

**CALIFORNIA BUILDING STANDARDS COMMISSION**  
**October 19, 2023**  
**CALGREEN EV WORKSHOP**  
**Agenda Item 4c**

**DRAFT EXPRESS TERMS**  
**CALIFORNIA GREEN BUILDING STANDARDS CODE,**  
**(CALGreen), PART 11,**  
**CALIFORNIA BUILDING STANDARDS CODE,**  
**TITLE 24, CALIFORNIA CODE OF REGULATIONS**

---

If using assistive technology, please adjust your settings to recognize underline, strikeout and ellipsis.

**LEGEND for EXPRESS TERMS**

- Existing amendments appear upright
- Amendments appear underlined
- Repealed California language appears ~~upright and in strikeout~~

---

**SECTION 5.106, SITE DEVELOPMENT**

**AGENDA ITEM 4c**

**RATIONALE:** BSC-CG is proposing to add two new code Sections 5.106.5.3.2.1 and 5.106.5.3.6.1 for Receptacle Configurations standards. The proposal will require specified 208/240-volt EV charging receptacle configurations for 20, 30 and 50 ampere receptacles using a NEMA standard. This will provide the designer guidance and encourage standardization of installations. This proposed amendment will align with HCD's current EV charger connectors requirement which were codified during the 2021 Intervening Code Adoption Cycle found in HCDs Section 4.106.4.2.2 Multifamily dwellings, Subsection 1e Receptacle Configurations. This proposed change also maintains consistency for both residential and nonresidential occupancies and provides clarity for the code users and the regulated community.

BSC-CG is proposing to add a new code Section 5.106.5.3.2.2 and 5.106.5.3.6.2 for EV charger connectors. The proposal will require at least 50 percent of the required EV chargers to have a SAE J1772 connector for nonresidential parking facilities. Similar to HCDs rationale: This proposal ensures that chargers are useable by a majority of EV users, including Tesla drivers. As noted in the CARB Staff Report, Initial Statement of Reasons, dated April 12, 2022, for their Proposed Advanced Clean Cars II Regulations, discussion of Level 1, Level 2, and On-Board Charger Minimum Requirements: Plug-in EV charging can occur at various charging levels, speeds, and with different charging connectors. Level 2 alternating current (AC) charging uses charging equipment compatible with a 240-volt outlet to charge the vehicle at higher charging speeds through its on-board charger. Currently, battery EVs and plug-in hybrid EVs must comply with charging requirements, which include Level 1 and 2 plug standardization to the SAE J1772 specification and a minimum on-board charger capability. Vehicles with a unique charging inlet, such as Tesla, can alternatively meet this requirement by supplying an adapter with each vehicle to connect from their unique charging plug to the SAE J1772 plug. This proposed amendment will align with HCD's current EV charger

connectors requirement which were codified during the 2021 Intervening Code Adoption Cycle. This proposed change also maintains consistency for both residential and nonresidential occupancies and provides clarity for the code users and the regulated community.

BSC-CG is proposing to renumber existing code Sections 5.106.5.3.2.1 & 5.106.5.3.2.2 to Sections 5.106.5.3.2.4 & 5.106.5.3.2.5 for EV charger

*[Changes are shown in underline and/or strike-out for all code sections below]*

## **Section 5.106 SITE DEVELOPMENT, Section 5.106.5.3**

**5.106.5.3 Electric vehicle (EV) charging. [N] [BSC-CG]** Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 EV capable spaces, Section 5.106.5.3.2 Electric vehicle charging stations and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method and associated Table 5.106.5.3.6 and shall be provided in accordance with regulations in the *California Building Code* and the *California Electrical Code*.

### **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 adversely impact the construction cost of the project.
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 EV capable spaces. [N]** EV capable spaces shall be provided in accordance with Table 5.106.5.3.1 and the following requirements:

1. Raceways complying with the *California Electrical Code* and no less than 1-inch (25 mm) diameter shall be provided and 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 EV capable space and into a suitable listed cabinet, box, enclosure or equivalent. A common raceway may be used to serve multiple EV capable spaces.
2. A service panel or subpanel(s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuit for each EV capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS.
3. The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.

4. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.”

**Note:** A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by an enforcement agency. See Vehicle Code Section 22511.2 for further details.

