

1 [Planning, Green Building Codes - Better Roof Requirements, Including Living Roofs]

2

3 **Ordinance amending the Planning Code and Green Building Code to establish**
 4 **requirements for certain new building construction facilitating development of**
 5 **renewable energy facilities and living roofs; setting an operative date of January 1,**
 6 **2017; providing findings as to local conditions pursuant to the California Health and**
 7 **Safety Code; affirming the Planning Department's determination under the California**
 8 **Environmental Quality Act; and making findings of consistency with the General Plan,**
 9 **and the eight priority policies of Planning Code Section 101.1.**

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

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

18 Section 1. CEQA Findings and General Plan Consistency Findings.

19 (a) The Planning Department has determined that the actions contemplated in this
 20 ordinance comply with the California Environmental Quality Act (California Public Resources
 21 Code Sections 21000 et seq.). Said determination is on file with the Clerk of the Board of
 22 Supervisors in File No. 160965 and is incorporated herein by reference. The Board affirms
 23 this determination.

24 (b) On September 15, 2016, the Planning Commission, in Resolution No. 19734,
 25 adopted findings that the actions contemplated in this ordinance are consistent, on balance,
 with the City's General Plan and eight priority policies of Planning Code Section 101.1. The

1 Board adopts these findings as its own. A copy of said Resolution is on file with the Clerk of
2 the Board of Supervisors in File No. 160965, and is incorporated herein by reference.

3 (c) Pursuant to Planning Code Section 302, this Board finds that this Planning Code
4 Amendment will serve the public necessity, convenience, and welfare for the reasons set forth
5 in Planning Commission Resolution No. 19734 and the Board incorporates such reasons
6 herein by reference.

7
8 Section 2. General Findings.

9 (a) The California Building Standards Code is contained in Title 24 of the California
10 Code of Regulations, and consists of several parts that are based upon model codes with
11 amendments made by various State agencies. The California Green Building Standards
12 Code, also known as the CALGreen Code, is Part 11 of Title 24 of the California Code of
13 Regulations, and San Francisco has enacted the San Francisco Green Building Code as
14 amendments to the California Green Building Standards Code.

15 (b) Local jurisdictions are required to enforce the California Green Building Standards
16 Code, but they may also enact more stringent standards when reasonably necessary because
17 of local conditions caused by climate, geology, or topography.

18 (c) The Building Inspection Commission considered the applicable sections of this
19 ordinance at a duly noticed public hearing on September 21, 2016. ~~The Commission on the~~
20 ~~Environment considered the applicable sections of this ordinance at a duly noticed public~~
21 ~~hearing on _____.~~

22
23 Section 3. Findings Regarding Local Conditions Required by the California Health and
24 Safety Code.

1 (a) California Health & Safety Code Section 17958.7 provides that before making any
2 changes or modifications to the California Green Building Standards Code and any other
3 applicable provisions published by the State Building Standards Commission, the governing
4 body must make an express finding that each such change or modification is reasonably
5 necessary because of specified local conditions, and the findings must be filed with the State
6 Building Standards Commission before the local changes or modifications go into effect.

7 (b) The Board of Supervisors expressly declares that the following amendments to the
8 San Francisco Green Building Code are reasonably necessary because of local climatic,
9 topological, and geological conditions as listed below.

10 (1) As a coastal city located on the tip of a peninsula, San Francisco is
11 vulnerable to sea level rise, and human activities releasing greenhouse gases into the
12 atmosphere cause increases in worldwide average temperature, which contribute to melting of
13 glaciers and thermal expansion of ocean water – resulting in rising sea levels.

14 (2) San Francisco is already experiencing the repercussions of excessive CO₂
15 emissions as rising sea levels threaten the City’s shoreline and infrastructure, have caused
16 significant erosion, increased impacts to infrastructure during extreme tides, and have caused
17 the City to expend funds to modify the sewer system.

