AMENDED IN BOARD 4/19/2016

ORDINANCE NO. 71-16

FILE NO. 160154

NOTE:

[Green Building, Environment Codes - Better Roof Requirements for Renewable Energy Facilities]

Ordinance amending the Green Building Code and the Environment Code to establish requirements for certain new building construction facilitating development of renewable energy facilities; updating provisions of the Green Building requirements for City buildings; setting an operative date of January 1, 2017; providing findings as to local conditions pursuant to the California Health and Safety Code; directing the Clerk of the Board of Supervisors to transmit the ordinance to appropriate State officials; and affirming the Planning Department's determination under the California Environmental Quality Act.

Unchanged Code text and uncodified text are in plain Arial font.

Additions to Codes are in single-underline italics Times New Roman font.

Deletions to Codes are in strikethrough italics Times New Roman font.

Board amendment additions are in double-underlined Arial font.

Board amendment deletions are in strikethrough Arial font.

Asterisks (* * * *) indicate the omission of unchanged Code subsections or parts of tables.

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

Section 1. CEQA Findings. The Planning Department has determined that the actions contemplated in this ordinance comply with the California Environmental Quality Act (California Public Resources Code Sections 21000 et seq.). Said determination is on file with the Clerk of the Board of Supervisors in File No. 160154 and is incorporated herein by reference. The Board affirms this determination.

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Section 2. General Findings.

- (a) The California Building Standards Code is contained in Title 24 of the California Code of Regulations, and consists of several parts that are based upon model codes with amendments made by various State agencies. The California Green Building Standards Code, also known as the CALGreen Code, is Part 11 of Title 24 of the California Code of Regulations, and San Francisco has enacted the San Francisco Green Building Code as amendments to the 2013 California Green Building Standards Code.
- (b) Local jurisdictions are required to enforce the California Green Building Standards Code but they may also enact more stringent standards when reasonably necessary because of local conditions caused by climate, geology, or topography.
- (c) The Building Inspection Commission considered the applicable sections of this ordinance at a duly noticed public hearing on March 16, 2016. The Commission on the Environment considered the applicable sections of this ordinance at a duly noticed public hearing on March 22, 2016.

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

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

- (b) The Board of Supervisors expressly declares that the following amendments to the San Francisco Green Building Code are reasonably necessary because of local climatic, topological, and geological conditions as listed below.
- (1) As a coastal city located on the tip of a peninsula, San Francisco is vulnerable to sea level rise, and human activities releasing greenhouse gases into the atmosphere cause increases in worldwide average temperature, which contribute to melting of glaciers and thermal expansion of ocean water resulting in rising sea levels.
- (2) San Francisco is already experiencing the repercussions of excessive CO₂ emissions as rising sea levels threaten the City's shoreline and infrastructure, have caused significant erosion, increased impacts to infrastructure during extreme tides, and have caused the City to expend funds to modify the sewer system.
- (3) Some people in San Francisco, such as the elderly, may be particularly vulnerable to higher temperatures resulting from climate changes.
- (4) Installing solar will help San Francisco meet its goals under Ordinance No. 81-08, to have a greenhouse gas-free electric system by 2030 and to reduce greenhouse gas emissions citywide to 40% below 1990 levels by 2025 and 80% by 2050.
- (5) It is reasonably necessary to require building owners to take steps to reduce the energy consumed by inefficient building operations and produce renewable, low-carbon electricity, or capture solar heat, in order to reduce pollution, benefit biodiversity, improve resilience to climate change by reducing localized heat islands, and reduce the global warming effects of energy consumption.
- (6) Installing solar heating or solar energy systems benefits the health, welfare, and resiliency of San Francisco and its residents.
- (c) Requiring solar water heating and/or solar photovoltaics at the time of new construction is more cost-effective than installing the equipment after construction because

workers are already on-site, permitting and administrative costs are lower, and it is more cost-effective to include such systems in existing construction financing. Based upon the findings of a cost-effectiveness study performed on the more stringent local standards contained in the City's proposed amendments to the 2013 San Francisco Green Building Code, the Board of Supervisors hereby determines that these local energy standards are cost-effective and will save more energy than the standards contained in the 2013 California Green Building Standards (CALGreen) Code (Title 24 Part 11) and the 2013 California Energy Standards (Title 24 Part 6). A copy of the cost-effectiveness study is on file with the Clerk of the Board of Supervisors in File No. 160154.

