed or suitably identified and terminated in an approved manner.

*89.117 Add the following section:*

**89.117 Alternate Materials, Design and Methods of Construction.**

(A) **Alternates Require Approval:** The provisions of this code are not intended to prevent the use of a product or method of construction not specifically prescribed by this code, provided any such alternate has been approved and the use authorized by the Building Official.

(B) **Equivalency of Alternates.** The Building Official may authorize an alternate, provided the Building

Official finds the proposed design is satisfactory for the intended use and complies with the provisions of this code and that the product, method or work offered is, for the purpose intended, at least equivalent to that prescribed by this code in suitability, strength, effectiveness, fire resistivity, durability and safety.

(C) **Evidence Required.** The Building Official shall require sufficient evidence or proof be submitted to substantiate any claims made regarding the use of alternates. The details of any action granting approval of an alternate shall be recorded and shall be entered in the files of the Department of Building Inspection.

(D) **Conditions and Fees.** See Building Code Section 104A.2.8 for conditions and Section 110A, Table IA-J – Miscellaneous Fees – for applicable fees.

*89.118 Add the following section:*

**89.118 Change in Occupancy.** Electrical equipment, wiring and systems which are part of any building or structure, or portion thereof, undergoing a change in occupancy or use, as defined in the Building Code, shall comply with all requirements of this code which may be applicable to the new occupancy or use.

**Exception:** The provisions of this section shall not require the change of existing electrical equipment, wiring and systems where such electrical equipment, wiring and systems are deemed adequate for the new occupancy involved.

*89.119 Add the following section:*

**89.119 Modifications.** When there are practical difficulties involved in carrying out the provisions of this code, the Building Official may grant modifications for individual cases. The Building Official shall first find that a special individual reason makes the strict letter of this code impractical and that the modification is in conformance with the intent and purpose of this code and that such modification does not lessen health, life-safety and fire-safety requirements. The details of any action granting modifications shall be recorded and entered in the files of the Department of Building Inspection.

*89.120 Add the following section:*

**89.120 Permits Required.**

(A) **General.** It shall be unlawful for any person to install, construct, alter, move, add to or replace any electrical installation regulated by this code, except as permitted in Section 89.121, without first obtaining a permit from the Department of Building Inspection.

(B) **Nonliability of City and County of San Francisco.** Permits issued under the provisions of this code shall contain or be construed to contain an agreement by the owner of the building, structure or premises, or the owner's authorized agent, to save City and County of San Francisco officials and employees harmless from all costs, liability and damages resulting, whether directly or indirectly, from anything in connection with the work included in the permit, including equipment, methods of construction, inspections and approvals.

(C) **Application For Permit.** Permit applicants shall file with the Department of Building Inspection an application form furnished for that purpose. The permit application shall show a complete itemization of the proposed electrical installation and the correct address of the job site. Electrical permits may be issued to duly licensed contractors who have registered with the Central Permit Bureau by having their state contractor's license verified by the Department of Building Inspection, or issued to a homeowner subject to Section 89.120(E). A separate permit shall be obtained for each separate building or structure.

See Section 110A, Table 1A-E – Electrical Permit Fees – of the Building Code for the applicable fees.

(D) **Illegal Use of Permit.** No person, firm, corporation, or state licensed contractor shall file an application for a permit to install any electrical wiring system unless such person, firm, corporation, or state licensed contractor shall perform such work. The Building Official or the Building Official's authorized representative shall have the authority to cancel any permit upon finding that it is contrary to this section. The permittee shall be responsible for all work performed.

(E) **Homeowner's Permit.** A permit for electrical work in or about a single-family dwelling (Owner-

Occupied) may be issued by the Building Official to a home owner homeowner, provided the work to be done will be performed by the homeowner. If the electrical work performed under the homeowner's permit does not comply with the requirements of this code and if the corrections are not made as required by the Department of Building Inspection, then the deficiencies shall be corrected by a State licensed electrical contractor under a separate permit.

**Note:** Trust & LCC's are not eligible for an Electrical Homeowner's Permit

(F) **Emergency Work.** Emergency electrical work for the protection of persons or property shall have a permit obtained within one business day of commencing such work.

*89.121 Add the following section:*

**89.121 Work Exempt from Permits.** Electrical permits and fees shall not be required for the following:

(A) Repair or replacement of Broken or Damaged luminaires where:

(1) the luminaire(s) are not installed to provide emergency illumination required by San Francisco Building Code, and

(2) no change in existing wiring is involved, and

(3) the luminaires weigh 22.68 Kg (50 pounds) or less.

(B) Repair or replacement of a domestic appliance where no change in existing wiring is involved.

(C) Replacement of fuses, controls, motors of less than 2 horsepower, and switches and receptacles of not more than 20 amperes rating, where no change in existing wiring is involved.

(D) Replacement of circuit breakers, externally operated switches and fuse holders of the same type and rating as the defective unit or component, if not rated in excess of 100 amperes. Exception: Replacement of main service disconnecting means are subject to permit and inspection regardless of rating.

(E) Wiring for temporary theater stages and platforms, motion picture and television studio sets supplied from approved electrical outlets installed for the purpose.

(F) Replacement of component parts for electric signs or gas-tube lighting systems of the same size and rating.

(G) Installation of data/communications cable and/or outlets in R-3 occupancies and within individual residential units (3000 Square Feet of or Less), provided they do not monitor or control electrical utilization equipment and/or life-safety functions.

*89.122 Add the following section:*

**89.122 Permit Issuance.**

(A) **General.** An issued permit entitles the permittee to proceed with the installation described therein. Work done in excess of that shown on the application will be subject to extra permit fees as set forth in Section 110A, Table 1A-F – Specialty Permit Fees – of the Building Code. The issuance of a permit does not constitute an approval or an authorization of the work specified therein. Neither the issuance of a permit, nor the approval by the Building Official of any document, shall constitute an approval of a violation of any provision of this code or any law or ordinance. A permit or other document purporting to give authority to violate any code, law or ordinance shall not be valid with respect thereto. Permits shall not be transferable. Proposed electrical installations delineated on a permit application shall be performed only by the permittee or bona fide employee thereof in accordance with the California Code of Regulations, Title 8, Chapter 2, Part IV. The permit shall be posted on the job site where the work is to be done.

(B) **Permit Expiration.** Electrical permits expire per Section 106A.4.4 of the San Francisco Building Code. Permit fees may be partially refunded if cancellation request is made to the Building Official prior to commencement of the permitted work and within 90 days of the date of permit issuance. See Section 110A, Table 1A-R – Refunds – of the Building Code for refund.

(C) **Commencement of Work on Permit Expired Due to Work Not Started.** Before work may be commenced on an expired permit on which no work was performed, a new permit shall be obtained.

(D) **Recommendation of Work on Permit Expired Due to Work Not Completed.** The applicant shall

secure a new permit for the work not completed. The permit fee shall be based upon items or work remaining to be done.

(E) **Cancellation of Permit:** Permits may be canceled by the Building Official:

(1) If after inspection, it is judged by a senior inspector that the permit holder is unable or unwilling to correct an unsafe condition or Code violations.