18 (3) Some people in San Francisco, such as the elderly, may be particularly
19 vulnerable to higher temperatures resulting from climate changes.

20 (4) Installing solar photovoltaic and thermal facilities will help San Francisco
21 meet its goals under Board of Supervisors Ordinance No. 81-08 to have a greenhouse
22 gas-free electric system by 2030 and to reduce greenhouse gas emissions Citywide to 40%
23 below 1990 levels by 2025 and 80% below 1990 levels below by 2050.

24 (5) Living roofs mitigate urban heat islands, improve building insulation, and
25 moderate temperature near ventilation intake vents, each result contributing to reductions in

1 building energy use and corresponding greenhouse gas emissions. Living roofs also reduce
2 stormwater entering the sewer system, provide habitat supporting ecological systems, and
3 enhance urban connections between humans and nature.

4 (6) Living roofs and solar energy systems are compatible uses that can be
5 combined on the same rooftop; the combination of the two systems can be complementary,
6 improving the environmental benefits of each.

7 (7) It is reasonably necessary to require building owners to take steps to reduce
8 the energy consumed by inefficient building operations and produce renewable, low-carbon
9 electricity, capture solar heat, or develop living roofs in order to reduce pollution, benefit
10 biodiversity, improve resilience to climate change by reducing localized heat islands, and
11 reduce the global warming effects of energy consumption.

12 (6) Installing solar heating or solar energy systems benefits the health, welfare,
13 and resiliency of San Francisco and its residents.

14 (c) Requiring solar water heating, solar photovoltaics, and living roofs at the time of
15 new construction is more cost-effective than installing the equipment after construction
16 because workers are already on-site, permitting and administrative costs are lower, and it is
17 more cost-effective to include such systems in existing construction financing. Based upon
18 the findings of a cost-effectiveness study performed on the more stringent local standards
19 contained in Board of Supervisors Ordinance No. 71-16, which established rooftop renewable
20 energy requirements for certain new buildings, the Board of Supervisors determined that
21 installing on-site renewable energy systems is cost-effective based on the analysis contained
22 in Board of Supervisors File No. 160154, and saves more energy than the standards
23 contained in the 2016 California Green Building Standards (CALGreen) Code (CCR Title 24,
24 Part 11) and the 2016 California Energy Standards (CCR Title 24, Part 6). The proposed
25 amendments to the 2016 San Francisco Green Building Code in this ordinance provide for

1 living roofs as an additional option for compliance, and do not constitute an additional energy
2 requirement beyond Board of Supervisors Ordinance No. 71-16.

3
4 Section 4. The San Francisco Planning Code is hereby amended by adding
5 Section 149 and revising Section 307, to read as follows:

6 **SEC. 149. BETTER ROOFS; LIVING ROOF ALTERNATIVE.**

7 *(a) Purpose. State law requires that certain new residential and nonresidential buildings set*
8 *aside a “solar ready” portion of the roof equal to 15% of the total roof area. The solar ready area*
9 *must be unshaded and free of obstructions, to allow that portion of the roof to be used for future*
10 *installation of solar energy or heating systems. The San Francisco Green Building Code requires a*
11 *building owner to actually use the solar ready area of the roof for solar energy or heating systems. The*
12 *purpose of this Section 149 is to allow the use of “living roofs” as an additional means of meeting some*
13 *or all of the Better Roof requirements of the Green Building Code, and thereby further promote the use*
14 *of rooftops to increase renewable energy resources, stormwater management, and biodiversity.*

15 *(b) Definitions. As used in this Section 149, the following capitalized terms shall have the*
16 *following meanings:*

17 *Better Roof Requirements. The requirements of San Francisco Green Building Code*
18 *Sections 4.201.2 and 5.201.1.2, as amended.*

19 *Living Roof. The media for growing plants, as well as the set of related components installed*
20 *exterior to a facility’s roofing membrane. “Living Roof” includes both “roof gardens” and*
21 *“landscaped roofs” as referenced in the California Building Code.*

22 *Living Roof Area. The area of media for growing plants installed for the purposes of*
23 *compliance with this Section, consistent with standards prepared and maintained by the Planning*
24 *Department for planning, installation, and maintenance of Living Roofs.*

1 Minimum Better Roof Area. An equivalent area to the Solar Ready Zone, as calculated under
2 CCR Title 24, Part 6, Section 110.10 and San Francisco Green Building Code Sections 4.201.2 and
3 5.201.1.2, as applicable.