Section 4. The Green Building Code is hereby amended by revising Sections 202 and 301.1, adding Sections 4.201.2 and 5.201.1.2, and deleting Sections 5.103.1.5 and 5.103.2.3, to read as follows:

SEC. 202. DEFINITIONS.

GREENPOINT RATED, GREENPOINTS and GREENPOINTS CHECKLIST. The residential green building rating system and checklist and certification methodology of the non-profit organization Build It Green.

HIGH-RISE RESIDENTIAL BUILDING. For the purposes of this code, a building that is of Occupancy Group R and is four stories or greater.

HISTORICAL RESOURCE. A property that meets the terms of the definitions in Section 21084.1 of the CEQA Statute (The California Environmental Quality Act [Public Resources Code Section 21084.1]) and Section 15064.5 of the CEQA Guidelines, as determined by the San Francisco Planning Department.

LARGE COMMERCIAL BUILDING. A commercial building or addition of Group B, M, A, or I occupancy that is 25,000 gross square feet or more.

LEED® and LEED® CHECKLIST. The Leadership in Energy and Environment Design rating system, certification methodology, and checklist of the United States Green Building Council (USGBC).

LOW-RISE RESIDENTIAL BUILDING. For the purposes of this code, a building that is of Occupancy Group R and is three stories or less or that is a one or two family dwelling or townhouse.

MAJOR ALTERATIONS. Alterations where interior finishes are removed and significant upgrades to structural and mechanical, electrical and/or plumbing systems are proposed where areas of such construction are 25,000 gross square feet or more in Group B, M or R occupancies of existing buildings.

MID-SIZE COMMERCIAL BUILDING. A commercial building of Group B or M occupancy that is 5,000 or more and less than 25,000 gross square feet, and is not a high-rise building.

NEWLY CONSTRUCTED (or NEW CONSTRUCTION). A newly constructed building (or new construction) is a building that has never before been used or occupied for any purpose and does not include additions, alterations or repairs.

NEW LARGE COMMERCIAL INTERIORS. First-time tenant improvements where areas of such construction are over 25,000 gross square feet or more in Group B or M occupancy areas of existing buildings.

NONRESIDENTIAL COMPLIANCE MANUAL. The document published by the California

Energy Commission to aid in compliance and enforcement of the Title 24 California Building Energy

Standards, for buildings of nonresidential occupancy and high-rise residential buildings.

RESIDENTIAL COMPLIANCE MANUAL. The document published by the California Energy

Commission to aid in compliance and enforcement of the Title 24 California Building Energy

Standards, for low-rise residential buildings.

SEC. 301.1. SCOPE.

Buildings in the City and County of San Francisco_shall be designed to include the green building measures specified as mandatory under the California Green Building Standards Code (CalGreen).

Additional green building requirements established by the City and County of San Francisco are mandatory for:

- (1) Newly constructed Group R occupancy buildings,
- (2) Newly constructed buildings of Group B, M, A, and I occupancies that are 25,000 gross square feet or more,
- (3) New first-time build-outs of commercial interiors that are 25,000 gross square feet or more in buildings of Group B or M occupancies, and
- (4) Major alterations that are 25,000 gross square feet or more in existing buildings of Group B, M or R occupancies, where interior finishes are removed and significant upgrades to structural and mechanical, electrical and/or plumbing systems are proposed.

Exempt from additional local requirements of this chapter, unless otherwise noted, are:

- (1) Any new building in which laboratory use of any occupancy classification is the primary use, and
- (2) Any building undergoing renovation in which the area of renovation will be primarily for laboratory use of any occupancy classification.
- (3) Any new building of Group B occupancy where electronic data processing an Internet Service Exchange, as defined in Section 102 of the Planning Code, will be the primary function use is exempt from the solar energy requirements of Section 5.201.1.2. All other relevant sections of this code shall apply.

