

CALIFORNIA BUILDING STANDARDS COMMISSION
January 11, 2024
CALGREEN EV WORKSHOP #3
Agenda Item 2c

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- Repealed California language appears upright and in strikeout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 2c

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 connector requirements 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 EV chargers to have a SAE J1772 or SAE J3400 NACS (North American Charging Standard) 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 AC (alternating current) 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.

This code proposal was amended from the initial code changes presented at the CEVW #1 workshop. The revised proposal removes the 50% requirement for SAE J1772 chargers and adds J3400 chargers as an option so now either a J1772 or J3400 chargers are required to be installed. This code change proposal was made as a result of comments heard at the October 19, 2023 CEVW #1 workshop in which participants mentioned that requiring 50% J1772 was not needed since the J3400 chargers were going to become the national standard. BSC coordinated with HCD for similar code amendments and proposed a simpler approach by allowing for both types of chargers.

After the CEVW #2 workshop, BSC coordinated with CARB, HCD, DSA and the Energy Commission to further analyze the potential impact of allowing the J3400 NACS connector as a compliance method. The J3400 connector should work with older Battery Electric Vehicles (BEVs) assuming that the drivers have a physical adapter and the EVSE uses a maximum supply voltage of 250 volts. The NACS allows for the use of a 408-volt 3-phase supply for a Level 2 EVSE. The NACS connector is also able to capture one portion of the 3 phase and have 277 volts without the use of an expensive step-down transformer. The J3400 committee has not yet decided whether this 408-volt supply option will carry over to the finalized standard. If this higher voltage standard is adopted, there is a possibility that older Combined Charging System (CCS)-based BEVs would not be able to connect to installed J3400 EVSEs that are tied to a 408-volt supply because they are designed for a maximum of 250 volts. The unintended consequence is that if the committee decides to incorporate 408-volt supply into the finalized standard, building developers may find this to be an attractive option which may create a conflict for compatibility with older BEVs. As a result, the new revised proposal stipulates that when using J3400 NACS connectors for Level 2 EVSE, and if those connectors are supplied by a 408 volt 3-phase service, then at least 20% of the site Level 2 EVSE connectors shall be J1772. Additional changes includes renumbering 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 chargers.

[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...
California Electrical Code. [No change to text.]

Exceptions: *[No change to text.]*

5.106.5.3.1 EV capable spaces. [N] EV capable spaces ... the following requirements: *[No change to text.]*

Note: *[No change to text.]*

5.106.5.3.2 Electric vehicle charging stations (EVCS). EV capable spaces...shall be provided. *[No change to text.]*

One EV charger...EV charger. *[No change to text.]*

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.

3. For 50-ampere receptacles, NEMA 14-50R.

5.106.5.3.2.2 EV Charger Connectors. EV chargers shall be equipped with SAE J1772 with a maximum output 240 Volts AC or SAE J3400 connectors.

When using level 2 SAE J3400 SAE connectors, supplied by a 480 V 3-phase service, then at least 20 percent of the EV charger connectors shall be SAE J1772 with a maximum output 240 Volts AC.

5.106.5.3.2.4 3The installation of... panel or subpanel. *[No change to text.]*

5.106.5.3.2.2 4 The installation of ...Table 5.106.5.3.1 by one. *[No change to text.]*

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, ...11B Section 11B-228.3. *[No change to text.]*

5.106.5.3.5 Electric vehicle charging station signage. Electric vehicle ...Markings) or its successor(s).

TABLE 5.106.5.3.1 *[Not shown]*

1. Calculation...number.
2. The number...column 2.
3. At least...provided.

5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method. The Power allocation... actual parking spaces. *[No change to text.]*

Power allocation method shall include the following:

1. Use ... DCFC EVSEs.
2. At least ...provided.

TABLE 5.106.5.3.6 *[Not shown]*

1. Level...minimum.
2. At...provided.
3. Maximum...percent.
4. If EV...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.
3. For 50-ampere receptacles, NEMA 14-50R.

5.106.5.3.6.2 EV Charger Connectors. EV chargers shall be equipped with J1772 or J3400 connectors.

When using J3400 NACS connectors for Level 2 EVSE, and if those connectors are supplied by a 408 volt 3-phase service, then at least 20% of the site Level 2 EVSE connectors shall be J1772.