4 Roof. All outside coverings of a building or structure, including the structural supports,
5 decking, and top layer exposed to the outside, at all levels of building, excluding roof area designated
6 for skylights, vehicle traffic, or heliport.

7 Solar Ready Zone. A section of the roof designated and reserved for the installation of a solar
8 electric or solar thermal system as required in certain new buildings by CCR Title 24, Part 6, Section
9 110.10(b) through (e) and San Francisco Green Building Code Sections 4.201.2 and 5.201.1.2, as
10 applicable.

11 (c) Applicability. A project sponsor may use a Living Roof as an alternative means of meeting
12 some or all of the Better Roof requirements for any building that meets all four of the following
13 criteria:

14 (1) The building constitutes a Large Development Project or Small Development
15 Project under the Stormwater Management Ordinance (Public Works Code secs. 147-147.6);

16 (2) The building has a gross floor area of 2,000 square feet or more;

17 (3) The building has 10 or fewer occupied floors; and

18 (4) The project sponsor applies for a site permit or building permit on or after
19 January 1, 2017.

20 (d) Living Roof Requirements. Should a project sponsor use a Living Roof as a means of
21 meeting some or all of the Better Roof requirements, the sponsor shall submit to the Planning
22 Department for its review and approval a Living Roof design in which the sum of the areas of the
23 following features is equal to or greater than the Minimum Better Roof Area:

24 (1) Area of all solar photovoltaic collectors that meet the performance criteria of the
25 San Francisco Green Building Code (secs. 4.201.2(c)(1) and 5.201.1.2(b)(1)), as appropriate;

1 (2) Area of all solar thermal collectors that meet the performance criteria of the San
2 Francisco Green Building Code (secs. 4.201.2(c)(2) and 5.201.1.2(b)(2)), as appropriate; and

3 (3) Area and Location of Living Roof.

4 (A) For the purpose of this Section 149, each square foot of Living Roof shall
5 count as 0.5 square foot towards the Minimum Better Roof Area requirements; provided, however, that
6 the actual square footage of the Living Roof shall be used to determine compliance with the Stormwater
7 Management Ordinance. The Planning Department, after consulting with the San Francisco
8 Public Utilities Commission and the Department of the Environment, shall adopt rules and
9 regulations to implement these provisions and coordinate compliance with the Stormwater
10 Management Ordinance.

11 (B) A Living Roof may be located within or outside of the Solar Ready Zone
12 used for compliance with CCR Title 24, Part 6, Section 110.10. Where a Living Roof Area is located
13 outside the Solar Ready Zone, the requirements of Section 110.10 for the solar zone shall otherwise still
14 apply.

15 (e) Waiver. If the project sponsor demonstrates to the Zoning Administrator's satisfaction that
16 it is physically infeasible to meet the Living Roof requirements as written for the project in question, the
17 Zoning Administrator may, in his or her sole discretion and pursuant to the procedures set forth in
18 Planning Code Section 307(h), grant partial relief from the requirements stated in subsection (d) where
19 the design of the Better Roof is within 10% percent of any quantitative requirements. The requirements
20 of CCR Title 24, Part 6, Section 110.10 for the solar zone shall remain applicable.

21
22 **SEC. 307. OTHER POWERS AND DUTIES OF THE ZONING ADMINISTRATOR.**

23 In addition to those specified in Sections 302 through 306, and Sections 316 through
24 316.6 of this Code, the Zoning Administrator shall have the following powers and duties in
25 administration and enforcement of this Code.

