

## 23.24.010 Adoption

(a) The California Energy Code, 2022 Edition, Title 24, Part 6 of the California Code of Regulations, as adopted and amended by the State of California, hereinafter called "Energy Code," is adopted as the rules, regulations and standards within this City as to all matters therein except as hereinafter modified or amended.

(b) One copy of the Energy Code shall at all times be kept on file in the office of the City Clerk.

## 23.24.020 Local Amendment to Definitions

(a) ~~Repealed.~~ Energy Code subsection 100.1(b) is amended to include the following definitions:

**Electric Heating Appliance.** A device that produces heat energy to create a warm environment by the application of electric power to resistance elements, refrigerant compressors, or dissimilar material junctions, as defined in the California Mechanical Code.

**Kitchen, institutional commercial.** A kitchen dedicated to a foodservice establishment that provides meals at institutions including schools, colleges and universities, hospitals, correctional facilities, private cafeterias, nursing homes, and other buildings or structures in which care or supervision is provided to occupants.

**Kitchen, quick-service commercial.** A kitchen dedicated to an establishment primarily engaged in providing fast food, fast casual, or limited services. Food and drink may be consumed on premises, taken out, or delivered to the customer's location.

**Net Free Area (NFA).** The total unobstructed area of the air gaps between louver and grille slats in a vent through which air can pass. The narrowest distance between two slats, perpendicular to the surface of both slats is the air gap height. The narrowest width of the gap is the air gap width. The NFA is the air gap height multiplied by the air gap width multiplied by the total number of air gaps between slats in the vent.

## 23.24.030 ~~Local Amendment Regarding Mandatory Solar Installations~~**Electric-readiness and Energy Performance of Nonresidential Buildings.**

(a) ~~Repealed.~~ Energy Code Section 120.2 "Required Controls for Space-Conditioning Systems" is amended to add a new subsection (l) to read as follows:

**(l) HVAC Hot Water Temperature.** Zones that use hot water for space heating shall be designed for a hot water supply temperature of no greater than 130 °F.

(b) Energy Code Section 120.6 "Mandatory Requirements for Covered Processes" is amended to add a new subsection (k) to read as follows:

**(k) Mandatory requirements for commercial kitchens.** Electric Readiness for Newly Constructed Commercial Kitchens shall meet the following requirements:

1. Quick-service commercial kitchens and institutional commercial kitchens shall include a dedicated branch circuit wiring and outlet that would be accessible to cookline appliances and shall meet all of the following requirements:

- a. The branch circuit conductors shall be rated at 50 amps minimum.
- b. The electrical service panel shall have a minimum capacity of 800 connected amps.
- 2. The electrical service panel shall be sized to accommodate an additional either 208v or 240v 50-amp breaker.

Exception 1 to Section 120.6(k): healthcare facilities.

Exception 2 to Section 120.6(k): all-electric commercial kitchens.

(c) Energy Code subsection 130.0(a) is amended to read as follows:

The design and installation of all lighting systems and equipment in nonresidential and hotel/motel buildings, outdoor lighting, and electrical power distribution systems within the scope of Section 100.0(a), shall comply with the applicable provisions of Sections 130.0 through 130.6.

**NOTE:** The requirements of Sections 130.0 through 130.6 apply to newly constructed buildings. Section 141.0 specifies which requirements of Sections 130.0 through 130.6 also apply to additions and alterations to existing buildings.

(d) Energy Code Subchapter 4 “Nonresidential and Hotel/Motel Occupancies – Mandatory Requirements for Lighting Systems and Equipment, and Electrical Power Distribution Systems” is amended to add a new section 130.6 “Electric Readiness Requirements for Systems Using Gas or Propane” and read as follows:

### **130.6 Electric Readiness Requirements for Systems Using Gas or Propane**

Where nonresidential systems using gas or propane are installed, the construction drawings shall indicate electrical infrastructure and physical space accommodating the future installation of an electric heating appliance in the following ways, as certified by a registered design professional or licensed electrical contractor.

- a) Branch circuit wiring, electrically isolated and designed to serve all electric heating appliances in accordance with manufacturer requirements and the California Electrical Code, including the appropriate voltage, phase, minimum amperage, and an electrical receptacle or junction box within five feet of the appliance that is accessible with no obstructions. Appropriately sized conduit may be installed in lieu of conductors; and
- b) Labeling of both ends of the unused conductors or conduit shall be with “For Future Electrical Appliance”; and
- c) Reserved circuit breakers in the electrical panel for each branch circuit, appropriately labeled (e.g. “Reserved for Future Electric Range”), and positioned on the opposite end of the panel supply conductor connection; and
- d) Connected subpanels, panelboards, switchboards, busbars, and transformers shall be sized to serve the future electric heating appliances. The electrical capacity requirements shall be adjusted for demand factors in accordance with the California Electric Code; and

e) Physical space for future electric heating appliances, including equipment footprint, and if needed a pathway reserved for routing of ductwork to heat pump evaporator(s), shall be depicted on the construction drawings. The footprint necessary for future electric heating appliances may overlap with non-structural partitions and with the location of currently designed combustion equipment.

(e) Energy Code Section 140.0 "Performance and Prescriptive Compliance Approaches" is amended to read as follows:

Nonresidential and hotel/motel buildings shall comply with all of the following:

- (a) The requirements of Sections 100.0 through 110.12 applicable to the building project (mandatory measures for all buildings).
- (b) The requirements of Sections 120.0 through 130.6 (mandatory measures for nonresidential and high-rise residential and hotel/motel buildings).
- (c) Either the performance compliance approach (energy budgets) specified in Section 140.1 or the prescriptive compliance approach specified in Section 140.2 for the Climate Zone in which the building will be located. Climate zones are shown in FIGURE 100.1-A.