(2) If the permit was obtained fraudulently or under false pretenses.

89.123 *Add the following section:*

**89.123 Fees.**

(A) **General.** Permit and inspection fees, as set forth in Section 110A, Table 1A-E – Electrical Permit Fees – of the Building Code, shall be paid prior to permit issuance. When additional permit or inspection fees are due, they shall be payable prior to issuance of Permission to Connect Current, Certificate of Occupancy, or Declaration of Inspection.

(B) **Other Fees.** A standard hourly inspection fee shall be charged for services provided by Electrical Inspection Division personnel which are not otherwise detailed. See Section 110A, Table 1A-G – Inspections, Surveys and Reports – of the Building Code.

(C) **Work Without Permit – Investigation Fee.** If the Building Official finds that a person, company or entity has performed electrical installation work for which a permit is required, without first obtaining an electrical permit and payment of fees, the Building Official shall require the payment of an investigative fee in addition to the prescribed permit fee. See Section 110A, Table 1A-K – Penalties, Hearings, Code Enforcement Assessments – of the Building Code for the applicable fees. The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this Code, nor from any penalty prescribed by law. The Building Official may reduce the investigation fee to two times the amount of the permit fee as called for in Section 110A, Table 1A-E – Electrical Permit Fees – of the Building Code for work that was constructed prior to the current building ownership if the owner files with the Building Official a notarized affidavit together with documents substantiating such dates of work.

Appeal of such investigative fee may be filed with the Board of Appeals in the manner provided in Section 8 *et seq.* of the Business & Tax Regulations Code. Such filing shall be subject to the fees and rules of the Board of Appeals. The Board of Appeals, in reviewing the appeal, may reduce the appealed amount to not less than two times (2x) the permit fee as set forth in Section 110A, Table 1A-E – Electrical Permit Fees – of the Building Code.

89.124 *Add the following section:*

**89.124 Powers and Duties of the Building Official.**

(A) **General.** The Building Official is hereby authorized and directed to enforce all the provisions of this code. For such purposes, the Building Official shall have the powers of a law enforcement officer. The Building Official, when necessary, may call upon the Police Department and other city agencies for aid or assistance in carrying out or enforcing any of the provisions of this code.

(B) **Right of Entry.** When it is necessary to make an inspection to enforce the provisions of this code or other codes or ordinances, or when the Building Official has reasonable cause to believe that there exists in a building or upon a premises a condition that is contrary to, or in violation of, this code or other codes or ordinances that makes the building or premises unsafe, dangerous or hazardous, the Building Official may enter the building or premises at reasonable times to inspect or to perform the duties imposed by this code or other codes or ordinances, provided that if such building or premises be occupied, credentials be presented to the occupant and entry requested. If such building or premises be unoccupied, the Building Official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If entry is refused, the Building Official shall have recourse to the remedies provided by law to secure entry.

(C) **Stop Orders.** Whenever any work is being done contrary to the provisions of this code, or other pertinent laws or ordinances implemented through the enforcement of this code, the Building Official may order the work stopped by notice in writing served on any persons engaged in the doing or causing such work to be done, and any such persons shall forthwith stop such work until authorized by the Building Official to proceed with the work.

(D) **Temporary Use of Electrical Energy.** The Building Official may permit the temporary use of electrical energy by any person, firm or corporation in cases where it does not create a hazard to life or property.

(E) **Building Official may adopt rules and regulations.** The Building Official shall have the power to render interpretations of this code and to adopt and enforce rules and supplemental regulations to clarify the application of its provisions. Such interpretations, rules and regulations shall be in conformance with the intent and purpose of this code. Such rules and regulations, commonly referred to as Code Rulings and Administrative Bulletins, supplemental to this code, shall not take effect until approved by the Building Inspection Commission and signed by the Building Official except in unusual circumstances where the Building Official has determined there is an immediate need to protect the public health and safety. When the Building Official finds that such circumstances exist, the Building Official may order immediate enforcement of a particular rule or regulation. The Building Official shall arrange for a subscription service to such rules and regulations, the entire cost of which is to be borne by the subscribers.

(F) **Code Revisions.** The Building Official shall transmit to the Building Inspection Commission, at intervals not exceeding three years, recommendations for changes to this code, based on studies of the following:

(1) Requests of the Board of Examiners for variances from this code, and for approvals of alternate materials, alternate designs and methods of construction.

(2) Code changes recommended by the Board of Examiners.

(3) Code changes recommended by the Code Advisory Committee or other bodies subordinate to the Building Inspection Commission.

(4) Results obtained and problems encountered from legal actions taken to correct code violations.

(5) Changes or improvements in materials, methods of construction or design, and changes proposed by interested persons.

(6) Investigations of fire and structural damage to buildings, and of complaints of unsatisfactory electrical system performance.

(7) Periodic changes to the California Electrical Code and other State regulations which may affect this code.

(8) Administrative Bulletins and Code Rulings currently in effect.

(9) Violations of this code found on inspections and investigations.

(G) **Disconnection of Electric Service Due to Serious and Imminent Hazards.** The building Official shall have the authority to disconnect electric service to a building, structure, property or equipment regulated by this code when it is necessary to abate a serious and imminent hazard to the life, health or safety of the occupant or other persons, or such building, structure or property. See Section 102A of the Building Code. Persons shall not reconnect such electrical supply until authorized in writing by the Building Official.

*89.125 Add the following section:*

**89.125 Violation.** Any person, the owner or the owner's authorized agent, who violates, disobeys, omits, neglects, or refuses to comply with, or resists or opposes the execution of any of the provisions of this code, shall be liable for a civil penalty, not to exceed \$500 for each day such violation is committed or permitted to continue, which penalty shall be assessed and recovered in a civil action brought in the name of the people of the City and County of San Francisco by the City Attorney in any court of competent jurisdiction. Any

penalty assessed and recovered in an action brought pursuant to this paragraph shall be paid to the City Treasurer and credited to the Department of Building Inspection's Special Fund.

Any person, the owner or the owner's authorized agent, who violates, disobeys, omits, neglects, or refuses to comply with, or who resists or opposes the execution of any of the provisions of this code, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding \$500, or by imprisonment not exceeding six months, or by both such fine and imprisonment, unless otherwise provided in this code, and shall be deemed guilty of a separate offense for every day such violation, disobedience, omission, neglect or refusal shall continue. Any person who shall do any work in violation of any of the provisions of this code, and any person having charge of such work who shall permit it to be done, shall be liable for the penalty provided.

It shall be unlawful for any person to interfere with the posting of any notice provided for in this code, or to tear down or mutilate any such notice so posted by the Department of Building Inspection.

*89.126 Add the following section:*

**89.126 Unsafe Buildings or Structures.**

- (A) Electrical equipment, wiring and systems deemed hazardous to human life or structure safety;
- (B) Electrical equipment, wiring and systems that are in violation of the code that was in effect at the time of construction or installation or such work was performed without permit or approval;
- (C) Change in occupancy without complying with the provision of Section 89.118 of this code.

Such unsafe building, structure, property or portion shall be vacated, repaired, altered or demolished, and violations of this code abated, in accordance with Section 102A of the Building Code, including, but not limited to, Sections 102A.3 through 102A.8.