1 * * * *

2 (h) Exceptions from Certain Specific Code Standards through Administrative Review.

3 The Zoning Administrator may allow complete or partial relief from certain standards
4 specifically identified below, in Section 161, or elsewhere in this Code when modification of
5 the standard would result in a project fulfilling the criteria set forth below and in the applicable
6 section.

7 (1) Applicability.

8 (A) Eastern Neighborhood Mixed Use Districts. For projects not subject
9 to Section 329, relief may be provided for the following requirements: rear yard; non-
10 residential open space; off-street loading requirements; and off-street parking limits up to the
11 maximum quantities described in Section 151.1.

12 (B) Dwelling Unit Exposure for Historic Buildings. Relief may also be
13 provided for dwelling unit exposure requirements for buildings which are designated landmark
14 buildings or contributory buildings within designated historic districts per Article 10 of this
15 Code, any building designated Category I-IV per Article 11 of this Code, and/or buildings
16 recorded with the State Historic Preservation Office as eligible for the California Register,
17 when the following criteria are met: (i) literal enforcement of Section 140 would result in the
18 material impairment of the historic resource; and (ii) the project complies with the Secretary of
19 the Interior's Standards, (36 C.F.R. § 67.7 (2001)) and/or Section 1006 and any related Article
20 10 appendices of this Code. This administrative exception does not apply to new additions to
21 historic buildings.

22 (C) Residential Open Space for Historic Buildings. For a landmark
23 building designated per Article 10 of this Code, a contributing building located within a
24 designated historic district per Article 10, or any building designated Category I-IV per Article
25 11 of this Code, the provision of off-site publicly accessible open space, meeting the

1 requirements of Section 135(h), may be credited toward the residential usable open space
2 requirement.

3 (D) Conversion of Non-conforming Uses to Residential Uses. The Zoning
4 Administrator may modify or waive dwelling unit exposure requirements, rear yard
5 requirements, open space requirements for inner courts, and the substitution of off-site
6 publicly accessible open space for required residential open space, provided:

7 (i) That the residential use, whether dwelling units group housing,
8 or SRO units, are principally permitted in the district or districts in which the project is located;

9 (ii) That the nonconforming use is eliminated by such conversion,
10 provided further that the structure is not enlarged, extended or moved to another location; and

11 (iii) That the requirements of the Building Code, the Housing Code
12 and other applicable portions of the Municipal Code are met.

13 (E) Better Roofs; Living Roof Alternative. For projects subject to Section 149,
14 the Zoning Administrator may waive portions of the applicable requirements as provided in
15 Section 149(e).

16 (2) Procedures. The review of a modification requested under this Section shall
17 be conducted as part of, and incorporated into, a related building permit application or other
18 required project authorizations; no additional fee shall be required. Under no circumstances
19 shall such modification provide relief from any fee, including those related to usable open
20 space pursuant to Sections 135(j) and 135.3(d). The provisions of this Subsection (h) shall not
21 preclude such additional conditions as may be deemed necessary by the Zoning
22 Administrator to further the purposes of this Section or other Sections of this Code.

23 * * * *

1 Section 6. The Green Building Code is hereby amended by revising Sections 4.201.2
2 and 5.201.1.2, to read as follows:

3 **SEC. 4.201.2. RENEWABLE ENERGY AND BETTER ROOFS**

4 (a) Newly constructed Group R occupancy buildings which are less than or equal to
5 10 or fewer occupied floors ~~stories above grade~~ and which apply for a building permit on or after
6 January 1, 2017 shall install solar photovoltaic systems and/or solar thermal systems in the
7 solar zone required by California Code of Regulations (CCR), Title 24, Part 6, Section 110.10.