NOTE to Section 140.0(c): The Commission periodically updates, publishes and makes available to interested persons and local enforcement agencies precise descriptions of the Climate Zones, which is available by zip code boundaries depicted in the Reference Joint Appendices along with a list of the communities in each zone.

**NOTE** to Section 140.0: The requirements of Sections 140.1 through 140.10 apply to newly constructed buildings. Section 141.0 specifies which requirements of Section 140.1 through 140.10 also apply to additions or alterations to existing buildings.

(f) Energy Code Section 140.1 "Performance Approach: Energy Budgets" is amended to read as follows:

A building complies with the performance approach provided that:

1. The time-dependent valuation (TDV) energy budget calculated for the Proposed Design Building under Subsection (b) is no greater than the TDV energy budget calculated for the Standard Design Building under Subsection (a), and
2. The source energy budget calculated for the proposed design building under Subsection (b) has a source energy compliance margin, relative to the energy budget calculated for the standard design building under Subsection (a), of at least 7 percent for all nonresidential occupancies.

Exception 1 to 140.1 item 2. A source energy compliance margin of 0 percent or greater is required when nonresidential occupancies are designed with single zone space-conditioning systems complying with Section 140.4(a)2.

Exception 2 to 140.1 item 2. Where it is technically infeasible to implement the performance approach standards, exceptions are subject to review and approval at the discretion of the Community Development Director, or his/her designee.

(g) Energy Code subsections 140.1(a)-(c) are adopted without modification.

**23.24.040 Local Amendment Regarding ~~All-Electric Requirements for Residential Buildings and Buildings with Office Use.~~Electric-readiness and Energy Performance of Single-Family Residential Buildings.**

(a) Repealed. Energy Code subsection 150.0(t) is amended to read as follows:

**Heat pump space heater ready.** Systems using gas or propane furnace to serve individual dwelling units shall include the following:

1. A dedicated 240 volt branch circuit wiring shall be installed within 3 feet from the furnace and accessible to the furnace with no obstructions. The branch circuit conductors shall be rated at 30 amps minimum. The blank cover shall be identified as "240V ready." All electrical components shall be installed in accordance with the California Electrical Code.
2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future heat pump space heater installation. The reserved space shall be permanently marked as "For Future 240V use."
3. A designated exterior location for a future heat pump compressor unit with either a drain or natural drainage for condensate.

(b) Energy Code subsection 150.1(b) is amended to read as follows:

**(b) Performance Standards.** A building complies with the performance standards if the energy consumption calculated 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, as specified in sub-sections 1, 2 and 3 below.

1. **Newly Constructed Buildings.** The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Ratings, which are based on source energy and time-dependent valuation (TDV) energy. The Energy Design Rating 1 (EDR1) is based on source energy. The Energy Design Rating 2 (EDR2) is based on TDV energy and has two components, the Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The total Energy Design Rating shall account for both the Energy Efficiency Design Rating and the Solar Electric Generation and Demand Flexibility Design Rating. The proposed building shall separately comply with the Source Energy Design Rating, Energy Efficiency Design Rating and the Total Energy Design Rating. A building complies with the performance approach if the TDV energy budget calculated for the proposed design building is no greater than the TDV energy budget calculated for the Standard Design Building AND Source Energy compliance margin of at least 9, relative to the Source Energy Design Rating 1 calculated for the Standard Design building.

**Exception 1 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.

**Exception 2 to Section 150.1(b)1.** A newly constructed building with a conditioned floor area less than 1,500 square feet shall achieve a Source Energy compliance margin of 4 or greater, relative to the Source Energy Design Rating 1 calculated for the Standard Design building.

**Exception 3 to Section 150.1(b)1.** A newly constructed building with a conditioned floor area less than 625 square feet shall achieve a Source Energy compliance margin of 0 or greater, relative to the Source Energy Design Rating 1 calculated for the Standard Design building.

**Exception 4 to Section 150.1(b)1.** A newly constructed Accessory Dwelling Unit, as defined by San Mateo Municipal Code Section 27.04.165(a), shall achieve a Source Energy compliance margin of 0 or greater, relative to the Source Energy Design Rating 1 calculated for the Standard Design building.

(c) Energy Code subsections 150.1(b)2, 150.1(b)3, and 150.1(c) are adopted without amendments.

**23.24.050 Local Amendment Regarding All-Electric or Energy Efficiency Standards for High-Rise Multifamily Residential Buildings with 100% Affordable Units. Electric-readiness and Energy Performance of Multifamily Buildings.**

(a) ~~Repealed.~~ Energy Code subsection 160.4(a) is amended to read as follows:

Reserved.

(b) Energy Code Section 160.9 “Mandatory Requirements for Electric Ready Buildings” is amended to add new subsections (d) through (f) as follows:

(d) **Individual Heat Pump Water Heater Ready.** Systems using gas or propane water heaters to serve individual dwelling units shall include the following components and shall meet the requirements of Section 160.9(f):

1. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, copper branch circuit rated to 30 amps, within 3 feet from the water heater and accessible to the water heater with no obstructions. In addition, all of the following:
  - A. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated; and
  - B. A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in A above and labeled with the words “Future 240V Use”;
2. A condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assistance,

3. The construction drawings shall indicate the location of the future heat pump water heater. The reserved location shall have minimum interior dimensions of 39"x39"x96"

4. A ventilation method meeting one of the following:

A. The designed space reserved for the future heat pump water heater shall have a minimum volume of 700 cubic feet; or

B. The designed space reserved for the future heat pump water heater shall vent to a communicating space in the same pressure boundary via permanent openings with a minimum total net free area of 250 square inches so that the total combined volume connected via permanent openings is 700 cu. ft. or larger. The permanent openings shall be:

i. Fully louvered doors with fixed louvers consisting of a single layer of fixed flat slats; or

ii. Two permanent fixed openings, consisting of a single layer of fixed flat slat louvers or grilles, one commencing within 12 inches from the top of the enclosure and one commencing within 12 inches from the bottom of the enclosure.

C. The designed space reserved for the future heat pump water heater shall include two 8" capped ducts, venting to the building exterior:

i. All ducts, connections and building penetrations shall be sealed.

ii. Exhaust air ducts and all ducts which cross pressure boundaries shall be insulated to a minimum insulation level of R-6

iii. Airflow from termination points shall be diverted away from each other.

(e) **Central Heat Pump Water Heater Electric Ready.** Central water heating systems using gas or propane to serve multiple dwelling units shall include the following:

1. The system input capacity of the gas or propane water heating system shall be determined as the sum of the input gas or propane capacity of all water heating devices associated with each gas or propane water heating system.

2. Space reserved shall include:

A. Heat Pump. The minimum space reserved shall include space for service clearances and air flow clearances and shall meet one of the following:

i. If the system input capacity of the gas water heating system is less than 200,000 BTU per hour, the minimum space reserved for the heat pump shall be 2.0 square feet per input 10,000 BTU per hour of the gas or propane water heating system, and the minimum linear dimension of the space reserved shall be 48 linear inches.

ii. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU per hour, the minimum space reserved for the heat pump shall be 3.6 square feet per input 10,000 BTU per hour the gas or propane water heating system, and the minimum linear dimension of the space reserved shall be 84 linear inches.

iii. The space reserved shall be the space required for a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.



B. Tanks. The minimum space reserved shall include space for service clearances and shall meet one of the following:

- i. If the system input capacity of the gas water heating system is less than 200,000 BTU per hour, the minimum space reserved for the storage and temperature maintenance tanks shall be 4.4 square feet per input 10,000 BTU per hour of the gas or propane water heating system.
- ii. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU per hour, the minimum physical space reserved for the storage and temperature maintenance tanks shall be 3.1 square feet per input 10,000 BTU per hour of the gas or propane water heating system.
- iii. The space reserved shall be the space required for a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

3. Ventilation shall be provided by meeting one of the following:

A. Physical space reserved for the heat pump shall be located outside, or

B. A pathway shall be reserved for future routing of supply and exhaust air via ductwork from the reserved heat pump location to an appropriate outdoor location. Penetrations through the building envelope for louvers and ducts shall be planned and identified for future use. The reserved pathway and penetrations through the building envelope shall be sized to meet one of the following:

- i. If the system input capacity of the gas water heating system is less than 200,000 BTU per hour, the minimum air flow rate shall be 70 CFM per input 10,000 BTU per hour of the gas or propane water heating system and the total external static pressure drop of ductwork and louvers shall not exceed 0.17 inch when the future heat pump water heater is installed.
- ii. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU per hour, the minimum air flow rate shall be 420 CFM per input 10,000 BTU per hour of the gas or propane water heating system and the total external static pressure drop of ductwork and louvers shall not exceed 0.17 inch when the future heat pump water heater is installed.
- iii. The reserved pathway and penetrations shall be sized to serve a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

4. Condensate drainage piping. An approved receptacle that is sized in accordance with the California Plumbing Code to receive the condensate drainage shall be installed within 3 feet of the reserved heat pump location, or piping shall be installed from within 3 feet of the reserved heat pump location to an approved discharge location that is sized in accordance with the California Plumbing Code, and meets one of the following:

- A. If the system input capacity of the gas water heating system is less than 200,000 BTU per hour, condensate drainage shall be sized for 0.2 tons of refrigeration capacity per input 10,000 BTU per hour.
- B. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU per hour, condensate drainage shall be sized for 0.7 tons of refrigeration capacity per input 10,000 BTU per hour.

C. Condensate drainage shall be sized to serve a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

5. Electrical.

A. Physical space shall be reserved on the bus system of the main switchboard or on the bus system of a distribution board to serve the future heat pump water heater system including the heat pump and temperature maintenance tanks. In addition, the physical space reserved shall be capable of providing adequate power to the future heat pump water heater as follows:

- i. Heat Pump. For the Heat Pump, the physical space reserved shall comply with one of the following:
  - a. If the system input capacity of the gas water heating system is less than 200,000 BTU per hour, provide 0.1 kVA per input 10,000 BTU per hour.
  - b. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU per hour, provide 1.1 kVA per input 10,000 BTU per hour.
  - c. The physical space reserved supplies sufficient electrical power required to power a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.
- ii. Temperature Maintenance Tank. For the Temperature Maintenance Tank, the physical space reserved shall comply with one of the following:
  - a. If the system input capacity of the gas water heating system is less than 200,000 BTU per hour, provide 1.0 kVA per input 10,000 BTU per hour.
  - b. If the system input capacity of the gas water heating system is greater than or equal to 200,000 BTU per hour, provide 0.6 kVA per input 10,000 BTU per hour.
  - c. The physical space reserved supplies sufficient electrical power required to power a heat pump water heater system that meets the total building hot water demand as calculated and documented by the responsible person associated with the project.

(f) The building electrical system shall be sized to meet the future electric requirements of the electric ready equipment specified in sections 160.9(a) through (e). To meet this requirement the building main service conduit, the electrical system to the point specified in each subsection, and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each electric ready appliance in accordance with the California Electric Code.

