

SECTION 1. Recitals. The City Council finds and determines the preceding recitals to be true and correct and an integral part of the Council's decision, and hereby adopts and incorporates them into this Ordinance.

SECTION 2. California Environmental Quality Act. This ordinance is exempt from the California Environmental Quality Act (CEQA) pursuant to Section 15308 of the CEQA Guidelines, Actions by Regulatory Agencies for the Protection of the Environment.

SECTION 3: Purpose and Intent. It is the purpose and intent of this Ordinance to expressly enact local amendments to Sections 100.0, 100.1, 140.0, 140.1 and 150.1 of the 2019 California Building Code applicable to new construction to provide standards for new buildings to improve community health and safety while reducing greenhouse gas emissions.

SECTION 4. Enactment of Local Amendments to The California Building Code, Title 24, Part 6 (Amendments to Chapter ____ of the _____ Municipal Code). The local amendments to Sections 100.0, 100.1, 140.0, 140.1 and 150.1 of the 2019 California Building Code, Title 24, Part 6, are hereby enacted. The local amendments being enacted amend _____ Municipal Code Chapter _____ to add Sections _____ through _____ as follows (additions are shown in double underline and deletions are shown as ~~strikethrough~~):

Section 100.0 is modified to add a new section (i) as follows:

(i) Energy Reach Code - Purpose and Intent.

In addition to all requirements of the California Energy Code applicable to new construction, the following shall apply:

1. New low-rise residential buildings, other than accessory dwelling units that are no greater than 400 square feet, which are designed to utilize mixed-fuel (natural gas or propane in addition to electricity) shall be required to either comply with the prescriptive requirements of Section 150.1(c), as amended herein, or meet a Total Energy Design Rating (EDR) margin, as defined by the California Energy Code, of 10. The performance requirements may be reduced, but not below the requirements for the Standard Design Building, if sufficient solar access is not available.
2. New nonresidential buildings that are designed to utilize mixed-fuel (natural gas or propane in addition to electricity) shall be required to install solar panels on the entire Solar Zone, as defined in Section 110.10, and comply with either the prescriptive requirements of Section 140.2, as amended herein, or have compliance margins, as defined in Section 140.1, that meet or exceed the Standard Design Building by the amounts below:

- A. Office and retail occupancies: 15%
 - B. Hotel/Motel and High-Rise Residential occupancies: 10%
 - C. All other occupancies in buildings with both indoor lighting and mechanical systems: 10%
 - D. All other occupancies in buildings with indoor lighting or mechanical systems but not both: 10%
3. If a Certified Energy Analyst prepares the Certificate of Compliance, the design shall be credited with one (1) EDR point or one (1) percent of compliance margin, to the extent that the resultant energy budget is no greater than the energy budget for the Standard Building Design.

Section 100.1(b) is modified by adding the following definitions:

ALL-ELECTRIC BUILDING is a building that has no natural gas or propane plumbing installed within the building, and that uses electricity as the source of energy for its space heating, water heating, cooking, and clothes drying appliances. An All-Electric Building may include solar thermal collectors.

CERTIFIED ENERGY ANALYST is a person registered as a Certified Energy Analyst with the California Association of Building Energy Consultants as of the date of submission of a Certificate of Compliance as required under Section 10-103.

FREE STANDING ACCESSORY DWELLING UNIT is a detached building that is not intended for sale separate from the primary residence, on a lot that is zoned for single family or multifamily use, located on the same lot as an existing dwelling, and does not exceed 1,200 square feet of total floor area.

MIXED-FUEL BUILDING is a building that is plumbed for the use of natural gas or propane as fuel for space heating, water heating, cooking, and/or clothes drying appliances.

Section 150.1(b) is modified as follows:

- (b) Performance Standards. A building complies with the performance standards if the energy consumption for the Proposed Design Building is no greater than the energy budget calculated for the Standard Design Building using Commission-certified compliance software as specified by the Alternative Calculation Methods Approval Manual. Mixed-Fuel Buildings must additionally reach an Energy Design Rating margin above the Standard Design in order to comply with performance standards.