8 (b) The minimum solar zone area for the project shall be calculated under Title 24,
9 Part 6, Section 110.10(b) through (e), as applicable, and Residential Compliance Manual
10 Chapter 7 or Nonresidential Compliance Manual Chapter 9, as applicable, except as provided
11 below.

12 (1) For single family residences, Exceptions 3 and 5 to Title 24, Part 6,
13 Section 110.10(b) 1A may be applied in the calculation of the minimum solar zone area.
14 Exceptions 1, 2, 4, 6, and 7 may not be applied in the calculation. For single family residences
15 subject to Planning Code Section 149, Exception 3 may be applied in the calculation of the minimum
16 solar zone area, and Exceptions 1, 2, 4, 5, 6, and 7 may not be applied in the calculation.

17 (2) For Group R Occupancy buildings other than single family residences,
18 Exceptions 3 and 5 to Title 24, Part 6, Section 110.10(b) 1B may be applied in the calculation
19 of the minimum solar zone area. Exceptions 1, 2, and 4 may not be applied in the
20 calculation. For Group R Occupancy buildings other than single family residences subject to
21 Planning Code Section 149, Exception 5 may be applied in the calculation of the minimum solar zone
22 area, and Exceptions 1, 2, 3, and 4 may not be applied in the calculation.

23 (3) Buildings with a calculated minimum solar zone area of less than 150
24 contiguous square feet due to limited solar access under Exception 5 to Title 24, Part 6,
25 Section 110.10(b)1A or Exception 3 to Title 24, Part 6, Section 110.10(b)1B are exempt from

1 the solar energy requirements in this Section 4.201.2.

2 (c) The sum of the areas occupied by solar photovoltaic collectors and/or solar
3 thermal collectors must be equal to or greater than the solar zone area. The solar zone shall
4 be located on the roof or overhang of the building, or on the roof or overhang of another
5 structure located within 250 feet of the building or on covered parking installed with the
6 building project. Solar photovoltaic systems and solar thermal systems shall be installed in
7 accord with: all applicable State code requirements, including access, pathway, smoke
8 ventilation, and spacing requirements specified in CCR Title 24, Part 9; all applicable local
9 code requirements; manufacturer's specifications; and the following performance
10 requirements:

11 (1) Solar photovoltaic systems: The total nameplate capacity of photovoltaic
12 collectors shall be at least 10 Watts DC per square foot of roof area allocated to the
13 photovoltaic collectors.

14 (2) Solar thermal systems: Single family residential solar domestic water
15 heating systems shall be OG-300 System Certified by either the Solar Rating and
16 Certification Corporation (SRCC) or the International Association of Plumbing and Mechanical
17 Officials (IAPMO). Solar thermal systems installed in all Group R occupancy buildings other
18 than single family residences shall use collectors with OG-100 Collector Certification by
19 SRCC or IAPMO, shall be designed to generate annually at least 100 kBtu per square foot of
20 roof area allocated to the solar thermal collectors. Systems with at least 500 square feet of
21 collector area shall include a Btu meter installed on either the collector loop or potable water
22 side of the solar thermal system.

23 (d) Approval by the Planning Department of compliance with the Better Roof requirements,
24 including the Living Roof alternative, as provided in Planning Code Section 149, shall be accepted for
25 compliance with San Francisco Green Building Code Section 4.201.2(a) through (c). The

1 requirements of CCR Title 24, Part 6, Section 110.10 for the solar zone shall still apply.

2
3 **SEC. 5.201.1.2. RENEWABLE ENERGY AND BETTER ROOFS.**

4 (a) Newly constructed buildings of nonresidential occupancy which are 2000 square
5 feet or greater in gross floor area, are of 10 or fewer occupied floors less than or equal to 10
6 ~~stories above grade~~, and apply for a building permit on or after January 1, 2017 shall install
7 solar photovoltaic systems and/or solar thermal systems in the solar zone required by
8 California Title 24, Part 6 Section 110.10.