**5.106.5.3.2 Electric vehicle charging stations (EVCS).** EV capable spaces shall be provided with electric vehicle supply equipment (EVSE) to create EVCS in the number indicated in Table 5.106.5.3.1. The EVCS required by Table 5.106.5.3.1 shall be provided with Level 2 EVSE or DCFC as permitted in Section 5.106.5.3.2.1. At least one Level 2 EVSE shall be provided.

One EV charger with multiple connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section 5.106.5.3.1 for each EV capable space is accumulatively supplied to the EV charger.

**5.106.5.3.2.1 Receptacle Configurations.** 208/240V EV charging receptacles shall comply with one of the following configurations:

1. For 20- ampere receptacles, NEMA 6-20R
2. For 30- ampere receptacles, NEMA 14-30R D
3. For 50- ampere receptacles, NEMA 14-50R

**5.106.5.3.2.2 EV Charger Connectors.** At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors.

**5.106.5.3.2.1.3** The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces without EVSE or EVCS with Level 2 EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

**5.106.5.3.2.2.4** The installation of two Low Power Level 2 EV charging receptacles shall be permitted to reduce the minimum number of required EV capable spaces without EVSE in Table 5.106.5.3.1 by one.

**5.106.5.3.3 Use of automatic load management systems (ALMS).** ALMS shall be permitted...multiple EVs. *[No change to text.]*

**5.106.5.3.4 Accessible electric vehicle charging station (EVCS).** When EVSE is installed, accessible EVCS shall be provided in accordance with the California Building Code Chapter 11B Section 11B-228.3.

**5.106.5.3.5 Electric vehicle charging station signage.** Electric vehicle charging stations shall be identified by signage or pavement markings in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

**TABLE 5.106.5.3.1**

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CAPABLE SPACES	NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE) <sup>2 &amp; 3, 4</sup>
0-9	0	0
10-25	4	0
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201 and over	20 percent of actual parking spaces <sup>1</sup>	25 percent of EV capable spaces <sup>1</sup>

1. Calculation for spaces shall be rounded up to the nearest whole number.
2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count toward the total number of required EV capable spaces shown in column 2.
3. At least one Level 2 EVSE shall be provided.

**5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method.**

The Power allocation method may be used as an alternative to the requirements in Section 5.106.5.3.1, Section 5.106.5.3.2 and associated Table 5.106.5.3.1. Use Table 5.106.5.3.6 to determine the total power in kVA required based on the total number of actual parking spaces.

Power allocation method shall include the following:

1. Use any kVA combination of EV capable spaces, Low Power Level 2, Level 2 or DCFC EVSEs.
2. At least one Level 2 EVSE shall be provided.

**TABLE 5.106.5.3.6**

TOTAL NUMBER OF ACTUAL PARKING SPACES	MINIMUM TOTAL kVA @ 6.6 kVA	TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE <sup>3,4</sup> , LOW POWER LEVEL 2, LEVEL 2 <sup>1, 2</sup> , OR DCFC
0-9	0	0
10-25	26.4	26.4
26-50	52.8	52.8
51-75	85.8	85.8

TOTAL NUMBER OF ACTUAL PARKING SPACES	MINIMUM TOTAL kVA @ 6.6 kVA	TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE <sup>3,4</sup> , LOW POWER LEVEL 2, LEVEL 2 <sup>1,2</sup> , OR DCFC
76-100	112.2	112.2
101-150	165	165
151-200	231	231
201 and over	20 percent of actual parking spaces x 6.6	Total required kVA =P x .20 x 6.6 Where P=Parking spaces in facility

1. Level 2 EVSE @ 6.6 kVA minimum.
2. At least one Level 2 EVSE shall be provided.
3. Maximum allowed kVA to be utilized for EV capable spaces is 75 percent.
4. If EV capable spaces are utilized, they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.

**5.106.5.3.6.1 Receptacle Configurations.** 208/240V EV charging receptacles shall comply with one of the following configurations:

1. For 20- ampere receptacles, NEMA 6-20R
2. For 30- ampere receptacles, NEMA 14-30R D
3. For 50- ampere receptacles, NEMA 14-50R

**5.106.5.3.6.2 EV Charger Connectors.** At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors.