

Local Amendments to the Green Building Code with Changes Demonstrated

This version of the proposed Ordinance shows where changes were made from the State code. Text without underlines is the State's code. Underlined text indicated additions and ~~strikethroughs~~ indicate deletions. Ellipses indicate where the State code will be applied but is not included in the proposed Ordinance as the changes to not impact that language. The Ordinance will be incorporated as a clean version without underlines, strikethroughs or ellipse.

Definitions:

ELECTRIC VEHICLE (EV) Capable: A listed electrical panel with sufficient capacity to provide a minimum 20 amperes to a designated charging space. Raceways from the electrical panel to the charging space(s) shall be installed to a charging space(s) only in locations that will be inaccessible in the future, either underground or where penetrations through walls, floors, or other partitions would otherwise be required for future installation of branch circuits. Raceways shall be at least 1" diameter and may be sized for multiple circuits as allowed by the California Electrical Code. The electric panel circuit directory shall identify the overcurrent protection device space(s) reserved for EV charging as "EV CAPABLE." Construction documents shall identify the location of the raceway from the panel to the charging space.

LEVEL 1 ELECTRIC VEHICLE (EV) READY SPACE. [Added] A complete electric circuit with a minimum 20-ampere capacity, including electrical panel capacity, overcurrent protection device, a minimum 1" diameter raceway that may include multiple circuits as allowed by the California Electrical Code, conductors, and either a) a receptacle, labelled "Electric Vehicle Outlet" with a minimum ½" font, adjacent to the parking space, or b) electric vehicle supply equipment (EVSE).

LEVEL 2 ELECTRIC VEHICLE (EV) READY SPACE. [Added] A complete electric circuit with a minimum 208/240 Volt, 40-ampere capacity, including electrical panel capacity, overcurrent protection device, a minimum 1" diameter raceway that may include multiple circuits as allowed by the California Electrical Code, conductors, and either a) a receptacle, labelled "Electric Vehicle Outlet" with a minimum ½" font, adjacent to the parking space, or b) electric vehicle supply equipment (EVSE) with a minimum output of 30 amperes.

ELECTRIC VEHICLE CHARGING STATION (EVCS). [Amended] One or more electric vehicle charging spaces that include the installation of electric vehicle supply equipment (EVSE) with a minimum capacity of 30 amperes connected to a circuit serving a Level 2 EV Space. EVCS installation may be used to satisfy a Level 2 EV Ready Space requirement.

AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS). [Added] A control system that allows multiple EV chargers or EV-Ready electric vehicle outlets to share an electrical circuit and automatically reduce power at each charger. ALMS systems must be designed to deliver at least 1.4kW to each EV Capable, EV Ready, or EVCS space served by the ALMS. The connected amperage on-site shall not be lower than the

required connected amperage per Part 11, 2019 California Green Building Code for the relevant building types.

SECTION 4 RESIDENTIAL MANDATORY MEASURES

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 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.

Exceptions:

- ~~1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infra-structure are not feasible based upon one or more of the following conditions:~~
1. Where there is no commercial power supply
- ~~2. Where there is evidence substantiating that meeting the requirements will alter the local utility infra-structure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than \$400.00 per dwelling unit.~~
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

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

For each dwelling unit, install a Level 2 EV Ready Space and Level 1 EV Ready Space. ~~listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.~~

Exception: For each dwelling unit with only one parking space, install a Level 2 EV Ready Space.

4.106.4.1.1 Identification. ~~The service panel or sub-panel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "Level 2 EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE". "Level 2 EV-Ready".~~

4.106.4.2 New multifamily dwellings. ~~If residential parking is available, ten (10) present in total number of parking spaces on a building site, provided for all~~

~~types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. The following requirements apply to all new multifamily dwellings:~~

- ~~1. 10% of the dwelling units with parking space(s) shall be provided with at least one Level 2 EV Ready Space. Calculations for the required minimum number of Level 2 EV Ready spaces shall be rounded up to the nearest whole number.~~
- ~~2. In addition, 40% of the remaining dwelling units with parking space(s) shall be provided with at least a Level 1 EV Ready Space.~~

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.~~
1. ALMS may be installed to decrease electrical services and transformer capacity associated with EV Charging Equipment subject to review of the authority having jurisdiction.
2. Installation of Level 2 EV Ready Spaces above the minimum number required level may offset the minimum number Level 1 EV Ready Spaces required on a 1:1 basis.
3. The requirements apply to multifamily buildings with parking spaces including: a) assigned or leased to individual dwelling units, and b) unassigned residential parking.
4. The County of San Mateo may consider allowing exceptions, on a case by case basis, if a building permit applicant provides documentation detailing that an increased cost of utility service or on-site transformer capacity would exceed an average of \$4,500 among charging spaces with Level 2 EV Ready Spaces and Level 1 EV Ready Spaces. If costs are found to exceed this level, the applicant shall provide EV infrastructure up to a level that would not exceed this cost for utility service or on-site transformer capacity.