9 (b) The required solar zone area for the project shall be calculated under California of
10 Regulations (CCR), Title 24, Part 6, Section 110.10(b) through (e) and Nonresidential
11 Compliance Manual Chapter 9, as provided below: as applicable; provided, however that

12 (1) Buildings subject to Planning Code Section 149 may apply Exception 5 ~~Exceptions~~
13 ~~3 and 5~~ to Title 24, Part 6, Section 110.10(b)1B ~~may be applied~~ in the calculation of the
14 minimum solar zone area and may not apply ~~and~~ Exceptions 1, 2, 3, and 4 ~~shall not be applied~~ in
15 the calculation.

16 (2) Buildings not subject to Planning Code Section 149 may apply Exceptions 3 and 5
17 in the calculation of the minimum solar zone area and may not apply Exceptions 1, 2, and 4 in the
18 calculation. Such buildings ~~Buildings~~ with a calculated minimum solar zone area of less than
19 150 contiguous square feet due to limited solar access under Exception 3 are exempt from
20 the solar energy requirements in this Section 5.201.2.

21 (c) (b) The sum of the areas occupied by solar photovoltaic collectors and/or solar
22 thermal collectors must be equal to or greater than the solar zone area. The solar zone shall
23 be located on the roof or overhang of the building, or on the roof or overhang of another
24 structure located within 250 feet of the building or on covered parking installed with the
25 building project. Solar photovoltaic systems and solar thermal systems shall be installed in

1 accord with all applicable state and local code requirements, manufacturer's specifications,
2 and the following performance requirements:

3 (1) Solar photovoltaic systems: The total nameplate capacity of photovoltaic
4 collectors shall be at least 10 Watts DC per square foot of roof area allocated to the
5 photovoltaic collectors.

6 (2) Solar thermal systems: Solar thermal systems installed to serve non-
7 residential building occupancies shall use collectors with OG-100 Collector Certification by
8 the Solar Rating and Certification Corporation (SRCC) or the International Association of
9 Plumbing and Mechanical Officials (IAPMO), shall be designed to generate annually at least
10 100 kBtu per square foot of roof area allocated to the solar thermal collectors, and, for
11 systems with at least 500 square feet of collector area, shall include a Btu meter installed on
12 either the collector loop or potable water side of the solar thermal system.

13 (d) Approval by the Planning Department of compliance with the Better Roof requirements,
14 including the Living Roof alternative, as provided in Planning Code Section 149, shall be accepted for
15 compliance with San Francisco Green Building Code Section 5.201.1.2(a) through (c). The
16 requirements of CCR Title 24, Part 6, Section 110.10 for the solar zone shall still apply.

17
18 Section 7. Effective Date; Operative Date. This ordinance shall become effective 30
19 days after enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor
20 returns the ordinance unsigned or does not sign the ordinance within ten days of receiving it,
21 or the Board of Supervisors overrides the Mayor's veto of the ordinance. This ordinance shall
22 become operative on January 1, 2017, or upon its effective date, whichever is later.

1 Section 8. Transmittal to State Officials. The Clerk of the Board of Supervisors is
2 hereby directed to transmit this ordinance, upon enactment, to the California Building
3 Standards Commission for filing, pursuant to the applicable provisions of California law.
4

5 Section 9. Scope of Ordinance. In enacting this ordinance, the Board of Supervisors
6 intends to amend only those words, phrases, paragraphs, subsections, sections, articles,
7 numbers, punctuation marks, charts, diagrams, or any other constituent parts of the Municipal
8 Code that are explicitly shown in this ordinance as additions, deletions, Board amendment
9 additions, and Board amendment deletions in accordance with the "Note" that appears under
10 the official title of the ordinance.
11
12

13 APPROVED AS TO FORM:
14 DENNIS J. HERRERA, City Attorney

15
16 By: _____
17 THOMAS J. OWEN
18 Deputy City Attorney

19 n:\legana\as2016\1700122\01143111.docx
20
21
22
23
24
25