

BOARD of SUPERVISORS



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MEMORANDUM

TO: Patrick O'Riordan, Director , Department of Building Inspection
Sonya Harris, Secretary, Building Inspection Commission

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

DATE: July 8, 2020

SUBJECT: LEGISLATION INTRODUCED

The Board of Supervisors' Land Use and Transportation Committee has received the following legislation, introduced by Supervisor Mandelman on June 30, 2020:

File No. 200701

Ordinance amending the Building Code to require new construction to utilize only electric power; adopting findings of local conditions under the California Health and Safety Code; affirming the Planning Department's determination under the California Environmental Quality Act; and directing the Clerk of the Board of Supervisors to forward this Ordinance to the California Building Standards Commission upon final passage.

The proposed ordinance is being transmitted pursuant to Charter, Section D3.750-5, for public hearing and recommendation. It is pending before the Land Use and Transportation Committee and will be scheduled for hearing upon receipt of your response.

Please forward me the Commission's recommendation and reports at the Board of Supervisors, City Hall, Room 244, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102 or by email at: Erica.Major@sfgov.org.

c: John Murray, Department of Building Inspection
Patty Lee, Department of Building Inspection

1 [Building Code - Mandating New Construction Be All-Electric]

2

3 **Ordinance amending the Building Code to require new construction to utilize only**
 4 **electric power; adopting findings of local conditions under the California Health and**
 5 **Safety Code; affirming the Planning Department's determination under the California**
 6 **Environmental Quality Act; and directing the Clerk of the Board of Supervisors to**
 7 **forward this Ordinance to the California Building Standards Commission upon final**
 8 **passage.**

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 *strikethrough italics Times New Roman font*.
 12 **Board amendment additions** are in double-underlined Arial font.
 13 **Board amendment deletions** are in ~~strikethrough Arial font~~.
 14 **Asterisks (* * * *)** indicate the omission of unchanged Code
 15 subsections or parts of tables.

13

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

15

16 Section 1. General Findings.

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

22 (b) On _____, the Building Inspection Commission considered this
 23 ordinance at a duly noticed public hearing pursuant to Charter Section D3.750-5.

24

25 Section 2. Findings Regarding Local Conditions.

1 (a) California Health and Safety Code Sections 17958.7 and 18941.5 provide that local
2 jurisdictions may enact more restrictive building standards than those contained in the
3 California Building Code, provided that the local jurisdictions make express findings that each
4 change or modification is reasonably necessary because local climate, geologic, or
5 topographical conditions and that the local jurisdictions file the local amendments and
6 required findings with the California Building Standards Commission before the local changes
7 or modifications can go into effect.

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

11 (1) The topography of San Francisco creates increased risk of fire due to
12 high density of buildings on very small lots and high population density. It is necessary and
13 appropriate to stop building new natural gas infrastructure that increases acute and
14 cumulative fire risk across the City.

15 (2) San Francisco's geologic and topographic conditions produce increased
16 risk for earthquake-induced failure and consequent fire due to local hazardous seismic
17 microzones, slide areas, and local liquefaction hazards. Natural gas infrastructure may
18 rupture, fail, and/or explode due to earthquake-induced structural failure. After seismic
19 events, natural gas infrastructure will take significantly longer to resume service compared to
20 electrical infrastructure. It is necessary and appropriate to reduce fire risk and increase
21 resiliency by eliminating the construction of new natural gas infrastructure.

22 (3) San Francisco's climate and topography create wind patterns and
23 periodic seasonal high temperatures that produce smog and ozone that exacerbate the
24 respiratory ailments of residents. Natural gas combustion is a major source of indoor air
25 pollution that further exacerbates the effects of regional pollution for the City's residents and

1 can be particularly acute in the City's dense population and smaller dwelling units. It is
2 reasonable and appropriate to decrease pollution exposure and resulting human health
3 impacts by utilizing All-Electric construction instead of creating additional natural gas
4 infrastructure.