*89.127 Add the following section:*

**89.127 Inspection.**

(A) **General.** All electrical equipment, wiring and systems regulated by this code and for which a permit is required, shall be subject to inspection to insure compliance with this code. Upon the completion and final approval of the permitted installation and payment of all permit and inspection fees, a Declaration of Inspection shall be issued. Said declaration shall indicate in concise terms the electrical installation thus approved and the date of approval.

(B) **Unlawful Use of Electrical Energy.** It shall be unlawful to energize an electrical installation in, on or about any building, structure or property in the City and County of San Francisco unless a Certificate to Connect Current (Green Tag) has been issued. The Certificate to Connect Current authorizes the owner of the structure to energize the permitted installation.

(C) **Inspection Requests.** It shall be the responsibility of the permit holder to notify the Electrical Inspection Division orally or in writing when the permitted installation will be ready for inspection. Such notification shall be given at least 24 hours before any inspection is desired. Inspections may be performed outside of normal inspection hours by prior arrangement and prepayment. See Section 110A, Table 1A-G – Off-hours Inspections – of the Building Code for the applicable fees.

(D) **Required Inspections.** Required inspections shall include:

- (1) **Pre-Cover Inspection.** Electrical equipment, wiring and systems authorized by permit shall be inspected for code compliance prior to covering or concealing.
- (2) **Final Inspection.** Final inspection and demonstration of satisfactory operation shall be made after the installation authorized by permit has been completed.
- (3) **Other Inspection.** As may be required to insure compliance with the provisions of this code.

(E) **Electrical Wiring or Installation Unlawful to Conceal.** It shall be unlawful to conceal, cover, or put into use electrical wiring, installations, or parts thereof, until such has been inspected and accepted as prescribed in this code. Whenever such work is concealed or covered before first having been inspected and approved, or whenever electrical wiring or systems are installed and concealed or covered without a permit,

the Building Official may require, by written notice to the responsible person(s) that such wiring or installation be exposed for inspection. The work of exposing and reconstructing portions of a structure for such work shall not entail expense to the City and County of San Francisco or any of its officials or employees.

(F) **Reinspections.** Reinspections shall be required when any of the following conditions occurs:

- (1) When the portion of the work for which inspection is requested is incomplete or not code complying.
- (2) When previously identified deficiencies in the work are not properly corrected.
- (3) When the approved construction documents are not available to the inspector.
- (4) When access is not provided on the date and time of the inspection appointment.
- (5) When there are deviations from the approved construction documents.

The first reinspection for failure to comply with code requirements shall not be assessed a re-inspection reinspection fee. All subsequent reinspections on a job for the same or subsequent errors or omissions shall be charged with a reinspection fee. A Certificate of Final Completion and Occupancy or final approval shall not be granted until the required fees are paid. See Section 110A, Table 1A-G – Inspections, Surveys and Reports – of the Building Code for applicable reinspection fees.

89.128 Add the following section:

**89.128 Survey.** An electrical survey may be requested when an electrical inspector's assistance is desired to establish code compliance of existing or proposed electrical equipment, wiring and installations. See Section 110A, Table 1A-G of the Building Code for applicable fees.

89.129 Add the following section:

**89.129 Board of Examiners.** Application may be made to the Board of Examiners for approval of alternate materials, methods and types of construction and for variances from the provisions of this code. See Building Code, Section 105A.1.

## ARTICLE 90 – INTRODUCTION

*No San Francisco Electrical Code Amendments.*

### Chapter 1. General

## ARTICLE 110 – REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

110.15 Revise this section as follows:

**110.15 High-Leg Marking.** On a 4-wire, delta-connected system where the midpoint of one phase winding is grounded, only the conductor or busbar having the higher phase voltage to ground shall be durably and permanently marked by an outer finish that is purple in color or by other effective means. Such identification shall be placed at each point on the system where a connection is made if the grounded conductor is also present.

*Information Note:* Identification of Ungrounded Branch Circuit Conductors & Feeder conductors shall comply with Section 210.5(C)(1) Branch Circuits Supplied from More Than One Nominal Voltage System & 215.12(C)(1) Feeders Supplied from More Than One Nominal Voltage System.

110.26(A)(3) Revise this section as follows:

(3) **Height of Working Space.** The work space shall be clear and extend from the grade, floor, or platform to a height of 2.0 m (6 1/2 ft) or the height of the equipment, whichever is greater. Within the height

requirements of this section, other equipment that is associated with the electrical installation and is located above or below the electrical equipment shall be permitted to extend not more than 150 mm (6 in.) beyond the front of the electrical equipment.

*Exception No. 1:* [Exception deleted by local amendment.]

*Exception No. 2:* Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. The meter socket shall be required to follow the rules of this section.

*Exception No. 3:* On battery systems mounted on open racks, the top clearance shall comply with 480.10(D).

110.26(B) *Revise this section as follows:*

**(B) Clear Spaces.** Working space required by this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded. The standing area of the workspace shall not contain obstructions, abrupt changes in grade, or irregularities.

## Chapter 2.

### Wiring and Protection

#### ARTICLE 210 – BRANCH CIRCUITS

210.5(C)(1)(a) *Revise this section as follows:*

**(a) Means of Identification.** The means of identification for conductors #8AWG or larger shall be permitted to be by separate color coding, marking tape, tagging, or other approved means. Conductors of any size in cable assemblies may be suitably identified at all termination, connection and splice points. Conductor insulation in raceways shall contain continuous color pigment for circuit wire sizes # 10 AWG and smaller.

Phase Identification Colors for Branch Circuits shall be as follows:

- (1) 120/240 Volt 3-Wire Single Phase Systems - "A" Phase Black, "B" Phase Red.
- (2) 120/208 Volt 4-Wire 3-Phase Wye Systems - "A" Phase Black, "B" Phase Red, "C" Phase Blue.
- (3) 120/240 Volt 3-Phase Delta Systems - "A" Phase Black, "B" (High Leg) Phase Purple, "C" Phase Red.

*Information Note:* New Construction or Complete Remodel of an Existing Building

- (4) 120/240 Volt 3-Phase Delta Systems - "A" Phase Black, "B" Phase Red, "C" (High Leg) Phase Purple.

*Information Note:* Partial Remodel of an Existing Building – i.e. Replace Main Electrical Service where "C" Phase is Purple, & Re-Connect Existing Panels.

- (5) 277/480 Volt 4-Wire 3-Phase Wye Systems - "A" Phase Brown, "B" Phase Orange, "C" Phase Yellow.

(6) Ungrounded conductors for other voltages shall be identified by different color coding, marking tape, tagging, or other approved means.

(7) Branch Circuit Conductors for switch legs may be of a different color than the Ungrounded Circuit Conductor when suitably identified at pull boxes, junction boxes and outlet boxes with marking tape, tagging or other equally effective means.

*Exception No 1:* In Multi-Family Dwelling Unit Buildings supplied by 120/208 Volt 4-Wire 3-Phase Systems, within Dwelling Units supplied by 120/208 Volt 3-Wire Single Phase Systems, Ungrounded Branch Circuit Conductor shall be permitted to be "A" Phase Black, "B" Phase Red.