Sections 150.1(b)1 and 2 are modified as follows:

1. Newly Constructed Buildings. The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Rating, which is based on TDV energy. The Energy Design Rating (EDR) has two components, the

Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The Solar Electric Generation and Demand Flexibility Design Rating shall be subtracted from the Energy Efficiency Design Rating to determine the Total Energy Design Rating. The Proposed Building shall separately comply with the Energy Efficiency Design Rating and the Total Energy Design Rating.

A. An All-Electric Building or a Free Standing Accessory Dwelling Unit no greater than 400 square feet complies with the performance standards if both the Total Energy Design Rating and the Energy Efficiency Design Rating for the Proposed Building are no greater than the corresponding Energy Design Ratings for the Standard Design Building.

B. A Mixed-Fuel Building complies with the performance standards if:

- i. The Energy Efficiency Design Rating of the Proposed Building is no greater than the Energy Efficiency Design Rating for the Standard Design Building; and
- ii. The Total Energy Design Rating for the Proposed Building is at least 10 points less than the Total Energy Design Rating for the Standard Design Building.

EXCEPTION 1 to Section 150.1(b)1.B.ii. If the Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the Total Energy Design Rating of the Proposed Design is no greater than the Standard Design Building, the Total Energy Rating of the Proposed Building complies with this section if it is at least nine (9) points less than the Total Energy Design Rating for the Standard Design Building.

EXCEPTION to Section 150.1(b)1. A community shared solar electric generation system, or other renewable electric generation system, and/or community shared battery storage system, which provides dedicated power, utility energy reduction credits, or payments for energy bill reductions, to the permitted building and is approved by the Energy Commission as specified in Title 24, Part 1, Section 10-115, may offset part or all of the solar electric generation system Energy Design Rating required to comply with the Standards, as calculated according to methods established by the Commission in the Residential ACM Reference Manual.

The first paragraph of Section 150.1(c) is modified as follows:

Prescriptive Standards/Component Package. Buildings that comply with the prescriptive standards shall be designed, constructed, and equipped to meet all of the requirements for the appropriate Climate Zone shown in TABLE 150.1-A or B as well as all of the requirements of Sections 150.1(c)15 and 16, whichever are more stringent. In TABLE 150.1-A and TABLE 150.1-B, a NA (not allowed) means that feature is not permitted in a particular Climate

Zone and a NR (no requirement) means that there is no prescriptive requirement for that feature in a particular Climate Zone. Installed components shall meet the following requirements:

New Sections 150.1(c)15 and 16 are added as follows:

15. Additional Prescriptive Requirements for Single Family Mixed-Fuel Buildings.

- A. Duct System Sealing and Leakage Testing. The total duct system leakage shall not exceed 2 percent of the nominal system air handler air flow.
- G. Slab insulation. Slab floor perimeter insulation shall be installed with an R-value equal to or greater than R10. The minimum depth of concrete-slab floor perimeter insulation shall be 16 inches or the depth of the footing of the building, whichever is less.
- H. Compact Hot Water. The hot water distribution system shall be designed and installed to meet minimum requirements for the basic compact hot water distribution credit according to the procedures outlined in the 2019 Reference Appendices RA4.4.6.
- I. Ducted Central Forced Air Heating Systems. Central Fan Integrated Ventilation Systems. The duct distribution system shall be designed to reduce external static pressure to meet a maximum fan efficacy equal to:
Gas Furnaces: 0.35 Watts per cfm
Heat Pumps: 0.45 Watts per cfm,
according to the procedures outlined in the 2019 Reference Appendices RA3.3.
- J. Solar photovoltaic. A PV system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output, as determined by Equation 150.1-C in Section 150.1(c)14, of no less than 100% of the dwelling's estimated annual electrical usage. The plans shall include calculations for the estimated electricity load and PV production.
- K. Energy Storage. A battery energy storage system with a minimum capacity equal to 5 kWh shall be installed. The system shall have automatic controls programmed to have the ability to charge anytime PV generation is greater than the building load and discharge to the electric grid, during the highest priced time of use hours of the day.