5 (4) Human activities releasing greenhouse gases into the atmosphere cause
6 increases in worldwide average temperature, which contribute to melting of glaciers and
7 thermal expansion of ocean water. As a city located on the tip of a peninsula, surrounded on
8 three sides by water, San Francisco is experiencing and will continue to experience the
9 repercussions of climate change such as extreme heat events and rising sea levels causing
10 significant erosion, increasing impacts to infrastructure during extreme tides, and causing the
11 City to expend funds to modify its infrastructure.

12 (5) The operation of buildings comprise a significant portion of the City's
13 greenhouse gas emissions. In 2017, the operation of buildings was responsible for 43.7% of
14 citywide greenhouse gas emissions. The City has grown considerably in recent years. For
15 example, since 1990 the economy of the City grew 162% and population increased by 22%.
16 This growth results in construction of new buildings and significant rehabilitation of existing
17 buildings.

18 (6) San Francisco's electric system increasingly utilizes renewable energy.
19 Emissions of carbon dioxide per megawatt hour of electricity delivered to the City have
20 decreased by 78% since 1990. The City has set a goal of ensuring that 100% of electricity
21 usage citywide is generated via renewable, greenhouse gas-free sources by 2030. In 2017,
22 80% of greenhouse gas emissions from the operation of buildings citywide was due to
23 consumption of natural gas or district steam produced via combustion of natural gas.

24
25

1 (7) The primary constituent of natural gas is methane, which is 86 times
2 more potent of a greenhouse gas than carbon dioxide. In addition, more than 4% of methane
3 leaks into the atmosphere prior to delivery.

4 (8) It is necessary and appropriate to stop construction of new natural gas
5 infrastructure in San Francisco in order to reduce the unique impacts San Francisco will
6 endure from global warming.

7
8 Section 3. The Building Code is hereby amended by revising Sections 106A and 202,
9 to read as follows:

10 **SECTION 106A – PERMITS**

11 * * * *

12 **106A.1.16.3 Inspections.** Inspections by the Electrical Division are required for EV
13 Charging Station installations, and for any alteration or modification of the electrical system on
14 the property, including the installation of EVSE.

15 *106A.1.17 Mixed-Fuel Buildings. The Building Official shall not issue permits for*
16 *construction of new Mixed-Fuel Buildings that submitted their initial application after January 1, 2021.*
17 *Permits for new construction that submit their initial application on or after that date may only be*
18 *obtained for All-Electric Buildings or Projects.*

19 *EXCEPTIONS: The Building Official may issue a permit for construction of a new Mixed-Fuel*
20 *Building in the following circumstances:*

21 *(1) Upon the Building Official's finding that constructing an All-Electric Building or Project is*
22 *physically or technically infeasible and that a modification pursuant to section 104A.2.7 is warranted.*
23 *Modifications from this section 106A.1.17 shall only be issued under this exception where the Building*
24 *Official finds: sufficient evidence was submitted to substantiate the infeasibility of an All-Electric*
25 *Building or Project design; the installation of natural gas piping systems, fixtures and/or infrastructure*

1 is strictly limited to the system and area of the building for which All-Electric Building or Project
2 design is infeasible; the area or service within the project where gas piping systems, fixtures and/or
3 infrastructure are installed is as Electric-Ready as feasibly possible considering other provisions of the
4 Building and Electrical Codes; and that the project’s modified design provides equivalent health, safety
5 and fire-protection to All-Electric Building or Project design; or

6 (2) The Building Official may issue a permit for a new Mixed Fuel Building that includes an
7 area specifically designated for occupancy by a commercial food service establishment (A-2
8 Occupancy) that is a Mixed-Fuel Building solely because it provides gas piping systems, fixtures and/or
9 infrastructure exclusively for cooking equipment within the designated commercial food service area
10 where the initial application was submitted prior to January 1, 2022.