*Informational Note:* See Section 200.7 for limitations on re-identification of white or grey for Grounded Conductors, and 250.119 for prohibition on using Green for Ungrounded Conductors.

## ARTICLE 215 – FEEDERS

215.12(C)(1)(a) *Revise this section as follows:*

**(a) Means of Identification.** The means of identification for conductor #8 AWG or larger shall be permitted to be by separate color coding, marking tape, tagging, or other approved means. Conductors of any size in cable assemblies may be suitably identified at all termination, connection and splice points.

Phase Identification Colors for Feeders shall be as follows:

- (1) 120/240 Volt 3-Wire Single Phase Systems - "A" Phase Black, "B" Phase Red.
- (2) 120/208 Volt 4-Wire 3-Phase Wye Systems - "A" Phase Black, "B" Phase Red, "C" Phase Blue.
- (3) 120/240 Volt 3-Phase Delta Systems - "A" Phase Black, "B" Phase (High Leg) Purple, "C" Phase Red.

*Information Note:* New Construction or Complete Remodel of an Existing Building

- (4) 120/240 Volt 3-Phase Delta Systems - "A" Phase Black, "B" Phase Red, "C" Phase (High Leg) Purple.

*Information Note:* Partial Remodel of an Existing Building – i.e. Replace Main Electrical Service where "C" Phase is Purple, & Re-Connect Existing Panels.

- (5) 277/480 Volt 4-Wire 3-Phase Wye Systems - "A" Phase Brown, "B" Phase Orange, "C" Phase Yellow.

(6) Ungrounded conductors for other voltages shall be identified by different color coding, marking tape, tagging, or other approved means.

(7) Branch Circuit Conductors for Switch Legs may be of a different color than the Ungrounded Feeder Circuit Conductor when suitably identified at pull boxes, junction boxes and outlet boxes with marking tape, tagging or other equally effective means.

(8) In Multi-Family Dwelling Unit Buildings supplied by 120/208 Volt 4-Wire 3-Phase Systems, within Dwelling Units supplied by 120/208 Volt 3-Wire Single Phase Systems, within Dwelling Units supplied by 120/208 Volt 3-Wire Single Phase Systems; Ungrounded Feeder Conductors shall be the following:

- a) 120/208 Volt 3 Wire Single Phase "A" Phase Black, "B" Phase Red
- b) 120/208 Volt 3 Wire Single Phase "B" Phase Red, "C" Phase Blue
- c) 120/208 Volt 3 Wire Single Phase "A" Phase Black, "C" Phase Blue
- d) Labeling Required at the Sub-Panel indicating which Phases Serve the Unit from the 120/208

Volt 4-Wire 3-Phase Multi / Meter Distribution System.

*Informational Note:* See Section 200.7 for limitations on identification of white or grey for Grounded Conductors, and 250.119 for prohibition on using Green for Ungrounded Conductors.

*Informational Note:* See 210.5(C)(1) for additional information regarding Identification of Ungrounded Conductors.

## ARTICLE 230 – SERVICES

230.43 *Revise this section as follows:*

**230.43 Wiring Methods for 1000 Volts, Nominal, or Less.**

**(A) Acceptable Wiring Methods.** Service-entrance conductors shall be installed in accordance with the applicable requirements of this Code covering the type of wiring method used and shall be limited to the following methods:

- (1) Reserved

- (2) Reserved
- (3) Rigid metal conduit (RMC)
- (4) Intermediate metal conduit (IMC)
- (5) Reserved
- (6) Reserved
- (7) Reserved
- (8) Reserved
- (9) Busways
- (10) Auxiliary gutters
- (11) Rigid polyvinyl chloride conduit (PVC)
- (12) Reserved
- (13) Reserved
- (14) Mineral-insulated, metal sheathed cable, Type MI
- (15) Reserved
- (16) Reserved
- (17) High density polyethylene conduit (HDPE)
- (18) Non-metallic underground conduit with conductors (NUCC)
- (19) Reinforced thermosetting resin conduit (RTRC)

**(B) Raceway Size.** Minimum raceway size shall comply with the following:

- (1) Except as provided in Section 230.43(B)(2) and (3) the minimum size raceway installed for service entrance conductor shall be 1-1/4 inch (31.8 mm).
- (2) Raceways for service entrance conductors for sign or billboard lighting shall not be smaller than 3/4 inch (19.1 mm) conduit.
- (3) Installations consisting of not more than two 2-wire branch circuits may be supplied by No. 8 conductors in 3/4 inch (19.1 mm) conduit.

**Exception:** New service entrance conductors may be re-pulled in previously approved service raceways, provided the installation complies with the requirements of SFEC Section 89.116 and Chapters 1, 2 and 3.

**Informational Note:** Refer to electric utility service requirements for raceway sizes.

230.56 *Revise this section as follows:*

**230.56 Service Conductor with the Higher Voltage to Ground.** On a four-wire, delta-connected service, where the midpoint of one phase winding is grounded, the service conductor having the higher phase voltage to ground shall be durably and permanently marked by an outer finish that is purple in color, or by other effective means, at each termination or junction point.

230.71(A) *Revise this section and add two exceptions as follows:*

**230.71 Maximum Number of Disconnects.**

(A) General. The service disconnecting means for each service permitted by 230.2, or for each set of service-entrance conductors permitted by 230.40, Exception Nos. 1, 3, 4, or 5, shall consist of a single circuit breaker or switch and set of fuses.

For the purpose of this section, disconnecting means installed as part of listed equipment and used solely for the following shall not be considered a service disconnecting means:

- (1) Power monitoring equipment
- (2) Surge-protective device(s)
- (3) Control circuit of the ground-fault protection system
- (4) Power-operable service disconnecting means

**Exception No. 1:**

- a) Multi-Family Dwellings with a Maximum of (6) units, shall consist of not more than six switches or

sets of circuit-breakers, or a combination of not more than six switches and sets of circuit breakers, mounted in a single enclosure, in a group of separate enclosures, or in or on a switchboard or in switchgear.

b). There shall be not more than six sets of disconnects per service grouped in any one location.

*Exception No. 2:* A Single Main Circuit Breaker or set of fuses shall be provided for each Dwelling Unit.

## ARTICLE 250 – GROUNDING AND BONDING

250.50 *Revise the first paragraph of this section as follows:*

**250.50 Grounding Electrode System.** All grounding electrodes as described in 250.52(A)(1) through (A)(7) that are present at each building or structure served shall be bonded together to form the grounding electrode system. A concrete encased electrode as defined by Section 250.52(A)(3) shall be installed at each new building or structure, and for existing buildings or structures when a new or replacement foundation or footing with a perimeter length of 6.0 m (20 ft.) or more is installed in direct contact with the earth. Where none of these electrodes exist, one or more of the grounding electrodes specified in 250.52(A)(4) through (A)(8) shall be installed and used.

*Exception:* Concrete-encased electrodes of existing buildings or structures shall not be required to be part of the grounding electrode system where the steel reinforcing bars or rods are not accessible for use without disturbing the concrete.

250.64(A) *Revise this section as follows:*

**250.64(A) Aluminum or Copper-Clad Aluminum Conductors.** Bare aluminum or copper-clad aluminum grounding electrode conductors shall not be used where in direct contact with masonry or the earth or where subject to corrosive conditions. Aluminum or copper-clad aluminum grounding electrode conductors shall not be installed on the outside of a building or structure.

250.64(B) *Revise this section as follows:*

**250.64(B) Securing and Protection Against Physical Damage.** Where exposed, a grounding electrode conductor or its enclosure shall be securely fastened to the surface on which it is carried. Grounding electrode conductors shall be permitted to be installed on or through framing members:

(1) **Not Exposed to Physical Damage.** A 6 AWG grounding electrode conductor that is free from exposure to physical damage shall be permitted to be run along the surface of the building construction without metal covering or protection.

(2) **Exposed to Physical Damage.** A 4 AWG or larger copper or aluminum grounding electrode conductor exposed to physical damage shall be protected in rigid metal conduit (RMC), intermediate metal conduit (IMC), rigid polyvinyl chloride conduit (PVC), reinforced thermosetting resin conduit Type XW (RTRC-XW), electrical metallic tubing (EMT), or cable armor. Exposed grounding electrode conductors that are accessible to the general public shall be installed in approved metallic raceway.

(3) **Smaller than 6 AWG.** Grounding electrode conductors smaller than 6 AWG shall be protected in RMC, IMC, PVC, RTRC-XW, EMT, or cable armor. 6 AWG or smaller grounding electrode conductors shall not be installed exposed below 5 feet.

(4) **In contact with the Earth.** Grounding electrode conductors and grounding electrode bonding jumpers in contact with the earth shall not be required to comply with 300.5, but shall be buried or otherwise protected if subject to physical damage.

**Chapter 3.**  
**Wiring Methods and Materials**  
**ARTICLE 300 – GENERAL REQUIREMENTS FOR WIRING**  
**METHODS AND MATERIALS**

300.3(C) *Revise this section as follows:*

**300.3(C)(1) Conductors of Different Systems:**

**(1) 1000 Volts, Nominal or Less.** Conductors of ac and dc circuits, from separately derived systems, from separate services, or from separate utility meters shall not be permitted to occupy the same equipment wiring enclosure, cable or raceway with conductors from other systems, services, or meters. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway.

Secondary wiring to electric-discharge lamps of 1000 volts or less, if insulated for the secondary voltage involved, shall be permitted to occupy the same luminaire, sign, or outline lighting enclosure as the branch-circuit conductors.

*Informational Note No. 1:* See 725.136(A) for Class 2 and 3 circuit conductors.

*Informational Note No. 2:* See 690.4(B) for photovoltaic source and output circuits.

*Exception No. 1:* Photovoltaic Systems: PV Source Circuits and PV Output Circuits in accordance with Section 690.31(B) Identification and Grouping.

*Exception No. 2:* Emergency Systems: Conductors installed in accordance with Section 700.10 Wiring.

*Exception No. 3:* Remote-Control, Signaling, and Power-Limited Circuits: Class 1, 2 or 3 Conductors installed in accordance with Article 725.136(A) General.

*Exception No. 4:* Auxiliary Gutters: When approved by the AHJ Conductors connected to Separately Derived Systems, Service Equipment, or Meter Banks Article 366.

300.4(I) *Add the following section:*

**(I) Subject to Physical Damage.** Premises wiring systems installed less than 2.44 m (8 feet) above a walking surface or finished floor are considered subject to physical damage.

300.37 *Revise this section as follows:*

**300.37 Aboveground Wiring Methods.** Aboveground conductors, 12KV or larger, in Residential or Commercial Occupancies, shall be installed in Rigid Steel Conduit.

Aboveground conductors less than 12-KV, in other than Residential or Commercial Occupancies, shall be installed in rigid metal conduit, in intermediate metal conduit, in electrical metallic tubing, in RTRC and PVC conduit, in cable trays, in auxiliary gutters, as busways, as cablebus, in other identified raceways, or as exposed runs of metal-clad cable suitable for the use and purpose. In locations accessible to qualified persons only, exposed runs of Type MV cables, bare conductors, and bare bus bars shall also be permitted. Busbars shall be permitted to be either copper or aluminum.

**ARTICLE 320 – ARMORED CABLE: TYPE AC**

320.108 *Revise this section as follows:*

**320.108 Equipment Grounding Conductor.** Type AC cable shall provide an adequate path for fault current as required by 250.4(A)(5) or (B)(4) to act as an equipment grounding conductor. An equipment grounding conductor, sized as required by Table 250.122, shall be provided within the cable assembly.

## ARTICLE 330 – METAL-CLAD CABLE: TYPE MC

330.12 *Revise item (1) as follows:*

**330.12 Uses Not Permitted.** Type MC cable shall not be used under either of the following conditions:

- (1) Where subject to physical damage

*Informational Note:* See the 2016 2019 San Francisco Electrical Code Section 300.4 (I) Subject to Physical Damage.

*Exception:* Type MC Cable #4 AWG or larger, installed in a lockable room dedicated solely to an electrical service and distribution equipment and accessible only to qualified personnel, shall be considered to have equivalent protection from physical damage when installed in a neat and workman like manner, properly supported, and securely fastened in place.

330.108 *Revise this section as follows:*

**330.108 Equipment Grounding Conductor.** Where Type MC cable is used to provide an equipment grounding conductor, it shall comply with 250.118(10) and 250.122. An equipment grounding conductor, sized as required by Table 250.122, shall be provided within the cable assembly.

## ARTICLE 334 – NONMETALLIC-SHEATHED CABLE: TYPES NM, NMC, AND NMS

334.10 *Revise Item (2) as follows:*

**334.10 Uses permitted.**

- (2) Multi-family dwellings permitted to be of Types III, IV, and V, wood frame construction not exceeding 6 stories as defined by the San Francisco Building Code except as prohibited in 334.12.

334.12 *Add Items (11), (12) and (13) as follows:*

**334.12 Uses Not Permitted.**

- (11) In any nonresidential structure or occupancy.
- (12) In Common Areas of Multi-family Dwelling Units of Group R-1 and R-2 buildings of Type IIIA construction per the 2016 2019 California Building Code 510.5
- (13) Nominal voltages above 120 volts to ground

## ARTICLE 340 – UNDERGROUND FEEDER AND BRANCH-CIRCUIT CABLE: TYPE UF

340.10 *Revise Item (1) as follows:*

**340.10 Uses Permitted.** Type UF cable shall be permitted as follows:

- (1) For use underground in systems not exceeding 50 volts, including direct burial in the earth. For underground requirements see 300.5.

## ARTICLE 348 – FLEXIBLE METAL CONDUIT: TYPE FMC

348.10 *Revise this section as follows:*

**348.10 Uses Permitted.** FMC shall be permitted to be used in concealed locations and where necessary for flexibility in lengths not to exceed 1.829 m (6 feet).

