[Environment, Green Building Codes – Efficiency in Mixed Fuel New Construction and Electrification of Municipal Buildings]

Ordinance amending the Green Building Code to establish requirements for certain new building construction requiring buildings which utilize energy other than electricity to install energy saving features; amending the Environment Code to require new construction and major renovations of municipal buildings to exclude natural gas; setting an effective date of January 1, 2020; providing findings as to local conditions pursuant to the California Health and Safety Code; affirming the Planning Department's determination under the California Environmental Quality Act; and making findings of consistency with the General Plan, and the eight priority policies of Planning Code, Section 101.1.

NOTE: **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 and General Plan Consistency Findings.

(a) 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. ___ and is incorporated herein by reference. The Board affirms this determination.

(b) On _____, the Planning Commission, in Resolution No. _____, 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 Board adopts these findings as its own. A copy of said Resolution is on file with the Clerk of the Board of Supervisors in File No. _____, and is incorporated herein by reference.

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

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 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 _____. The Commission on the Environment considered the applicable sections of this ordinance at a duly noticed public hearing on _____.

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) 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. As a city located on the tip of a peninsula, San Francisco is experiencing the repercussions of climate change as rising sea levels have caused significant erosion, increased impacts to infrastructure during extreme tides, and have caused the City to expend funds to modify the sewer system.

(2) The effects of climate change on California include reduction in annual snow accumulation in the Sierra Nevada mountains which increases the frequency of drought, and increasing evapotranspiration from forests and rangelands which increases vulnerability of fire. San Francisco has already experienced increased frequency of drought conditions; and harmful air quality due to wildland fires.

(3) Some residents of San Francisco, such as the elderly, are particularly vulnerable to increases in frequency, peak temperature, and extended duration of heat events

resulting from climate changes, as well as extreme concentrations of toxic air pollutants in San Francisco due to fires in Northern California in 2017 and 2018.

(4) San Francisco municipal facilities receive 100% greenhouse-gas free electricity from the San Francisco Public Utilities Commission. As a result, 100% of the greenhouse gas emissions from the operation of city buildings is caused by the combustion of natural gas on-site or in the production of district steam.

(5) It is reasonably necessary to require the City agencies to lead by example, by eliminating the installation of equipment using fossil fuels, and instead install high-efficiency equipment which utilizes low-carbon electricity.

(6) The operation of buildings was responsible for 43.7% of citywide greenhouse gas emissions from San Francisco in 2017, a 51% decrease since 1990. Over the same period, the economy of San Francisco grew 162% and population increased 22%.

(7) Strong energy efficiency standards reduce emissions by reducing energy use, and increased availability of renewable energy reduces emissions from electricity usage. In 2017, 80% of emissions from the operation of buildings citywide was due to consumption of natural gas.

(8) Emissions from electricity use are reduced both by conservation and by increasing generation of renewable electricity to meet California Renewable Portfolio Standards and voluntary enhancement of clean generation resources by Community Choice Aggregation programs. Emissions of carbon dioxide per megawatt hour of electricity delivered to San Francisco have decreased 78% since 1990.

(9) Emissions from natural gas can be reduced by reducing consumption, and direct emissions per therm of natural gas burned have remained constant since 1990. The primary constituent of natural gas is methane, which is 86 times more potent greenhouse gas

than carbon dioxide, and more than 4% of methane leaks into the atmosphere prior to delivery.

(10) It is reasonably necessary to require building owners to take steps to reduce the energy consumed by inefficient building operations when such operations utilize fossil fuels instead of low-carbon electricity, in order to reduce pollution, improve resilience to disruption of natural gas supplies in the event of disaster, and reduce the global warming effects of energy consumption.

(c) Installing energy efficient and all-electric systems 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 financing of new construction. Based upon the findings of a cost-effectiveness study which established that distributed electricity resources including efficiency, photovoltaics, and battery storage are cost-effective, the Board of Supervisors determined that installing additional energy efficiency or efficient all-electric systems is cost-effective based on the analysis contained in Board of Supervisors File No. XXXXX, and saves more energy than the standards contained in the 2019 California Green Building Standards (CALGreen) Code (CCR Title 24, Part 11) and the 2019 California Energy Standards (CCR Title 24, Part 6).

Section 4. The San Francisco Environment Code is hereby amended to read as follows:

SEC. 701. DEFINITIONS.

…

"All-Electric Building or Project" is a building or project that uses a permanent supply of electricity as the source of energy for all space conditioning (including heating and cooling), water heating (including pools and spas), cooking appliances, and clothes drying appliances. An All-Electric Building or Project may include solar thermal collectors, but installs no natural gas or propane plumbing in or in connection with a building, structure, or within property lines of the premises, extending from the point of delivery at the gas meter.

"Major Renovation" means any municipal construction project or renovation to an existing structure other than repair or addition. A Major Renovation may include, but is not limited to, a change in occupancy or use, or structural repair to an existing building or facility; or remodeling, rehabilitation, reconstruction, historic restoration, or changes to the plan configuration of wall and full-height partitions, where the scope of work is sufficient to support LEED certification and extensive enough such that normal building operations cannot be performed while the work is in progress, and/or a new certificate of occupancy, or similar official indication that it is fit and ready for use, is required. Major Renovation does not encompass normal maintenance, reroofing, floor covering, painting, wallpapering, or changes to mechanical and electrical systems.

"Municipal Construction Project" includes any planning, design, building, or construction activity, including demolition, new construction, major renovation, or building additions performed either by a City department at a City-owned Facility or City Leasehold, or by tenants at a City-owned Facility.

"New Construction" means construction from the ground up, including a new building envelope, and new structural, mechanical, electrical and plumbing systems.

"Natural Gas" shall have the same meaning as "Fuel Gas" as defined in California Plumbing Code and Mechanical Code.

SEC. 706. LOCALLY-REQUIRED MEASURES FOR MUNICIPAL CONSTRUCTION PROJECTS.

All municipal construction projects shall comply with the following locally-required measures:

…

(d) Renewable Energy Efficiency, Better Roofs, and Energy Resilience.

…

(7) Municipal new construction and major renovation projects shall be all-electric buildings or projects. Electricity shall be the permanent source of energy for all space heating, water heating (including pools and spas), cooking appliances, and clothes drying appliances serving the building or project area. No new natural gas combustion equipment or natural gas plumbing shall be designed or installed in municipal new construction and major renovation projects.

Exceptions:

(a) Natural gas or propane service and plumbing may be installed if necessary for processes separate from the operation of building systems, such as vehicle fueling.

(b) Existing natural gas-using equipment which serves the project area but is outside the scope of the project may be retained. Projects which (i) are served by existing natural gas-using equipment outside the scope of work, and (ii) include upgrade to electric service in the project scope of work, are encouraged to include sufficient electrical service capacity for future replacement of existing natural gas-using equipment with all-electric systems.

(c) Emergency backup electricity generation systems may use any combination of technologies allowed by applicable laws, including combustion of fossil fuels. Zero-emissions emergency backup electricity systems are encouraged, such as onsite batteries that store electricity from onsite solar photovoltaics.

(d) Approval of a Waiver pursuant to Section 713 of this Chapter.

Section 5. The Green Building Code is hereby amended by revising Sections 202, 4.201.1 and 5.201.1.1, to read as follows:

Sec. 202 – DEFINITIONS

ALL-ELECTRIC BUILDING OR PROJECT is a building or project that uses a permanent supply of electricity as the source of energy for all space conditioning (including heating and cooling), water heating (including pools and spas), cooking appliances, and clothes drying appliances. An All-Electric Building or Project may include solar thermal collectors, but installs no natural gas or propane plumbing in or in connection with a building, structure, or within property lines of the premises, extending from the point of delivery at the gas meter.

ENERGY DESIGN RATING is a metric required by the California Energy Commission to be applied to low rise residential construction in order to determine compliance with California Title 24 Part 6 Energy Standards. The Energy Design Rating has three components, an Energy Efficiency Design Rating; a Solar Electric Generation and Demand Flexibility Design Rating; and a Total Energy Design Rating. The Solar Electric Generation and Demand Flexibility Design Rating is subtracted from the Energy Efficiency Design Rating to determine the Total Energy Design Rating. California Energy Standards require that each building must separately comply with the Energy Efficiency Design Rating and the Total Energy Design Rating.

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

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.

NON-RESIDENTIAL BUILDING. For the purposes of this code, a building that is of not of Occupancy Group R.

MIXED-FUEL BUILDING is a building that uses natural gas or propane as fuel for space heating, water heating (including pools and spas), cooking appliances or clothes drying appliances or is plumbed for such equipment.

NATURAL GAS shall have the same meaning as "Fuel Gas" as defined in California Plumbing Code and Mechanical Code.

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.

SEC. 4.201.1. Energy Performance.

(a) ***All-electric buildings.*** *A newly constructed all-electric building shall be designed and constructed such that the Total Energy Design Rating and Energy Efficiency Design Rating for the proposed building are no greater than the corresponding Energy Design Ratings for a Standard Design Building compliant with California Title 24 Part 6 Energy Standards.*

(b) ***Mixed-fuel buildings.*** *A newly constructed mixed-fuel low-rise residential building shall:*

(1) *Be designed and constructed such that the Energy Efficiency Design Rating for the proposed building is no greater than the Energy Efficiency Design Rating for the Standard Design Building; and*

(2) *Be designed and constructed such that the Total Energy Design Rating (Total EDR) for the proposed building is 14 or less, as calculated by compliance software approved by the California Energy Commission.*

Exception:

Mixed-fuel low-rise residential buildings with limited solar access are excepted if a photovoltaic (PV) system meeting the minimum requirements as specified in California

Energy Standards Joint Appendix JA11 is installed on all available areas of 80 contiguous square feet or more with effective annual solar access. Effective annual solar access shall be 70 percent or greater of the output of an unshaded PV array on an annual basis, wherein shade is due to existing permanent natural or manmade barriers external to the dwelling, including but not limited to trees, hills, and adjacent structures.

(3) A newly constructed mixed-fuel high-rise residential building shall be designed and constructed such that the Energy Budget for the proposed building is no greater than 90 percent of the Title 24 Part 6 Energy Budget for the Standard Design Building as calculated by compliance software approved by the Energy Commission.

SEC. 5.201.1.1. Energy Performance.

(a) All-electric buildings.

A newly constructed all-electric non-residential building shall demonstrate the energy budget for the proposed building is no greater than the energy budget calculated for the standard design building meeting California Title 24 Part 6 Energy Standards.

(b) Mixed-fuel buildings.

A newly constructed mixed-fuel non-residential building shall demonstrate the Energy Budget for the proposed building is no greater than 90 percent of the Title 24 Part 6 Energy Budget for the Standard Design Building meeting California Title 24 Part 6 Energy Standards.

Exception: Buildings consisting primarily of occupancy F, L, or H are exempt from this section.

Section 6. Effective Date; Operative Date. This ordinance shall become effective on January 1, 2020, or upon effective date, whichever is later.

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:

By: _____
XXXXXXXXXXXX
Deputy City Attorney