4.106.4.2.2 Electric vehicle charging space (EV space) dimensions.

Refer to the County of San Mateo Planning and Building Department Zoning Regulations for parking space dimension requirements. The EV 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 EV 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.~~

~~4.106.4.2.3~~

~~**Single EV space required.** Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV spaces. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit over-current protective device.~~

~~**4.106.4.2.4 Multiple EV spaces required.** Construction raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify 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 the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.~~

~~**4.106.4.2.5 Identification.** The service panel or sub-panel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.~~

SECTION 5 NONRESIDENTIAL MANDATORY MEASURES

5.106.5.3 Electric vehicle (EV) charging. [N] Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation and use of EV chargers of electric vehicle supply equipment (EVSE). When EVSE(s) is/are installed, it shall be in accordance with the *California Building Code*, the *California Electrical Code* and as follows:

Exceptions:

1. Where there is no commercial power supply.
2. Spaces accessible only by automated mechanical car parking systems are excepted from providing EV charging infrastructure.

5.106.5.3.1 Office buildings: In nonresidential new construction buildings designated primarily for office use with parking:

1. When 10 or more parking spaces are constructed, 10% of the available parking spaces on site shall be equipped with Level 2 EVCS;
2. An additional 10% shall be provided with at least Level 1 EV Ready Spaces; and
3. An additional 30% shall be at least EV Capable.

Calculations for the required minimum number of spaces equipped with Level 2 EVCS, Level 1 EV Ready spaces and EV Capable spaces shall all be rounded up to the nearest whole number.

Construction plans and specifications shall demonstrate that all raceways shall be a minimum of 1" and sufficient for installation of EVCS at all required Level 1 EV Ready and EV Capable spaces; Electrical calculations shall substantiate the design of the electrical system to include the rating of equipment and any on-site distribution transformers, and have sufficient capacity to simultaneously charge EVs at all required EV spaces including Level 1 EV Ready and EV Capable spaces; and service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

Notes:

1. ALMS may be installed to increase the number of EV chargers or the amperage or voltage beyond the minimum requirements in this code. The option does not allow for installing less electrical panel capacity than would be required without ALMS.

5.106.5.3.2 Other nonresidential buildings: In nonresidential new construction buildings that are not designated primarily for office use, such as retail or institutional uses:

1. When 10 or more parking spaces are constructed, 6% of the available parking spaces on site shall be equipped with Level 2 EVCS;
2. An additional 5% shall be at least Level 1 EV Ready.

Calculations for the required minimum number of spaces equipped with Level 2 EVCS and Level 1 EV Ready spaces shall be rounded up to the nearest whole number

Exception: Installation of each Direct Current Fast Charger with the capacity to provide at least 80 kW output may substitute for 6 Level 2 EVCS and 5 EV Ready spaces after a minimum of 6 Level 2 EVCS and 5 Level 1 EV Ready spaces are installed.

5.106.5.3.3 Clean Air Vehicle Parking Designation. EVCS qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.

Notes:

1. The California Department of Transportation adopts and publishes the California Manual on Uniform Traffic Control Devices (California MUTCD) to provide uniform standards and specifications for all official traffic control devices in California. Zero Emission Vehicle Signs and Pavement Markings can be found in the New Policies & Directives number 13-01. www.dot.ca.gov/hq/traffops/policy/13-01.pdf.
2. See Vehicle Code Section 22511 for EV charging spaces signage in off-street parking facilities and for use of EV charging spaces.
3. The Governor's Office of Planning and Research published a Zero-Emission Vehicle Community Readiness Guidebook which provides helpful information for local governments, residents and businesses. www.opr.ca.gov/docs/ZEV_Guidebook.pdf.
4. Section 11B-812 of the California Building Code requires that a facility providing EVCS for public and common use also provide one or more accessible EVCS as specified in Table 11B-228.3.2.1.
5. It is encouraged that for shared parking, EV Ready Spaces are designated as "EV preferred."

~~**5.106.5.3.1 Single charging space requirements.** [N] When only a single charging space is required per Table 5.106.5.3.3, a raceway is required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code. Construction plans and specifications shall include, but are not limited to, the following:~~

- ~~1. The type and location of the EVSE.~~
- ~~2. A listed raceway capable of accommodating a 208/240-volt dedicated branch circuit.~~
- ~~3. The raceway shall not be less than trade size 1."~~
- ~~4. The raceway shall originate at a service panel or a subpanel serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into a listed suitable cabinet, box, enclosure or equivalent.~~
- ~~5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40-ampere dedicated branch circuit for the future installation of the EVSE.~~

~~**5.106.5.3.2 Multiple charging space requirements.**~~

Attachment B

When multiple charging spaces are required per Table 5.106.5.3.3 raceway(s) is/are required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code. Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.
3. Plan design shall be based upon 40-ampere mini- mum branch circuits.
4. Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution
5. transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.
6. The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

5.106.5.3.3 EV charging space calculation. [N] Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.

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

1. Where there is insufficient electrical supply
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 5.106.5.3, may adversely impact the construction cost of the project.

TABLE 5.106.5.3.3

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CHARGING SPACES
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 and over	6 percent of total ¹

1. Calculation for spaces shall be rounded up to the nearest whole number.

Attachment B

5.106.5.3.4 [N] Identification. ~~The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE Ready”.~~

~~**5.106.5.3.5 [N]** Future charging spaces qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.~~