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SEC. 4.201.2. RENEWABLE ENERGY AND BETTER ROOFS

- (a) Newly constructed Group R occupancy buildings of 10 occupied floors or less and that apply for a building permit on or after January 1, 2017 shall install solar photovoltaic systems and/or solar thermal systems in the solar zone required by California Code of Regulations (CCR), Title 24, Part 6 Section 110.10.
- (b) The minimum solar zone area for the project shall be calculated under Title 24, Part 6, Section 110.10(b) through (e), as applicable, and Residential Compliance Manual Chapter 7 or Nonresidential Compliance Manual Chapter 9, as applicable, except as provided below.
- (1) For single family residences, Exceptions 3 and 5 to Title 24, Part 6. Section 110.10(b)1A may be applied in the calculation of the minimum solar zone area. Exceptions 1, 2, 4, 6, and 7 may not be applied in the calculation.
- (2) For Group R Occupancy buildings other than single family residences, Exceptions 3 and 5 to Title 24, Part 6, Section 110.10(b)1B may be applied in the calculation of the minimum solar zone area. Exceptions 1, 2, and 4 may not be applied in the calculation.
- (3) Buildings with a calculated minimum solar zone area of less than 150 contiguous square feet due to limited solar access under Exception 5 to Title 24, Part 6, Section 110.10(b)1A or Exception 3 to Title 24, Part 6, Section 110.10(b)1B are exempt from the solar energy requirements in this Section 4.201.2.
- (c) The sum of the areas occupied by solar photovoltaic collectors and/or solar thermal collectors must be equal to or greater than the solar zone area. The solar zone shall be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project. Solar photovoltaic systems and solar thermal systems shall be installed in accord with: all applicable State code requirements, including access, pathway, smoke ventilation, and spacing requirements specified in

SEC. 5.201.1.2. RENEWABLE ENERGY AND BETTER ROOFS

- (a) Newly constructed buildings of nonresidential occupancy that are of 10 occupied floors or less, are 2000 square feet or greater in gross floor area, and apply for a building permit on or after January 1, 2017 shall install solar photovoltaic systems and/or solar thermal systems in the solar zone required by California Title 24, Part 6 Section 110.10.
- (b) The required solar zone area for the project shall be calculated under California of

 Regulations (CCR), Title 24, Part 6, Section 110.10(b) through (e) and Nonresidential Compliance

 Manual Chapter 9, as applicable; provided, however that Exceptions 3 and 5 to Title 24, Part 6,

 Section 110.10(b)1B may be applied in the calculation of the minimum solar zone area and Exceptions

 1, 2, and 4 shall not be applied in the calculation. Buildings with a calculated minimum solar zone

 area of less than 150 contiguous square feet due to limited solar access under Exception 3 are exempt

 from the solar energy requirements in this Section 5.201.2.
- (b) The sum of the areas occupied by solar photovoltaic collectors and/or solar thermal collectors must be equal to or greater than the solar zone area. The solar zone shall be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project. Solar photovoltaic systems and solar thermal systems shall be installed in accord with all applicable state and local code requirements, manufacturer's specifications, and the following performance requirements:
- (1) Solar photovoltaic systems: The total nameplate capacity of photovoltaic collectors shall be at least 10 Watts_{DC} per square foot of roof area allocated to the photovoltaic collectors.
- (2) Solar thermal systems: Solar thermal systems installed to serve non-residential building occupancies shall use collectors with OG-100 Collector Certification by the Solar Rating and Certification Corporation (SRCC) or the International Association of Plumbing and Mechanical Officials (IAPMO), shall be designed to generate annually at least 100 kBtu per square foot of roof

area allocated to the solar thermal collectors, and, for systems with at least 500 square feet of collector area, shall include a Btu meter installed on either the collector loop or potable water side of the solar thermal system.

Section 5. The Environment Code is hereby amended by adding Chapter 26, consisting of Section 2601, to read as follows:

CHAPTER 26: BETTER ROOF REQUIREMENTS

SEC. 2601. BETTER ROOF IMPLEMENTATION.