(c) Energy Code Section 170.1 "Performance Approach" is amended to read as follows:

A building complies with the performance approach if the TDV energy budget calculated for the proposed design building under Subsection (b) is no greater than the TDV energy budget calculated for the Standard Design Building under Subsection (a). Additionally,

1. The energy budget, expressed in terms of source energy, of a newly constructed low-rise multifamily building (three habitable stories or less) shall be at least 10 percent lower than that of the Standard Design Building.



2. Newly Constructed high-rise multifamily buildings (greater than four habitable stories) shall be at least 4 percent lower than that of the Standard Design Building.

(d) Energy Code subsections 170.1(a)-(d) are adopted without amendments.

**23.24.060 Local Amendment Regarding All-Electric Buildings or Energy Efficiency Standards for Low-Rise Residential Buildings with 100% Affordable Units.**

Repealed.

**23.24.070 Infeasibility Exemption.**

Repealed.

**23.24.080 Expiration.**

Repealed.

**23.70.010 Adoption**

(a) The California Green Building Standards Code, 2022 Edition, Title 24, Part 11 of the California Code of Regulations, as adopted and amended by the State of California, hereinafter called "Green Building Code," is adopted as the rules, regulations and standards within this City as to all matters therein except as hereinafter modified or amended;

(b) One copy of the Green Building Code shall at all times be kept on file in the office of the City Clerk.

**23.70.020 Local Amendments to Definitions**

(a) The most commonly used definitions of the Green Building Code are set forth below:

**Addition.** An extension or increase in floor area of an existing building or structure.

**Alteration or Alter.** Any construction or renovation to an existing structure other than repair for the purpose of maintenance or addition.

**Electric Vehicle (EV).** An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the *California Electrical Code*, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.

**Electric Vehicle Charging Space (EV Space).** A space intended for future installation of EV charging equipment and charging of electric vehicles.

**Electric vehicle supply equipment (EVSE).** The conductors, including the undergrounded, grounded, and equipment grounding conductors and the electric vehicles

connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between premises wiring and the electric vehicle.

**Newly Constructed (or New Construction).** A newly constructed building (or new construction) does not include additions, alterations or repairs.

**Off-Street Loading Spaces.** An area, other than a public street, public way, or other property (and exclusive of off-street parking spaces), permanently reserved or set aside for the loading or unloading of motor vehicles, including ways of ingress and egress and maneuvering areas. Whenever the term "loading space" is used, it shall, unless the context clearly requires otherwise, be construed as meaning off-street loading space. This excludes designated passenger loading/unloading.

(b) Green Building Code Section 202 is amended to include the following definitions:

**Affordable Housing.** Residential buildings that entirely consist of units below market rate and whose rents or sales prices are governed by local agencies to be affordable based on area median income.

**All-Electric Building.** A building that contains no *combustion equipment* or plumbing for combustion equipment serving space heating (including fireplaces), water heating (including pools and spas), cooking appliances (including barbeques), and clothes drying, within the building or building property lines, and instead uses electric heating appliances for service.

**Appliance Upgrade.** The installation, relocation, or replacement of any appliance.

**Automatic Load Management System (ALMS).** A control system designed to manage load across one or more electric vehicle supply equipment (EVSE), circuits, panels and to share electrical capacity and/or automatically manage power at each connection point. ALMS systems shall be designed to deliver no less than 3.3 kVa (208/240 volt, 16-ampere) to each EV Capable, EV Ready or EVCS space served by the ALMS, and meet the requirements of California Electrical Code Article 625. The connected amperage to the building site for the EV charging infrastructure shall not be lower than the required connected amperage per California Green Building Standards Code, Title 24 Part 11.

**Combustion Equipment.** Any equipment or appliance used for space heating, water heating, cooking, clothes drying and/or lighting that uses *fuel gas*.

**Direct Current Fast Charging (DCFC).** A parking space provided with electrical infrastructure that meets the following conditions:

(1) A minimum of 48 kVa (480 volt, 100-ampere) capacity wiring.

(2) Electric vehicle supply equipment (EVSE) located within three (3) feet of the parking space providing a minimum capacity of 80-ampere.**Electric Heating Appliance.** A device that produces heat energy to create a warm environment by the application of electric power to resistance elements, refrigerant compressors, or dissimilar material junctions, as defined in the California Mechanical Code.

**Electric Vehicle Charging Station (EVCS).** A parking space that includes installation of electric vehicle supply equipment (EVSE) at an EV Ready space. An EVCS space may be used

to satisfy EV Ready space requirements. EVSE shall be installed in accordance with the California Electrical Code, Article 625.

**Fuel Gas.** A gas that is natural, manufactured, liquefied petroleum, or a mixture of these, as defined in the California Mechanical Code.

**Fuel Gas Infrastructure.** Piping, other than service pipe, in or in connection with a building, structure or within the property lines of premises, extending from the point of delivery at the gas meter, service meter assembly, outlet of the service regulator, service shutoff valve, or final pressure regulator, whichever is applicable, as defined in the California Mechanical Code.

**Laboratory.** A room, building or area where the use and storage of hazardous materials are utilized for testing, analysis, instruction, research or developmental activities.

**Level 1 EV Ready.** A parking space that is served by a complete electric circuit with the following requirements:

(1) A minimum of 2.2 kVa (110/120 volt, 20-ampere) capacity wiring.

(2) A receptacle labeled "Electric Vehicle Outlet" or electric vehicle supply equipment located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 16-ampere.