11 **106A.1.17.1 Conversion to Mixed-Fuel Buildings.** The Building Official shall not issue
12 permits that would convert an All-Electric Building or Project into a Mixed-Fuel Building where the
13 initial application was submitted after January 1, 2021.

14 **106A.1.17.2 Municipal New Construction or Major Renovation Projects.** The provisions in
15 section 106A.1.17 do not apply to Municipal New Construction or Major Renovation Projects as
16 defined by Chapter 7 of the Environment Code that are subject to Section 706 of the Environment
17 Code.

18
19 * * * *

20
21 **SECTION 202 – DEFINITIONS**

22 Add these definitions as follows:

23 **ALL-ELECTRIC BUILDING OR PROJECT.** A building or project that uses a permanent
24 supply of electricity as the source of energy for all space conditioning (including heating and cooling),
25 water heating (including pools and spas), cooking appliances, and clothes drying appliances. An All-

1 Electric Building or Project may not install natural gas or propane piping systems, fixtures or
2 infrastructure for those purposes in or in connection with the building, structure, or within property
3 lines of the premises, extending from the point of delivery at the gas meter.

4 * * * *

5 **ELECTRIC-READY.** A building, project, or portion thereof that contains electrical systems
6 and designs that provide capacity for a future retrofit of a Mixed-Fuel Building to an All-Electric
7 Building. Electric-Ready includes sufficient ispace, drainage, electrical conductors or raceways, bus
8 bar capacity, and overcurrent protective devices.

9 * * * *

10 **MIXED-FUEL BUILDING.** A building that uses natural gas or propane as fuel for space
11 heating or cooling, water heating (including pools and spas), cooking appliances or clothes drying
12 appliances, onsite generation of electricity (except where primarily fueled by onsite digestion of
13 organic material), or contains fixtures, piping systems, or infrastructure for natural gas or propane
14 equipment for such uses.

15
16 Section 4. Effective Date. This ordinance shall become effective 30 days after
17 enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor returns the
18 ordinance unsigned or does not sign the ordinance within ten days of receiving it, or the Board
19 of Supervisors overrides the Mayor’s veto of the ordinance.

20
21 Section 5. Scope of Ordinance. In enacting this ordinance, the Board of Supervisors
22 intends to amend only those words, phrases, paragraphs, subsections, sections, articles,
23 numbers, punctuation marks, charts, diagrams, or any other constituent parts of the Municipal
24 Code that are explicitly shown in this ordinance as additions, deletions, Board amendment
25

1 additions, and Board amendment deletions in accordance with the “Note” that appears under
2 the official title of the ordinance.

3
4 Section 6. Severability. If any section, subsection, sentence, clause, or phrase of this
5 ordinance is, for any reason, held to be invalid, such decision shall not affect the validity of the
6 remaining portions of this ordinance. The Board of Supervisors hereby declares that it would
7 have passed this ordinance, and each section, subsection, sentence, clause, or phrase of this
8 Ordinance, irrespective of the fact that any one or more sections, subsections, sentences,
9 clauses, or phrases be declared invalid.

10
11 Section 7. Directions to Clerk. Upon final passage of this ordinance, the Clerk of the
12 Board of Supervisors is hereby directed to transmit this ordinance to the California Building
13 Standards Commission pursuant to the applicable provisions of State law.

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

17 By: /s/ Robb W. Kapla
18 ROBB W. KAPLA
19 Deputy City Attorney

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LEGISLATIVE DIGEST

[Building Code - Mandating New Construction Be All-Electric]

Ordinance amending the Building Code to require new construction to utilize only electric power; adopting findings of local conditions under the California Health and Safety Code; affirming the Planning Department's determination under the California Environmental Quality Act; and directing the Clerk of the Board of Supervisors to forward this Ordinance to the California Building Standards Commission upon final passage.