16. Additional Prescriptive Requirements for Multifamily Mixed-Fuel Buildings.

- A. Slab insulation. Slab floor perimeter insulation shall be installed with an R-value of equal to or greater than R10. The minimum depth of concrete-slab floor perimeter insulation shall be 16 inches or the depth of the footing of the building, whichever is less.

- B. Compact Hot Water. The hot water distribution system shall be designed and installed to meet minimum requirements for the basic compact hot water distribution credit according to the procedures outlined in the 2019 Reference Appendices RA4.4.6.
- F. Central Fan Integrated Ventilation Systems. Central forced air system fans used to provide outside air, shall have an air-handling unit fan efficacy less than or equal to 0.35 W/CFM. The airflow rate and fan efficacy requirements in this section shall be confirmed through field verification and diagnostic testing in accordance with all applicable procedures specified in Reference Residential Appendix RA3.3. Central Fan Integrated Ventilation Systems shall be certified to the Energy Commission as Intermittent Ventilation Systems as specified in Reference Residential Appendix RA3.7.4.2.
- G. Solar photovoltaic. A PV system meeting the minimum qualification requirements as specified in Joint Appendix JA11 sized to offset 100% of the estimated site electricity load shall be installed. The plans shall include calculations for the electricity load and PV production.
- H. Energy Storage. A battery energy storage system with a capacity equivalent to the PV system shall be installed. The system shall have automatic controls programmed to have the ability to charge anytime PV generation is greater than the building load and discharge to the electric grid, during the highest priced time of use hours of the day.

Nonresidential and High-Rise Residential Buildings

Mandatory Measures

SECTION 140.0(b) is modified as follows:

- (b) The requirements of Sections 120.0 through 130.5 (mandatory measures for nonresidential, high-rise residential and hotel/motel buildings)- and for all newly constructed buildings and additions, including new equipment installed to serve additions:
 - 1. The entire solar zone, as specified in Section 110.10, shall have a solar PV system installed that meets the minimum qualification requirements as specified in Joint Appendix JA11, subject to the exceptions in Section 110.10.
- EXCEPTION to 140.0(b)1. Additions.

SECTION 140.1 is modified as follows:

SECTION 140.1 – PERFORMANCE APPROACH: ENERGY BUDGETS

A newly constructed All-Electric Building complies with the performance approach if the energy budget calculated for the Proposed Design Building under Subsection (b) is no greater than the energy budget calculated for the Standard Design Building under Subsection (a).

A newly constructed Mixed-Fuel Building complies with the performance approach if the energy budget calculated for the Proposed Design Building under Subsection (b) has a compliance margin, relative to the energy budget calculated for the Standard Design Building under Subsection (a), of at least the value specified for the corresponding occupancy type in Table 140.1-A below.

Table 140.1-A MIXED-FUEL BUILDING COMPLIANCE MARGINS

<u>Occupancy Type</u>	<u>Compliance Margins</u>
<u>Office/Retail</u>	<u>15%</u>
<u>Hotel/Motel and High-Rise Residential</u>	<u>10%</u>
<u>All other occupancies in buildings with both indoor lighting and mechanical systems</u>	<u>10%</u>
<u>All other occupancies in buildings with indoor lighting or mechanical systems but not both</u>	<u>10%</u>

- (a) Energy Budget for the Standard Design Building. The energy budget for the Standard Design Building is determined by applying the mandatory and prescriptive requirements to the Proposed Design Building. The energy budget is the sum of the TDV energy for space-conditioning, indoor lighting, mechanical ventilation, service water heating, and covered process loads.
- (b) Energy Budget for the Proposed Design Building. The energy budget for a Proposed Design Building is determined by calculating the TDV energy for the Proposed Design Building. The energy budget is the sum of the TDV energy for space-conditioning, indoor lighting, mechanical ventilation and service water heating and covered process loads.
- (c) Calculation of Energy Budget. The TDV energy for both the Standard Design Building and the Proposed Design Building shall be computed by Compliance Software certified for this use by the Commission. The processes for Compliance Software approval by the Commission are documented in the ACM Approval Manual.