(3) Conduit oversized to accommodate future Level 2 EV Ready (208/240 volt, 40-ampere) at each parking space.**Level 2 EV Capable.** A parking space provided with electrical infrastructure that meets the following requirements:

(1) Conduit that links a listed electrical panel with sufficient capacity to a junction box or receptacle located within three (3) feet of the parking space.

(2) The conduit shall be designed to accommodate at least 8.3 kVa (208/240 volt, 40-ampere) per parking space. Conduit shall have a minimum nominal trade size of 1 inch inside diameter and may be sized for multiple circuits as allowed by the California Electrical Code. Conduit shall be installed at a minimum in spaces that will be inaccessible after construction, either trenched underground or where penetrations to walls, floors, or other partitions would otherwise be required for future installation of branch circuits, and such additional elements deemed necessary by the Building Official. Construction documents shall indicate future completion of conduit from the panel to the parking space, via the installed inaccessible conduit.

(3) The electrical panel shall reserve a space for a 40-ampere overcurrent protective device space(s) for EV charging, labeled in the panel directory as "EV CAPABLE."

(4) Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes.

(5) The parking space shall contain signage with at least a 12" font adjacent to the parking space indicating the space is EV Capable.**Level 2 EV Ready.** A parking space that is served by a complete electric circuit with the following requirements:

(1) A minimum of 8.3 kVa (208/240 volt, 40-ampere) capacity wiring.

(2) A receptacle labeled "Electric Vehicle Outlet" or electric vehicle supply equipment located within three feet of the parking space.

(3) If EVSE is provided the minimum capacity of the EVSE shall be 30-ampere. **Low Power Level 2 EV Ready.** A parking space that is served by a complete electric circuit with the following requirements:

(1) A minimum of 4.1 kVA (208/240 Volt, 20-ampere) capacity wiring.

(2) A receptacle labeled "Electric Vehicle Outlet" or electric vehicle supply equipment located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 16-ampere.

(3) Conduit oversized to accommodate future Level 2 EV Ready (208/240 volt, 40-ampere) at each parking space.

**Repair.** Reconstruction, replacement, or renewal of any part of an existing building for the purpose of its maintenance or to correct damage, as defined in the California Existing Building Code.

(c) Green Building Code Section 202 is amended to delete the following definitions:

**Electric Vehicle (EV) Capable Space.** A vehicle space with electrical panel space and load capacity to support a branch circuit and necessary raceways, both underground and/or surface mounted, to support EV charging.

**Electric Vehicle (EV) Ready Space. [HCD]** A vehicle space which is provided with a branch circuit; any necessary raceways, both underground and/or surface mounted; to accommodate EV charging, terminating in a receptacle or a charger.

**Level 2 Electric Vehicle Supply Equipment (EVSE). [HCD]** The 208/240 Volt 40ampere branch circuit, and the electric vehicle charging connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

**Low Power Level 2 Electric Vehicle [EV] Charging Receptable. [HCD]** A 208/240 Volt 20- ampere minimum branch circuit and a receptacle for use by an EV driver to charge their electric vehicle or hybrid electric vehicle.

### **23.70.030 Local Amendment Regarding Electric Vehicle Charging for New One- and Two-Family Dwellings and Town-Houses**

(a) Green Building Code Section 4.106.4.1, "New one- and two-family dwellings and town-houses with attached private garages," is amended to read as follows:

**4.106.4.1 New one- and two-family dwellings and town-houses with attached private garages.**

(b) Green Building Code Section 4.106.4.1.1, "Identification," is amended to read as follows:

**4.106.4.1.1 New Construction** One parking space provided shall be a *Level 2 EV Ready* space. If a second parking space is provided, it shall be provided with a *Level 1 EV Ready* space.

## **23.70.040 Local Amendment Regarding Electric Vehicle Charging for New Multifamily Residential Construction**

(a) Green Building Code Section 4.106.4 "Electric vehicle (EV) charging for new construction," is amended to read as follows:

**4.106.4 Electric vehicle (EV) charging.** New construction shall comply with Section 4.106.4.1 or 4.106.4.2, and 4.106.4.3, to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625. For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s). Calculation for spaces shall be rounded up to the nearest whole number.

### **Exceptions:**

1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:

1.1 Where there is no local utility power supply or the local utility is unable to supply adequate power.

1.2 Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 4.106.4, may increase construction cost by an average of \$4,500 per parking space for market rate housing or \$400 per parking space for affordable housing. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.

1.3 Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities and without electrical panel upgrade or new panel installation. ADUs and JADUs without additional parking but with electrical panel upgrades or new panels must have reserved breakers and electrical capacity according to the requirements of 4.106.4.1.

2. Projects with multifamily residential units that submitted Planning Applications prior to the effective date of this ordinance.

3. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with this code section.

(b) Green Building Code Section 4.106.4.2, "New multifamily dwellings, hotels and motels and new residential parking facilities," is amended to read as follows:

### **4.106.4.2 New multifamily dwellings and new residential parking facilities.**

Requirements apply to parking spaces that are assigned or leased to individual dwelling units, as well as unassigned residential parking. Visitor or common area parking is not included.

(c) Green Building Code Section 4.106.4.2.1, "Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms," is amended to read as follows:

**4.106.4.2.1 New Construction.** Fifteen percent (15%) of dwelling units with parking spaces shall be EVCS with Level 2 EV Ready. ALMS shall be permitted to reduce load when multiple vehicles are charging. Eighty-five percent (85%) of dwelling units with parking spaces shall be provided with a Low Power Level 2 EV Ready space. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A. EVCS shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B.