- (a) Purpose. The purpose of this Section 2601 is to track and support improvement of requirements for newly constructed buildings which will increase the utility of rooftops by ensuring development of renewable energy resources.
 - (b) The Department of the Environment shall:
- (1) Review and propose technical requirements for rooftop photovoltaic and solar thermal systems and their performance and components, where not otherwise governed by applicable state or local codes. The Department of Building Inspection and the Planning Department may contribute to the cost of technical support as well as the cost of public information programs supporting the implementation of the Better Roof program.
- (2) Recommend revisions to the Better Roof requirements of San Francisco Green

 Building Code Sections 4.201.2 and 5.201.1.2 based on project data and other new information, to

 support the City's goals for greenhouse gas emissions reduction, environmental justice, provision of
 renewable energy, development of Zero Net Energy Buildings, biodiversity, and pollution prevention.
- (c) Reporting. The Environment Director shall collaborate with the Department of Building

 Inspection, the Department of Planning, and the Public Utilities Commission to prepare and publish an

 annual report on the renewable energy resources developed in compliance with this Chapter 26, San

<u>Francisco Green Building Code Section 4.201.2, and San Francisco Green Building Code</u> Section 5.201.1.2 et seq.

Section 6. The Environment Code is hereby amended by amending Section 706, to read as follows:

SEC. 706. SAN FRANCISCO-SPECIFIC LEED CREDIT REQUIREMENTS FOR MUNICIPAL CONSTRUCTION PROJECTS.

- (a) As part of the LEED Gold certification requirement for municipal construction projects, the projects must achieve the following LEED credits:
- (1) Stormwater Management. The LEED Project Administrator shall submit documentation verifying that a construction project that is located outside the City and County of San Francisco achieves the LEED SS6.2 credit. Construction projects located within the City and County of San Francisco shall implement the applicable stormwater management controls adopted by the San Francisco Public Utilities Commission (the "SFPUC"). All construction projects shall develop and implement construction activity pollution prevention and stormwater management controls adopted by the SFPUC, and achieve LEED prerequisite SSp1 or similar criteria adopted by the SFPUC, as applicable.
- (2) Indoor Water Use Reduction. The LEED Project Administrator shall submit documentation verifying a minimum 30% percent reduction in the use of indoor potable water, as calculated to meet and achieve LEED credit WE3.2.
- (3) Energy Performance. Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, the LEED Project Administrator shall calculate the project's energy use, and compare it to the standard or "budget" building to achieve LEED credit EA1 by either:
 - (A)—A-15 percent compliance margin over Title 24, Part 6, 2008 California

Energy Standards; or,

(B) Document compliance with Title 24, Part 6, 2008 California Energy Standards, including submittal of all standard documentation, and additionally demonstrate that the project achieves a 15 percent or greater compliance margin over the ASHRAE 90.1-2007 energy cost baseline using the published LEED 2009 rules. Such analysis shall include all on-site building energy use, including exterior and security lighting, elevators, all process loads, and receptacle loads.

(3) (4) Renewable Energy. The LEED Project Administrator shall confer with SFPUC on renewable energy opportunities for municipal construction projects, including photovoltaics, solar hot water and wind power. Space allocation and infrastructure for future renewable energy installations shall be included in municipal construction projects, as advised by SFPUC, including but not limited to structural capacity, wiring conduits, supply and return piping, and control wiring. The LEED Project Administrator shall submit documentation verifying that either:

(A) The project meets LEED prerequisite EA 1 Energy Performance requirement and demonstrates compliance with Title 24, Part 6 California Energy Standards in effect at the time of the permit application; and, At least 1 percent of the building's energy costs are offset by on-site renewable energy generation, achieving LEED credit EA 2, including any combination of: photovoltaic, solar thermal, wind, biofuel-based electrical systems, geothermal heating, geothermal electric, wave, tidal, or low impact hydroelectric systems, or as specified in Section 25741 of the California Public Resources Code; or,

(B) The project includes a combination of photovoltaic and/or solar thermal area meeting the requirements of San Francisco Green Building Code Chapter 5, Division 5.2, or demonstrates applicability of exceptions therein. In addition to meeting LEED prerequisite EA 1 Energy Performance requirement, achieve an additional 10 percent compliance margin over Title 24, Part 6, 2008 California Energy Standards, for a total compliance margin of at least 25 percent.