EXCEPTION to Section 140.1. For newly constructed buildings, if the Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the energy budget for the Proposed Design is no greater than the Standard Design Building, the required compliance margin is reduced by 1%.

NOTE: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, Public Resources Code. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, Public Resources Code.

SECTION 140.2 is modified as follows:

To comply using the prescriptive approach, a building shall be designed with and shall have constructed and installed systems and components meeting the applicable requirements of Sections 140.3 through 140.9 and additionally the

following measures as applicable intended to exceed the remaining prescriptive requirements:

(a) Mixed-Fuel Buildings of Hotel, Motels or High-Rise Multifamily Occupancies

1. Install fenestration with a solar heat gain coefficient no less than 0.45 in both common spaces and guest rooms.
2. Design Variable Air Volume (VAV) box minimum airflows to be equal to the zone ventilation minimums.
3. Include economizers and staged fan control in air handlers with a mechanical cooling capacity $\geq 33,000$ Btu/h.
4. Reduce the lighting power density (Watts/ft²) by ten percent (10%) from that required from Table 140.6-C.
5. In common areas, improve lighting without claiming any Power Adjustment Factor credits:
 - A. Control to daylight dimming plus off per Section 140.6(a)2.H; and
 - B. Perform Institutional Tuning per Section 140.6(a)2.J
6. Install one drain water heat recovery device per every three guest rooms that is field verified as specified in the Reference Appendix RA3.6.9.

(b) All Other Nonresidential Mixed-Fuel Buildings

1. Install fenestration with a solar heat gain coefficient no greater than 0.22.
2. Limit the fenestration area on east-facing and west-facing walls to one-half of the average amount of north-facing and south-facing fenestration.
3. Design Variable Air Volume (VAV) box minimum airflows to be equal to the zone ventilation minimums where VAV systems are installed.
4. Include economizers and staged fan control in air handlers with a mechanical cooling capacity $\geq 33,000$ Btu/h.
5. Reduce the lighting power density (Watts/ft²) by ten percent (10%) from that required from Table 140.6-C.
6. Improve lighting without claiming any Power Adjustment Factor credits:
 - A. Perform Institutional Tuning per Section 140.6(a)2.J, and
 - B. In office spaces, control to daylight dimming plus off per Section 140.6(a)2.H, and
 - C. Install Occupant Sensing Controls in Large Open Plan Offices per Section 140.6(a)2.I.

SECTION 5: Violations. Violation of the requirements of this Chapter shall be considered an infraction of the _____ **Municipal Code**, punishable by all the sanctions prescribed in [*cite local reference to infractions*].

SECTION 5. Severability. The provisions of this Ordinance are severable, and if any clause, sentence, paragraph, provision, or part of this Ordinance, or the application of this Ordinance to any person, is held to be invalid or preempted by state or federal law, such holding shall not impair or invalidate the remainder of this Ordinance. If any provision of this Ordinance is held to be inapplicable, the provisions of this Ordinance shall nonetheless continue to apply with respect to all other covered development projects and applicants. It is hereby declared to be the legislative intent of the City Council that this Ordinance would have been adopted had such provisions not been included or such persons or circumstances been expressly excluded from its coverage.

SECTION 6. Effective and Operative Dates. This Ordinance shall become effective on and after its adoption by sufficient affirmative votes of the Council of the City of _____, as provided in the Charter of the City of _____, Section _____. This Ordinance shall take effect and be in full force on and after _____, 2020. The Ordinance shall not apply to building/construction related permits already issued and not yet expired.

SECTION 7. Directions to the Building Official. Upon final passage of this Ordinance, the Building Official is hereby directed to transmit this Ordinance, along with the companion Resolution, to the State Building Standards Commission pursuant to the applicable provisions of State law.