**Note:** The total number of EV spaces should be one-hundred percent (100%) of dwelling units or one-hundred percent (100%) of parking spaces, whichever is less.

(d) Green Building Code Section 4.106.4.2.2, "Multifamily development projects with 20 or more dwelling units, hotels and motels with 20 or more sleeping units or guest rooms," is amended to read as follows:

**4.106.4.2.2 Existing Buildings.** When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE.

**Notes:**

1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.

2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

(e) Green Building Code Section 4.106.4.2.2.1 "Electric vehicle charging stations (EVCS)" is not adopted

(f) Green Building Code Section 4.106.4.2.2.1.1 "Location" is not adopted

(g) Green Building Code Section 4.106.4.2.2.1.2 "Electric vehicle charging stations (EVCS) dimensions" is not adopted

(h) Green Building Code Section 4.106.4.2.2.1.3 "Accessible EV spaces" is not adopted

(i) Green Building Code Section 4.106.4.2.3 "EV Space requirements" is not adopted

(j) Green Building Code Section 4.106.4.2.4 "Identification" is not adopted

(k) Green Building Code Section 4.106.4.2.5 "Electric Vehicle Ready Space Signage" is not adopted

(l) Green Building Code Section 4.106.4.3 "Electric vehicle charging for additions and alterations of parking facilities serving existing multifamily buildings," is amended, and adds new subsections to read as follows:



**4.106.4.3 Electric vehicle charging stations (EVCS).** Electric vehicle charging stations required by Section 4.106.4.2 shall comply with Section 4.106.4.3.

**Exception:** Electric vehicle charging stations serving public accommodations, public housing, motels, and hotels shall not be required to comply with this section. See *California Building Code*, Chapter 11B, for applicable requirements.

**4.106.4.3.1 Location.** EVCS shall comply with at least one of the following options:

1. The charging space shall be located adjacent to an accessible parking space meeting the requirements of the *California Building Code*, Chapter 11A, to allow use of the EV charger from the accessible parking space.

2. The charging space shall be located on an accessible route, as defined in the *California Building Code*, Chapter 2, to the building.**Exception:** Electric vehicle charging stations designed and constructed in compliance with the *California Building Code*, Chapter 11B, are not required to comply with Section 4.106.4.3.1 and Section 4.106.4.3.2.

**4.106.4.3.2 Dimensions.** The charging spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).

2. The minimum width of each EV space shall be 9 feet (2743 mm).

3. One in every 25 charging spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).

- a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

**Exception:** Where the City's Municipal or Zoning Code permits parking space dimensions that are less than the minimum requirements stated in this section 4.106.4.3.2, and the compliance with which would be infeasible due to particular circumstances of a project, an exception may be granted while remaining in compliance with California Building Code Section Table 11B-228.3.2.1 and 11B-812, as applicable.

(m) Green Building Code Section 4.106.4, "Electric vehicle (EV) charging for new construction," is amended to add a new subsection and read as follows:

**4.106.4.4 Direct current fast charging stations.** One DCFC may be substituted for up to five (5) EVCS to meet the requirements of 4.106.4.1 and 4.106.4.2. Where ALMS serve DCFC stations, the power demand from the DCFC shall be prioritized above Level 1 and Level 2 spaces.

## **23.70.050 Local Amendment Regarding Electric Vehicle Charging for New Non-residential Construction**

(a) Green Building Code Section 5.106.5.3, "Electric vehicle (EV) charging," is amended, and adds new subsections to read as follows:

**5.106.5.3 Electric vehicle (EV) charging.** Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3 and shall be provided in accordance with regulations in the *California Building Code* and the *California Electrical Code*. Accessible EVCS shall be provided in accordance with the *California Building Code Chapter 11B Section 11B-228.3*. For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s). Calculation for spaces shall be rounded up to the nearest whole number.

### **Exceptions:**

(1) On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:

(A) Where there is no local utility power supply.

(B) Where the local utility is unable to supply adequate power.

(C) Where there is evidence suitable to the local enforcement agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may increase construction cost by an average of \$4,500 per parking space. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.

(2) Parking spaces accessible only by automated mechanical car parking systems are not required to comply with this code section.**5.106.5.3.1 Nonresidential Occupancy Class B Offices – Shared Parking Space.**

(3) **New Construction.** Twenty percent (20%) of parking spaces shall be EVCS with Level 2 EV Ready. ALMS shall be permitted to reduce load when multiple vehicles are charging. Thirty percent (30%) of parking spaces provided shall be Level 2 EV Capable.**5.106.5.3.2 Hotel and Motel Occupancies – Shared Parking Facilities.**

(4) **New Construction** Five percent (5%) of parking spaces provided shall be EVCS with Level 2 EV Ready. ALMS shall be permitted to reduce load when multiple vehicles are charging. Twenty-five percent (25%) of parking spaces provided shall be Low Power Level 2 EV Ready space. Ten percent (10%) of parking spaces provided shall be Level 2 EV Capable.**5.106.5.3.3 All Other Nonresidential Occupancies – Shared Parking Facilities.**

(5) **New Construction.** Ten percent (10%) of parking spaces provided shall be EVCS with Level 2 EV Ready. ALMS shall be permitted to reduce load when multiple

vehicles are charging. Ten percent (10%) of parking spaces provided shall be Level 2 EV Capable.**5.106.5.3.4 Direct current fast charging stations.** One DCFC may be substituted for up to five (5) EVCS to meet the requirements of 5.106.5.3.1, 5.106.5.3.2, and 5.106.5.3.3. Where ALMS serve DCFC stations, the power demand from the DCFC shall be prioritized above Level 1 and Level 2 spaces.