- (4) (5) Commissioning. The LEED Project Administrator shall submit documentation verifying that the facility has been or will meet the criteria necessary to achieve LEED credit EA 3.0 (Enhanced Commissioning), in addition to LEED prerequisite EAp1 (Fundamental Commissioning of Building Energy Systems.)
- (5) (6) Enhanced Refrigerant Management. The LEED Project Administrator shall submit documentation verifying that the project will reduce ozone depletion, while minimizing direct contribution to climate change, achieving LEED credit EA 4.
- (6) (7) Construction Debris Management. The LEED Project Administrator shall submit documentation verifying the diversion of a minimum of 75% percent of the project's construction and demolition debris, as calculated to achieve LEED credit MR2.2. The project must also satisfy; the requirements of Section 708.
- (7) (8) IAQ Management: During Construction. The LEED Project Administrator shall submit documentation verifying that the sponsoring City department has prepared and implemented an Indoor Air Quality Management Plan that achieves LEED credit EQ 3.1. This requirement includes meeting or exceeding the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd Edition 2007, ANSI-SMACNA 008-2008 (Chapter 3).
- (8) (9) IAQ Management: Before Occupancy. The LEED Project Administrator shall submit documentation verifying that the sponsoring City department has prepared and implemented an Indoor Air Quality Management Plan that achieves LEED credit EQ 3.2.
- (9) (10) Low Emitting Materials. The LEED Project Administrator shall submit documentation verifying that the project is using low-emitting materials, subject to onsite verification, achieving LEED credits EQ 4.1. EQ 4.2. EQ 4.3. and EQ 4.4 wherever applicable:

- (D) Interior composite wood and agrifiber products shall achieve LEED credit EQ 4.4 by containing no added urea formaldehyde resins. Interior and exterior hardwood plywood, particleboard, and medium density fiberboard composite wood products shall additionally meet California Air Resources Board Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections.
- (E) Project sponsors are encouraged to achieve LEED Pilot Credit 2:

 Persistent Bioaccumulative Toxic Chemicals Source Reduction: Dioxins and Halogenated

 Organic Compounds. This standard is consistent with Environment Code Chapter 5: Non-PVC Plastics.
- (10) (11) Indoor Chemical and Pollutant Source Control. The LEED Project Administrator shall submit documentation verifying that the project will minimize and control the entry of pollutants into buildings and later cross contamination of regularly occupied areas, achieving LEED credit EQ 5.

Section 7. Effective Date; Operative Date. This ordinance shall become effective 30 days after enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor returns the ordinance unsigned or does not sign the ordinance within ten days of receiving it, or the Board of Supervisors overrides the Mayor's veto of the ordinance. This ordinance shall become operative on January 1, 2017.

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

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

APPROVED AS TO FORM:

DENNIS JAHERRERA, City Attorney

By:

Deputy City Attorney

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City and County of San Francisco Tails

City Hall 1 Dr. Carlton B. Goodlett Place San Francisco, CA 94102-4689

Ordinance

File Number: 160154

Date Passed: April 26, 2016

Ordinance amending the Green Building Code and the Environment Code to establish requirements for certain new building construction facilitating development of renewable energy facilities; updating provisions of the Green Building requirements for City buildings; setting an operative date of January 1, 2017; providing findings as to local conditions pursuant to the California Health and Safety Code; directing the Clerk of the Board of Supervisors to transmit the ordinance to appropriate State officials; and affirming the Planning Department's determination under the California Environmental Quality Act.

April 11, 2016 Land Use and Transportation Committee - RECOMMENDED

April 19, 2016 Board of Supervisors - AMENDED, AN AMENDMENT OF THE WHOLE BEARING SAME TITLE

Ayes: 11 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Mar, Peskin, Tang, Wiener and Yee

April 19, 2016 Board of Supervisors - AMENDED, AN AMENDMENT OF THE WHOLE BEARING SAME TITLE

Ayes: 11 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Mar, Peskin, Tang, Wiener and Yee

April 19, 2016 Board of Supervisors - PASSED ON FIRST READING AS AMENDED Ayes: 11 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Mar, Peskin, Tang, Wiener and Yee

April 26, 2016 Board of Supervisors - FINALLY PASSED

Ayes: 11 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Mar, Peskin, Tang, Wiener and Yee

I hereby certify that the foregoing Ordinance was FINALLY PASSED on 4/26/2016 by the Board of Supervisors of the City and County of San Francisco.

> Angela Calvillo Clerk of the Board

> > Date Approved