Existing Law

The Building Code does not define or distinguish between all-electric buildings and mixed-fuel buildings or contain a definition of electric-ready design.

Amendments to Current Law

The proposed legislation would define the terms all-electric, mixed-fuel, and electric-ready in the Building Code. All-electric building or design is defined in the proposed legislation as a building that uses permanent electrical supply for air conditioning and heating, water heating, cooking appliances, and clothes drying appliances, and that does not contain any natural gas piping, fixtures, or infrastructure for those building needs. Natural gas piping, fixtures or infrastructure for other uses within a building, such as natural gas piping and appliances for industrial processes, would not disqualify a building as being all-electric for purposes of this legislation. The proposed legislation defines mixed-fuel building as a building that utilizes natural gas and/or contains natural gas piping, fixtures, or infrastructure for any of the following uses: air conditioning or heating, water heating, cooking appliances, clothes drying, or electricity generation. The proposed legislation defines electric-ready as a building that contains sufficient electrical systems and design that would allow for future retrofit to all-electric design.

The proposed legislation would prohibit the Department of Building Inspection (DBI) from issuing building permits for construction of new mixed-fuel buildings where the initial application for the permit was submitted on or after January 1, 2021. It would also prohibit issuance of permits that would result in converting existing all-electric buildings to mixed-fuel buildings—for example, by adding natural gas piping for space heating to a building that currently only uses electricity for space heating—where the initial applications were submitted on or after January 1, 2021.

The proposed legislation contains two exceptions to the all-electric building requirement. The first exception is based on the Building Code's modification process and allows DBI to issue a

permit to construct a new mixed-fuel building where all-electric design is physically or technically infeasible. DBI may only issue a permit under this modification process where it finds: (1) that complete all-electric design is physically or technically infeasible; (2) the installation of natural gas piping, fixtures and infrastructure is limited within the building to the space and use for which all-electric design is infeasible (for example, if electric water heating is infeasible, a natural gas water heater and piping is allowed and no other piping or fixtures may be installed in other locations serving other uses in the building); (3) the limited area in which natural gas piping, fixtures, or infrastructure is to be utilized is also as electric-ready as feasible; and (4) the modified, mixed-fuel design of the building provides equivalent health, safety, and fire protection as all-electric design.

The second exception provides an additional year to submit applications for new buildings that include a designated space for commercial kitchens, including restaurants. This exception allows DBI to issue permits for new construction of mixed-fuel buildings where initial applications are submitted before January 1, 2022, and the new building seeks natural gas piping, fixtures and infrastructure solely to accommodate a commercial food service establishment (a restaurant) and where the use of natural gas is confined to cooking equipment in the food service area of the building.

Background Information

Natural gas combustion, infrastructure, and transport create significant health, safety, and environmental risks for San Francisco. The City's unique topography, high population density, stock of older wooden structures, seismic activity, and wind patterns make the City vulnerable to fast spreading fires triggered or strengthened by gas leaks and explosions. Indoor use of natural gas is also a significant contributor to indoor air pollution, the health impacts of which are exacerbated in denser developments with smaller dwelling units that make up a significant portion of the City's housing stock. Production, transportation, and combustion of natural gas are also significant contributors to climate change, which poses unique risks to the City in the form of sea level rise, extreme heat, and increasing storm frequency.

The objective of the proposed legislation is to recognize the health, safety, and environmental impacts of mixed-fuel buildings and ensure that new construction does not exacerbate these impacts. The proposed legislation would create new building standards in the Building Code, which requires: (1) that the standards are more protective than the California Building Code, (2) findings that the standards are based on unique geologic or environmental conditions, and (3) the standards are submitted to the California Building Standards Commission for review.

The proposed legislation follows other recent legislative efforts to address the risks and impacts of natural gas, including amendments to the Environment Code to mandate new municipal construction be all-electric, and amendments to the Green Building Code creating different energy efficiency standards for mixed-fuel and all-electric buildings.

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