(b) Green Building Code Section 5.106.5.4 "Electric vehicle (EV) charging: medium-duty and heavy-duty," is amended to read as follows:

**5.106.5.4 Electric vehicle (EV) charging readiness.** Construction shall comply with Section 5.106.5.4.1 to facilitate future installation of electric vehicle supply equipment (EVSE). Construction for warehouses, grocery stores and retail stores with planned off-street loading spaces shall also comply with Section 5.106.5.4.1 for future installation of medium- and heavy-duty EVSE. Accessible EVCS shall be provided in accordance with the California Building Code Chapter 11B Section 11B-228.3. For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

**Exceptions:**

(1) On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:

(A) Where there is no local utility power supply.

(B) Where the local utility is unable to supply adequate power.

(C) Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may increase construction cost by an average of \$4,500 per parking space. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.

## **23.70.060 Local Amendment Regarding All-Electric Requirements for New Residential Construction**

### Repealed.

~~(c) Green Building Code Section 4.106 "Site Development," is amended to include new subsections to read as follows:~~

~~**4.106.5 All-electric buildings.** New construction buildings shall comply with Section 4.106.5.1 or 4.106.5.2 so that they do not use combustion equipment or are ready to accommodate installation of electric heating appliances.~~

~~(1) **New construction. All newly constructed buildings shall be all-electric buildings. Exceptions:**~~

If the applicant establishes that there is not an all-electric prescriptive compliance pathway for the building under the California Building Energy Efficiency Standards, and that the building is not able to achieve the performance compliance standard applicable to the building under the Energy Efficiency Standards using commercially available technology and an approved calculation method, then the local enforcing agency may grant a modification. The applicant shall comply with Section 4.106.5.2.

~~Inactive Fuel Gas Infrastructure~~ may be extended to spaces that are anticipated to qualify for the exceptions contained in this chapter. The inactive *Fuel Gas Infrastructure* shall not be activated, have a meter installed, or otherwise used unless the exemptions specified in this chapter have been confirmed as part of the issuance of a building permit. If the *Fuel Gas Infrastructure* is no longer serving one of the exceptions contained in this chapter, it shall either be capped, otherwise terminated, or removed by the entity previously entitled to the exemption, in a manner pursuant to all applicable Codes.

The City of San Mateo shall have the authority to approve alternative materials, design and methods of construction or equipment per California Building Code Section 104.

**(2) Requirements for combustion equipment.** ~~Where combustion equipment is allowed per Exceptions under 4.106.5.1, the construction drawings shall indicate electrical infrastructure and physical space accommodating the future installation of an electrical heating appliance in the following ways, as certified by a registered design professional or licensed electrical contractor:~~

~~(A) Branch circuit wiring, electrically isolated and designed to serve all electrical heating appliances in accordance with manufacturer requirements and the California Electrical Code, including the appropriate voltage, phase, minimum amperage, and an electrical receptacle or junction box within five feet of the appliance that is accessible with no obstructions. Appropriately sized conduit may be installed in lieu of conductors; and~~

~~(B) Labeling of both ends of the unused conductors or conduit shall be with "For Future Electrical Appliance"; and~~

~~(C) Reserved circuit breakers in the electrical panel for each branch circuit, appropriately labeled (i.e. "Reserved for Future Electric Range"), and positioned on the opposite end of the panel supply conductor connection; and~~

~~(D) Connected subpanels, panelboards, switchboards, busbars, and transformers shall be sized to serve the future electrical heating appliances. The electrical capacity requirements shall be adjusted for demand factors in accordance with the California Electric Code; and~~

~~(E) Physical space for future electrical heating appliances, including equipment footprint, and if needed a pathway reserved for routing of ductwork to~~

~~heat pump evaporator(s), shall be depicted on the construction drawings. The footprint necessary for future electrical heating appliances may overlap with non-structural partitions and with the location of currently designed combustion equipment.~~

## **23.70.070 Local Amendment Regarding All-Electric Requirements for New Nonresidential Construction**

### Repealed.

~~(d) Green Building Code Section 5.106 "Site Development" is amended to include new subsections as follows:~~

~~**5.106.13 All-electric buildings.** New construction buildings shall comply with Section 5.106.13.1 or 5.106.13.2 so that they do not use *combustion equipment* or are ready to facilitate future electrification.~~

~~(1) **New construction.** All newly constructed buildings shall be *all-electric buildings*.~~

#### **Exceptions:**

~~(A) Nonresidential buildings containing kitchens located in a place of public accommodation, as defined in the California Building Code Chapter 2, may apply to the local enforcing agency for a modification to install *commercial food heat-processing equipment* served by *fuel gas*. The local enforcing agency may grant the modification if they find:~~

~~(i) A business-related need to cook with *combustion equipment*;~~  
~~and~~

~~(ii) The need cannot be achieved equivalently with an *electric heating appliance*; and~~

~~(iii) The applicant has installed energy efficient equipment based on Energy Star or California Energy Wise qualifications, as available.~~

~~(iv) The applicant shall comply with Section 5.106.13.2.~~

~~(B) Laboratory areas within Non-Residential Buildings may contain non-electric Space Conditioning Systems. To take advantage of this exception, an applicant shall provide third party verification that the All-electric space heating requirement is not cost effective and feasible.~~

~~(C) If the applicant establishes that there is not an all-electric prescriptive compliance pathway for the building under the California Building Energy~~

