# **CALIFORNIA BUILDING STANDARDS COMMISSION**

# **DIVISION OF THE STATE ARCHITECT**

December 9, 2020

CALGREEN

WORKSHOP

Agenda Item 4

**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 California amendments appear upright
* Amended or new California amendments appear underlined
* Repealed California language appears ~~upright and in strikeout~~
* Ellipsis (…) indicate existing text remains unchanged

## ITEM 4-

## 5.106.5.4 Electric Vehicle (EV) charging-Medium-duty and Heavy-duty Vehicles

## (Mandatory Measures)

**Statement of specific purpose, problem, rationale and benefits:**

CBSC proposes this section for adoption, which includes a mandatory requirement to install make-ready infrastructure to support later addition of Level 2 and DC fast charging stations in new warehouses, grocery stores, and retail buildings with loading docks that will support the future addition of chargers for medium- and heavy-duty vehicles.

Under a mandate from Assembly Bill 1092 (Chapter 410, Statutes of 2013) authored by Assembly Member Levine, CBSC was directed to develop mandatory EV standards for nonresidential buildings during the 2016 Triennial Code Adoption Cycle.

Health and Safety Code Section 18930.5(b) as amended by Assembly Bill 341 allows CBSC and other state agencies that propose building standards to allow for input by state agencies that have expertise in green building subject areas. The California Air Resources Board (CARB) has expertise in air quality, climate change, and EV charging infrastructure.

CSBC is moving forward with the CARB suggested changes and proposes to include a mandatory requirement for make-ready infrastructure to support Level 2 and DC Fast Chargers in new warehouses, grocery stores, and retail buildings with loading docks. Recent analysis shows that make-ready infrastructure must support 149,000 heavy-duty and 40,000 medium -duty ZEVs by 2030. CARB has adopted and continues to adopt regulations requiring sales and purchases of medium- and heavy-duty ZEVs. The proposed mandate will increase heavy- and medium-duty ZEV access to EV chargers, which are ultimately necessary to support the implementation of 189,000 MHD ZEVs by 2030, and to achieve 100% sales of medium- and heavy-duty electric vehicles by 2045.

In addition to supporting the Administration’s directives, CBSC’s goal is to enable future charging capability at warehouses, grocery stores, and retail buildings with loading docks in an effort to reduce the lack of access to EV charging which currently exists. These proposed code changes support CARB’s regulatory requirements for medium- and heavy-duty vehicles.

CSBC proposes to include a mandatory requirement to install make-ready infrastructure to support later addition of Level 2 and DC fast charging stations in new warehouses, grocery stores, and retail buildings with loading docks for charging medium- and heavy-duty vehicles. This change will help improve air quality and support the estimated emissions reductions from current CARB regulations which include; 16.9 to million metric tons carbon dioxide equivalent (MMt CO2e) total by 2050 from the Innovative Clean Transit Regulation, 0.5 MMt CO2e total by 2040 from the Airport Shuttle Bus Regulation, and 1.7 MMt CO2e per year by 2040 from the Advanced Clean Trucks Regulation. This does not include the reductions from the Advanced Clean Fleets Regulation currently under development.

**CHAPTER 5**

**NONRESIDENTIAL MANDATORY MEASURES**

**. . .**

**SECTION 5.106**

**SITE DEVELOPMENT**

**. . .**

**5.106.5.3.5 [N] Future charging spaces.**

Future charging spaces qualify as **. . .** clean air vehicles.

Note: Future electric vehicle charging spaces shall be considered parking spaces and shall count for the total parking spaces required by the local enforcing agencies

**…**

**5.106.5.4 Electric vehicle (EV) charging-Medium-duty and Heavy-duty. [N]** Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). Construction for warehouses, grocery stores and retail stores with planned loading docks, shall also comply with Section 5.106.5.4.1 for future installation of medium-duty and heavy-duty EVSE. When EVSE(s) is/are installed, it shall be in accor­dance with the *California Building Code,* the *California Electrical Code* and as follows:

**5.106.5.4.1 Electric Vehicle Charging Requirements for Warehouses, Grocery Stores and Retail Stores with Planned Loading Docks [N]**

A raceway and service panel(s) or subpanel(s) shall be installed at the time of construction 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, as specified by the requirements in Table 5.106.5.4.1.
2. The raceway(s) shall not be less than trade size 4”.
3. Raceway(s) shall originate at a main service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the potential future location of the charging equipment for medium- and heavy-duty vehicles, and into listed, suitable, labeled cabinet(s), box(es), enclosure(s) or equivalent.
4. Plan design shall be based upon future installation of EVSE and additional panel amperage capacity assumes a mix of direct current fast chargers (DCFC) and high-powered level 2 EVSE. Not less than 50 percent of future EVSE shall have raceway that accommodates a minimum of 192kW DCFC at full capacity (generally 480 volts at 400 amperes per charger).
5. The service panel and subpanels shall meet the minimum amperage in Table 5.106.5.4.1 to accommodate the dedicated branch circuits for the future installation of the EVSE.

**5.106.5.4.2 Raceway Conduit and Panel Amperage Requirements [N]**

Table 5.106.5.4.1 shall be used to determine the raceway conduit and panel amperage requirements for the potential future installation of EVSE at warehouses, grocery stores and retail stores with planned loading docks.

Exception: On a case-by-case basis, where the local enforcing agency has evidence suitable for substantiating an adverse impact in the construction cost of the project directly related to the implementation of Section 5.106.5.4.1.

**TABLE 5.106.5.4.1: Raceway Conduit and Panel Amperage Requirements [N]**

|  | Warehouse | | Warehouse | Grocery/Retail Store | | Grocery/Retail Store | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Floor Space Size (Ft2) | Number of Raceway 4” Conduits Required | Additional Panel Amperage Capacity Required | | Number of Raceway 4” Conduits Required |  | | Additional Panel Amperage Capacity Required | q |
| 10,000 - 25,000 | 2 | 2,400 | | 1 |  | | 1,200 |  |
| 25,001 – 50,000 | 4 | 5,120 | | 2 |  | | 2,560 |  |
| 50,000 -100,000 | 8 | 9,680 | | 4 |  | | 4,840 |  |
| 100,000-500,000 | 32 | 37,520 | | 16 |  | | 18,760 |  |
| >500,000 | 53 | 61,520 | | 26 |  | | 30,760 |  |