**ARTICLE 350 – LIQUIDTIGHT FLEXIBLE METAL CONDUIT:  
TYPE LFMC**

350.10 *Revise the first sentence as follows:*

**350.10 Uses Permitted.** LFMC shall be permitted to be used exposed where necessary for flexibility in lengths not to exceed 1.829 m (6 feet) or concealed locations as follows:

**ARTICLE 352 – RIGID POLYVINYL CHLORIDE CONDUIT:  
TYPE PVC**

352.10 *Revise Item (A) as follows:*

**352.10 Uses Permitted.** The use of PVC conduit shall be permitted in accordance with 352.10(A) through (I).

(A) **Concealed.** PVC conduit shall be permitted embedded in concrete. The conduit may emerge not more than 3 inches from the concrete within wiring enclosures, otherwise metal raceways shall be provided where emerging from the concrete.

**ARTICLE 355 – REINFORCED THERMOSETTING RESIN  
CONDUIT: TYPE RTRC**

355.10 *Revise Item (A) as follows:*

**355.10 Uses Permitted.** The use of RTRC shall be permitted in accordance with 355.10(A) through (I).

(A) **Concealed.** RTRC shall be permitted embedded in concrete. The conduit may emerge not more than 3 inches from the concrete within wiring enclosures, otherwise metal raceways shall be provided where emerging from the concrete.

**ARTICLE 356 – LIQUIDTIGHT FLEXIBLE NONMETALLIC  
CONDUIT: TYPE LFNC**

356.10 *Revise the first sentence of this section and item (5) as follows:*

**356.10 Uses Permitted.** LFNC shall be permitted to be used in exposed locations in lengths not to exceed 1.8m (6 feet) or concealed locations where encased in concrete for the following purposes:

(5) When approved by the AHJ, Type LFNC shall be permitted to be installed in lengths longer than 1.8 m (6 feet) where secured in accordance with 356.30.

**ARTICLE 358 – ELECTRICAL METALLIC TUBING: TYPE  
EMT**

358.10(D) *Add a second paragraph as follows:*

**358.10(D) Wet Locations:**

Where EMT emerges from concrete in a damp or wet location, it shall be protected against corrosion at the point of emergence by wrapping of PVC tape, or by other approved means.

358.12 *Add Item (3) as follows:*

**358.12 Uses Not Permitted.** EMT shall not be used under the following conditions:

- (7) (3) In concrete slabs on grade.

## **ARTICLE 362 – ELECTRICAL NONMETALLIC TUBING: TYPE ENT**

*362.10 Revise Item 6 and delete Items 1, 2, 4, 5, 7, 8 and 9 as follows:*

**362.10 Uses Permitted.** For the purpose of this article, the first floor of a building shall be that floor that has 50 percent or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage, or similar use shall be permitted. The use of ENT and fittings shall be permitted in the following:

- (1) Reserved.
- (2) Reserved.
- (4) Reserved.
- (5) Reserved.
- (6) Encased in poured concrete, or embedded in a concrete slab on grade where ENT is placed on sand or approved screenings, provided fittings identified for this purpose are used for connections. Metal raceways shall be provided where emerging from the concrete.
- (7) Reserved.
- (8) Reserved.
- (9) Reserved.

## **ARTICLE 378 – NONMETALLIC WIREWAYS**

*378.12 Add Item (6) as follows:*

**378.12 Uses Not Permitted.** Nonmetallic wireways shall not be used in the following:

- (6) Where the voltage of the contained conductors is in excess of 50 volts.

### **Chapter 4.**

#### **Equipment for General Use**

## **ARTICLE 410 – LUMINAIRES (LIGHTING FIXTURES), LAMP HOLDERS, AND LAMPS**

*410.36(B) Revise this section as follows:*

**410.36(B) Suspended Ceilings.** Framing members of suspended ceiling systems used to support luminaires shall be securely fastened to each other and shall be securely attached to the building structure at appropriate intervals. Luminaires shall be securely fastened to the ceiling framing member by mechanical means such as bolts, screws, or rivets. Listed clips identified for use with the type of ceiling framing member(s) and luminaire(s) shall also be permitted. All luminaires or luminaire outlets supported by suspended ceiling systems shall have supplemental support wires (minimum #12 gauge) connected from the fixture housing or fixture support bracket to the structure above. Recessed lighting fixtures measuring 610 mm (2 feet) nominal or larger in any dimension shall have two (minimum #12 gauge) support wires. See

CBC Section 808.1.1.1 and ASTM standards C635 and C636.

**Exception:** Supplemental support wires shall not be required when listed clips identified to be used without supplemental ceiling wires in compliance with CBC Section 808.1.1.1 are installed.

## ARTICLE 411 – Low-Voltage Lighting

411.5 Revise Section 411.5(A) as follows:

### 411.5 Specific Location Requirements.

(A) **Walls, Floors and Ceilings.** Conductors concealed or extended through a wall, floor, ceiling, or suspended ceiling shall be in accordance with (1) or (2):

(1) Installed using any of the wiring methods specified in Chapter 3

(2) Installed using wiring supplied by a listed Class 2 power source and installed in accordance with 725.130.

## Chapter 5.

### Special Occupancies

No San Francisco Electrical Code Amendments.

## Chapter 6.

### Special Equipment

No San Francisco Electrical Code Amendments.

## Chapter 7.

### Special Conditions

## ARTICLE 700 – EMERGENCY SYSTEMS

700.12(F)(2) Revise item (2) and (5) of this section as follows:

**700.12(F)(2) Installation of Unit Equipment.** Unit equipment shall be installed in accordance with 700.12(F)(2)(1) through (6).

(2) Unit equipment shall be permanently fixed (i.e., not portable) in place and shall have all wiring to each unit installed in accordance with the requirements of any of the wiring methods in Chapter 3. Flexible cord-and-plug connection shall not be permitted.

(5) Emergency luminaires (illumination fixtures) that obtain power from a unit equipment and are not part of the unit equipment shall be wired to the unit equipment as required by 700.10 and by one of the wiring methods of Chapter 3.

700.16 Revise the first paragraph of this section as follows:

**700.16 Emergency Illumination.** Emergency illumination shall include means of egress lighting, illuminated exit signs, and all other luminaires specified as necessary to provide required illumination.

Emergency illumination shall be provided at the location of transfer switches, switchboards and panelboards that supply emergency and legally required stand-by loads.

## ARTICLE 760 – FIRE ALARM SYSTEMS

760.46. *Revise this section as follows:*

**760.46 NPLFA Circuit Wiring.** Installation of non-power-limited fire alarm circuits shall be in accordance with 110.3(B), 300.7, 300.11, 300.15, 300.17, 300.19(B), and other appropriate articles of Chapter 3.

Conductors shall be installed in metallic raceways or concrete-encased nonmetallic raceways.

**Exception No. 1:** As provided in Sections 760.48 through 760.53.

*[Editor's Note: Exception 2 is deleted by local amendment.]*

760.130(A) *Revise Exception No. 2 of this section as follows:*

**(A) NPLFA Wiring Methods and Materials.** Installation shall be in accordance with 760.46, and conductors shall be solid or stranded copper.

**Exception No. 2:** Conductors and multiconductor cables described in and installed in accordance with 760.49 shall be permitted.

760.130(B) *Revise the first paragraph of this section as follows:*

**760.130(B) PLFA Wiring Methods and Materials.** Power-limited fire alarm conductors and cables described in 760.179 shall be installed in metallic raceway in accordance with 760.46. Devices shall be installed in accordance with 110.3(B), 300.7, 300.11 (A), and 300.15.

760.180 *Add the following new section:*

### 760.180 System Requirements.

**(A) Supervising Station Fire Alarm Systems.** Supervising station fire alarm system wiring installed within or on buildings shall be installed in metallic race ways.

**Exception:** Communication conductors installed entirely within a dedicated telephone equipment room, switchboard area or fire control room.

**(B) Source of Power.** Circuits supplying fire alarm control units that are not monitored by an approved supervising station, or a constantly attended location approved by the fire code official shall be connected to either the line or load side of the service disconnect. Circuits shall be protected by means of an externally operated fused safety switch or a circuit breaker either in a separate enclosure or within a switchboard entirely separate from other circuit breakers. The switch and/or circuit breaker shall be clearly labeled and locked in the on position.

**Informational Note:** See CEC (2016) 760.41 & 760.121; CBC (2016) 903.4; NFPA 72 (2016) 10.5.3; NFPA 13 (2016) 6.8.4.1.

## Chapter 8. Communications Systems

*No San Francisco Electrical Code Amendments*

## Chapter 9. Tables

*No San Francisco Electrical Code Amendments*

## EXHIBIT A

### STANDARD FINDINGS FOR SAN FRANCISCO BUILDING STANDARDS CODE AMENDMENTS

1. Certain buildings/occupancies in San Francisco are at increased risk for earthquake-induced failure and consequent fire due to local hazardous microzones, slide areas, and local liquefaction hazards. (Geology)
2. Certain buildings/occupancies in San Francisco are at increased risk of fire due to high density of buildings on very small lots, with many buildings built up to the property lines. (Topography)
3. Topography of San Francisco has led to development of a high density of buildings on small lots, necessitating special provisions for exiting, fire separation, or fire-resistive construction. (Topography)
4. Many buildings are built on steep hills and narrow streets, requiring special safety consideration. (Topography)
5. Additional fire, structural and other protection is required due to high building density and crowded occupancy. (Topography)
6. San Francisco has narrow, crowded sidewalks due to building and population density and unusual topography. (Topography)
7. All rain water in San Francisco drains to the building drains and sewer; unusual geology, occasional extremely high local rainfall amounts, and the configuration of the City as a peninsula restrict the installation of separate storm water and sewer systems. (Topography, Climate, Geology)
8. Moist, corrosive atmosphere of salt-laden fog in San Francisco necessitates additional requirements. (Climate)
9. Not a building standard; no local findings required.
10. Soil conditions in this region induce adverse reactions with some materials, leading to premature failures and subsequent unsanitary conditions. (Climate)
11. The region is subject to fluctuating rainfall due to changes in climatic conditions. (Climate)
12. San Francisco is a peninsula surrounded on three sides by water at sea level; mitigation of climate change impacts, including sea level rise, is

12. San Francisco is a peninsula surrounded on three sides by water at sea level; mitigation of climate change impacts, including sea level rise, is critical to the long term protection of the local built environment and local infrastructure. (Topography)
13. Climate and potential climate change impacts San Francisco's water resources, including reservoirs and distribution facilities. (Climate)
14. Organic material in San Francisco's waste breaks down into methane gas which is a significant contributor to climate change. (Climate)
15. San Francisco is topographically constrained and its built environment occupies most available land, requiring minimization of debris and solid waste. (Topography)
16. Prevailing winds, coastal mountain ranges, and periodic seasonal high temperatures contribute to photochemical reactions that produce smog and ozone; limiting the emission of smog's chemical precursors - volatile organic chemicals and oxides of nitrogen - is necessary to health and safety. (Climate, Topography)
17. The aquifers underlying San Francisco are small relative to local population, necessitating ongoing water imports and special provisions to ensure efficient use of water in local buildings. (Geology)

## 2019 San Francisco Electrical Code Findings

Section #	Finding #	Section #	Finding #	Section #	Finding #
<b>ARTICLE 89</b>		110.26(A)	4	330.12	5
89.101.1	9	110.26(B)	4		
89.115	9			330.108	5
89.116	9	<b>CHAPTER 2</b>		334.10	5
89.117	9	210.5(C)(1)(a)	5	334.12	5
89.118	9	215.12(C)(1)(a)	5	340.10	5
89.119	9	230.43	5	348.10	5
89.120	9	230.43 (B)	5	350.10	5
89.121	9	230.56	5	352.10	5
89.122	9	230.71(A)	5, 9	355.10(A)	5
89.123	9	250.50	8	356.10	5, 8
89.124	9	250.64(A)	1, 8	358.10(D)	8
89.125	9	250.64(B)	1, 8	358.12	8
89.126	9			362.10	5
89.127	9			378.12	5
89.128	9	<b>CHAPTER 3</b>			
89.129	9	300.3(C)1	5, 9		
<b>ARTICLE 90</b>		300.4(l)	5		
<b>CHAPTER 1</b>		300.37	5, 8		

110.15	5	320.108	5
--------	---	---------	---

Section #	Finding #	Section #	Finding #	Section #	Finding #
<b>CHAPTER 4</b>		<b>CHAPTER 7</b>		<b>CHAPTER 8 NO S.F. AMENDMENTS</b>	
410.36(B)	5,9	700.12(F)(2)	5	<b>CHAPTER 9 NO S.F. AMENDMENTS</b>	
411.5	5	700.16	1, 5		
<b>CHAPTER 5 NO S.F. AMENDMENTS</b>		760.46	5		
<b>CHAPTER 6 NO S.F. AMENDMENTS</b>		760.130(A)	5		
		760.130(B)	5		
		760.180	5		

n:\legana\as2019\1900415\01393167.docx



**BUILDING INSPECTION COMMISSION (BIC)**

RECEIVED  
BOARD OF SUPERVISORS

Department of Building Inspection Voice (415) 558-6164 Fax (415) 558-6509  
1660 Mission Street, San Francisco, California 94103-2414

2019 SEP 23 AM 9:56  
dw

August 12, 2019

London N. Breed  
Mayor

**COMMISSION**

Angus McCarthy  
President

Debra Walker  
Vice-President

Kevin Clinch  
John Konstin  
Frank Lee  
Sam Moss  
James Warshell

Sonya Harris  
Secretary

Shirley Wong  
Assistant Secretary

Tom C. Hui  
S.E.  
C.B.O., Director

Ms. Angela Calvillo  
Clerk of the Board  
Board of Supervisors, City Hall  
1 Dr. Carlton B. Goodlett Place, Room 244  
San Francisco, CA 94102-4694

**RE: Code amendments to the 2019 California Building Standards Code, including the Building, Existing Building, Residential, Mechanical, Plumbing, Electrical, and Green Building Codes and recommend approval to the Board of Supervisors.**

Dear Ms. Calvillo:

On July 17, 2019 the Building Inspection Commission held a public hearing on the proposed Code amendments referenced above.

The Commission voted unanimously (6-0) to recommend that the Board of Supervisors approve the amendments.

The Commissioners voted as follows:

President McCarthy	Yes	Vice-President Walker	Yes
Commissioner Clinch	Yes	Commissioner Konstin	Excused
Commissioner Lee	Yes	Commissioner Moss	Yes
Commissioner Warshell	Yes		

Enclosed please find the Code Advisory Committee's recommendation to the BIC. Under separate cover, copies of the proposed amendments will follow from the Technical Services Division of the Department of Building Inspection.

Should you have any questions, please do not hesitate to call me at 558-6164.

Sincerely,

Sonya Harris  
Commission Secretary

cc: Tom C. Hui, S.E., C.B.O., Director  
Mayor London N. Breed  
Supervisor Vallie Brown  
Supervisor Sandra Lee Fewer  
Supervisor Matt Haney  
Supervisor Rafael Mandelman  
Supervisor Gordon Mar  
Supervisor Aaron Peskin  
Supervisor Hillary Ronen  
Supervisor Ahsha Safai  
Supervisor Catherine Stefani  
Supervisor Shamann Walton  
Supervisor Norman Yee  
Deputy City Attorney Robb Kapla

BOS-11  
COB-1106  
LEG-REP-1106  
REP-CITY-1106  
NAYORES OFFICE

RECEIVED  
BOARD OF SUPERVISORS  
SAN FRANCISCO

City Hall  
1 Dr. Carlton B. Goodlett Place, Room 244  
San Francisco, CA 94102-4689  
Tel. No. 554-6516  
Fax No. 554-7674  
TDD/TTY No. 544-6546



President, District 7  
BOARD of SUPERVISORS

Norman Yee

PRESIDENTIAL ACTION

Date: October 1, 2019  
To: Angela Calvillo, Clerk of the Board of Supervisors

Madam Clerk,  
Pursuant to Board Rules, I am hereby:

Waiving 30-Day Rule (Board Rule No. 3.23)

File No. 190961 Department  
(Primary Sponsor)

Title. [Electrical Code - Repeal of Existing 2016 Code and Enactment of 2019 Edition]

Transferring (Board Rule No 3.3)

File No. (Primary Sponsor)

Title.

From: Committee

To: Committee

Assigning Temporary Committee Appointment (Board Rule No. 3.1)

Supervisor: Replacing Supervisor:

For: Meeting  
(Date) (Committee)

Duration:  Partial  Full Meeting

Start Time End Time

Until original Committee Member returns

*Norman Yee*  
Norman Yee, President  
Board of Supervisors



RECEIVED  
BOARD OF SUPERVISORS  
SAN FRANCISCO

London N. Breed  
Tom C. Hui, S.E., C.B.O., Director

2019 SEP 23 AM 9:56

BY \_\_\_\_\_

September 20, 2019

Angela Calvillo, Clerk of the Board  
Board of Supervisors  
#1 Dr. Carlton B. Goodlett Place, Room 244  
San Francisco, CA 94102-4689

Dear Ms. Calvillo:

Attached please find an original and two copies (1 electronic CD) of seven proposed ordinances (approved by the Building Inspection Commission on July 17, 2019) for the Board of Supervisors approval, which repeal the San Francisco amendments to the 2016 California Building Standards Codes and adopt replacement amendments to the new 2019 California Building Standards Codes effective January 1, 2019. (One copy of these 2019 California Building Standards Codes are hereby provided for your reference.)

The following is a list of accompanying documents:

- 1) Approval letter from the Building Inspection Commission
- 2) San Francisco Building Code and Residential Code Ordinance, Legislative Digest, Exhibit A Standard Findings, Findings, proposed amendment text (Building)
- 3) San Francisco Existing Building Code Ordinance, Legislative Digest, Exhibit A Standard Findings, Findings, proposed amendment text. (Existing Building)
- 4) San Francisco Electrical Code Ordinance, Legislative Digest, Exhibit A Standard Findings, Findings, proposed amendment text (Electrical)
- 5) San Francisco Mechanical Code Ordinance, Legislative Digest, Exhibit A Standard Findings, Findings, proposed amendment text (Mechanical)
- 6) San Francisco Plumbing Code Ordinance, Legislative Digest, Exhibit A Standard Findings, Findings, proposed amendment text (Plumbing)
- 7) San Francisco Green Building Code Ordinance, Legislative Digest, Exhibit A Standard Findings, Findings, proposed amendment text (Green), Cost effectiveness study.

In order for the San Francisco code amendments to coordinate with the California codes, which have an effective date of January 1, 2019, the timeline for approval and adoption requires that the codes be submitted to the Board of Supervisors on or before September 23, 2019 for introduction and assignment to the Land Use Committee (on October 1, 2019). We will be requesting a waiver to the thirty-day rule prior to hearing at the Land Use Committee such that the Codes may be heard by the Land Use Committee on October 7, 2019. When approved, it is proposed that the Board of Supervisor agendaize Readings on October 15, 2019 and October 22, 2019. Upon their approval, the ordinances will be forwarded to the Mayor for signature within 10 days, followed by a 30-day wait period (ending approximately December 9, 2019) before filing with the California Building Standards Commission to become effective for an implementation date of January 1, 2020.

**Technical Services Division**  
1660 Mission Street – San Francisco CA 94103  
Office (415) 558-6205 – FAX (415) 558-6401 – [www.sfdbi.org](http://www.sfdbi.org)

The following person may be contacted regarding this matter:



Michelle Yu, Manager  
Technical Services Division  
Department of Building Inspection  
Phone: (415) 558-6059

Attachments: As stated

## Table of Content

1. General
  - a. Approval letter from the Building Inspection Commission
2. Building Code and Residential Building Requirements
  - a. Legislative Digest
  - b. San Francisco Building Code Ordinance including Residential Building Requirements
  - c. Exhibit A – Standard Findings
  - d. Findings
  - e. San Francisco Building Code Amendments
  - f. Residential Building Requirements – See Chapter 36 of the San Francisco Building Code
3. Existing Building Code
  - a. Legislative Digest
  - b. San Francisco Existing Building Code Ordinance
  - c. Exhibit A – Standard Findings
  - d. Findings
  - e. San Francisco Existing Building Code Amendments
4. Electrical Code
  - a. Legislative Digest
  - b. San Francisco Electrical Code Ordinance
  - c. Exhibit A – Standard Findings
  - d. Findings
  - e. San Francisco Electrical Code Amendments
5. Mechanical Code
  - a. Legislative Digest
  - b. San Francisco Mechanical Code Ordinance
  - c. Exhibit A – Standard Findings
  - d. Findings
  - e. San Francisco Mechanical Code Amendments
6. Plumbing Code
  - a. Legislative Digest
  - b. San Francisco Plumbing Code Ordinance
  - c. Exhibit A – Standard Findings
  - d. Findings
  - e. San Francisco Plumbing Code Amendments
7. Green Building Code
  - a. Legislative Digest
  - b. San Francisco Green Building Code Ordinance
  - c. Exhibit A – Standard Findings
  - d. Findings
  - e. San Francisco Green Building Code Amendments
  - f. Nonresidential New Construction Reach Code Cost Effectiveness Study
  - g. Cost-effectiveness Study: Low-Rise Residential New Construction