Efficiency Standards, and that the building is not able to achieve the performance compliance standard applicable to the building under the Energy Efficiency Standards using commercially available technology and an approved calculation method, then the local enforcing agency may grant a modification. The applicant shall comply with Section 5.106.13.25. **106.13.2 Requirements for combustion equipment.** Where combustion equipment is allowed per exceptions under Section 5.106.13.1, the construction drawings shall indicate electrical infrastructure and physical space accommodating the future installation of an electrical heating appliance in the following ways, as certified by a registered design professional or licensed electrical contractor:

~~Inactive Fuel Gas Infrastructure~~ may be extended to spaces that are anticipated to qualify for the exceptions contained in this chapter. The inactive ~~Fuel Gas Infrastructure~~ shall not be activated, have a meter installed, or otherwise used unless the exemptions specified in this chapter have been confirmed as part of the issuance of a building permit. If the ~~Fuel Gas Infrastructure~~ is no longer serving one of the exceptions contained in this chapter, it shall either be capped, otherwise terminated, or removed by the entity previously entitled to the exemption, in a manner pursuant to all applicable Codes.

~~The City of San Mateo shall have the authority to approve alternative materials, design and methods of construction or equipment per California Building Code Section 104.~~

~~(2) Branch circuit wiring, electrically isolated and designed to serve all electrical heating appliances in accordance with manufacturer requirements and the California Electrical Code, including the appropriate voltage, phase, minimum amperage, and an electrical receptacle or junction box within five feet of the appliance that is accessible with no obstructions. Appropriately sized conduit may be installed in lieu of conductors; and~~

~~(3) Labeling of both ends of the unused conductors or conduit shall be with "For Future Electrical Appliance"; and~~

~~(4) Reserved circuit breakers in the electrical panel for each branch circuit, appropriately labeled (i.e. "Reserved for Future Electric Range"), and positioned on the opposite end of the panel supply conductor connection; and~~

~~(5) Connected subpanels, panelboards, switchboards, busbars, and transformers shall be sized to serve the future electrical heating appliances. The electrical capacity requirements shall be adjusted for demand factors in accordance with the California Electric Code; and~~

~~(6) Physical space for future electrical heating appliances, including equipment footprint, and if needed a pathway reserved for routing of ductwork to heat pump~~



~~evaporator(s), shall be depicted on the construction drawings. The footprint necessary for future electrical heating appliances may overlap with non-structural partitions and with the location of currently designed combustion equipment.~~

### **23.70.080 Local Amendment Regarding Electrification Requirements for Existing Residential Buildings**

(a) Green Building Code Section 4.106 "Site Development" is amended and to include new subsections as follows:

#### **4.106.5.3 Existing one- and two-family dwellings.**

4.106.5.3. ~~Reserved. 1 Space cooling appliance upgrades shall use electricity for space heating, unconnected to fuel gas infrastructure. Any other space heating system serving the space shall be removed or configured to provide supplemental heat.~~

4.106.5.3.2 ~~Reserved. Alterations and additions that include water heater appliance upgrades shall be all electric, unconnected to fuel gas infrastructure.~~

4.106.5.3.3 Kitchen alterations shall include a 240v, 50 ampere circuit and receptacle installed within 36 feet of the cooktop, oven, and/or range location.

4.106.5.3.4 Alterations to areas designated for the installation of laundry equipment shall include a 240v, 30 ampere circuit and receptacle installed within 36 feet of clothes drying appliance location.

#### **4.106.5.4 Existing residential buildings.**

4.106.5.4.1 Alterations or additions that involve or require an increase to the capacity of electrical panels or transformers as part of the scope, the electrical panel shall include reserved physical space for overcurrent protection devices, and transformers shall include reserved electrical capacity, as calculated per California Electric Code Section 220 for the following current or proposed appliances, as applicable to the project site, that will not be connected to fuel gas infrastructure:

1. Electric water heaters meeting the requirements of the California Energy Code.
2. Electric space heater and air-conditioner meeting the requirements of the California Energy Code.
3. Electric pool and/or spa water heater.
4. Electric clothes dryer.
5. Electric cooking equipment.
6. Electric vehicle charger

#### **Exceptions:**

1. Buss bar electrical capacity shall not be required to exceed the proposed utility electrical service to the building. Capacity and overcurrent protection spaces shall be reserved in the priority listed above to the extent allowable under the proposed buss bar capacity.

2. Reserved electric vehicle charger panel capacity may be shared with one of the following: water heater, clothes dryer, or cooking equipment.

3. Electrical panels with internet-connected overcurrent protection devices that monitor circuit load and manage power distribution.

~~4.106.5.4.2 Existing fuel gas infrastructure shall not be extended to any appliance, system or device within the building or building property. Inactive fuel gas infrastructure shall not be activated or otherwise operated.~~

**Exceptions:** ~~The following are exempt from the provisions of Section 4.106.5.3 "Existing one- and two-family dwellings" and Section 4.106.5.4 "Existing residential buildings,"~~

~~1. Where meeting the provisions of Section 4.106.5.3 or 4.106.5.4 would necessitate an increase in capacity for an electrical panel, feeders, transformer, or electrical service that is not part of the *appliance upgrade* scope, in order to meet the requirements of the California Electrical Code. To qualify for this exception, applicant must provide a calculation conforming to the California Electrical Code.~~

~~2. Economic hardship exemptions shall be provided if the replacement cost for an all-electric system, including all incentives, is greater than 110 percent of a like-for-like fuel gas system replacement, including the future costs of electrification retrofits. The building official shall consult with the Community Development Director in deciding whether to approve an economic hardship exemption.~~

## **23.70.090 Expiration**

These local code amendments shall sunset when the California Green Building Standards Code, 2022 Edition, is no longer in effect.