



City of Long Beach
Department of Development Services
Building and Safety Bureau

Electric Vehicle (EV) Charging for New Construction

Information
Bulletin

BU-050

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Electric Vehicle (EV) use rates in California and the City are growing rapidly. To meet this rising demand, proactive planning for the expansion of associated EV charging infrastructure is necessary. Increasing the number of EV Charging Space(s) or Station(s) will allow both the community and residents to benefit from reduced local air and noise pollution, help to combat climate change and enable residents to improve their health and lifestyle. To facilitate this expansion, the 2016 Edition of the California Green Building Standards Code (CALGreen), California Building Code (CBC), California Electrical Code (CEC) and the Long Beach Municipal Code (LBMC) provide construction code requirements for the design and installation of EV charging infrastructure for new construction. Collectively, these codes specify that new construction shall provide a minimum number of Electric Vehicle Charging Space (EV Space) and Electrical Vehicle Charging Station (EVCS), the accessibility standards required for each EV Space or EVCS, and the infrastructure required to facilitate future installation and use of EV Chargers. The purpose of this Information Bulletin is to summarize the construction code requirements and to assist the applicant in preparing their construction documents to include the design of EV charging infrastructure. Additional information on EV charging can be found in the CALGreen Sections 4.106.4 and 5.106.5.3, CBC Sections 11B-228.3 and 11B-812, and CEC Article 625.

PART A. DEFINITIONS

The following words and terms used in this bulletin are defined in the CBC Chapter 2, CALGreen Chapter 2, and the CEC Article 625. They shall have the following meaning:

Electric Vehicle (EV) Charger. Off-board charging equipment used to charge an electric vehicle.

Electric Vehicle Charging Space (EV Space). A space intended for charging electric vehicles.

Electric Vehicle Charging Station (EVCS). One or more electric vehicle charging spaces served by an electric vehicle charger or other charging equipment. Where a multiport electric vehicle charger can simultaneously charge more than one vehicle, the number of electric charging stations shall be considered equivalent to the number of electric vehicles that can be simultaneously charged.

Electric Vehicle Supply Equipment (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle 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.

PART B. REQUIRED NUMBER OF EV SPACES AND EVCS

Minimum Number Required. In newly constructed buildings and facilities, the minimum number of EV Spaces and EVCS required are as follows:

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MINIMUM NUMBER OF EV SPACES AND EVCS ¹

Building/Facility	Number of Required EV Space	Number of Required EVCS	Code Section
One- & Two-Family Dwellings	1 EV Space per dwelling unit.	Not Applicable	CALGreen 4.106.4
Multifamily Dwellings (3 or more units)	1 EV Space per dwelling unit and 25% of guest parking spaces shall be EV Spaces.	5% of guest parking spaces shall have EV Chargers installed.	LBMC 18.47.030
Hotels	30% of parking spaces shall be EV Spaces.	10% of parking spaces shall have EV Chargers installed.	LBMC 18.47.040
Nonresidential	25% of parking spaces shall be EV Spaces.	5% of parking spaces shall have EV Chargers installed.	LBMC 18.47.050

1. Calculations for the required number of EV Spaces shall be rounded up to the nearest whole number.

PART C. REQUIREMENTS FOR EV SPACE

Single EV Space. A listed raceway to accommodate a dedicated 208/240-volt branch circuit shall be installed. 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 the EV Charger(s) or EV Space(s). 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.

Multiple EV Spaces. Construction documents shall indicate the 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.

Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE” in accordance ¹ with the CEC.

Dimensions for EV Space. In multifamily dwellings, EV Spaces shall be a minimum length of 18 feet and width of 9 feet. 1 in every 25 EV Spaces shall also have a minimum aisle width of 8 feet. Alternatively, a minimum aisle width of 5 feet is permitted for an EV Space that have a minimum width of 12 feet. In one- and two-family dwellings, EV Spaces may be a minimum length of 18 feet and width of 8.5 feet for standard size or length of 15 feet and width of 8 feet for compact size. In hotel and nonresidential projects, EV Space shall be a minimum length of 18 feet and width of 8.5 feet. Where EV Spaces are required to be accessible, refer to Part D for accessible EVCS.

PART D. REQUIREMENTS FOR EVCS

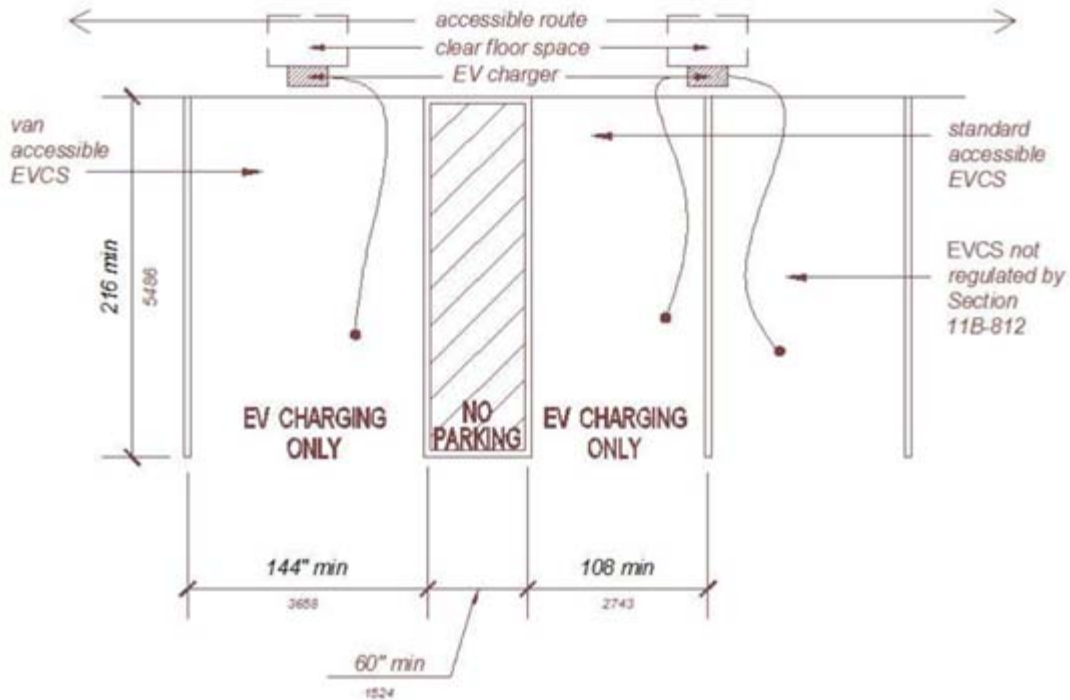
Accessible EVCS. Where EVCS are provided, EVCS shall comply with the accessibility requirements of the CBC Section 11B-228.3 and CBC Table 11B-228.3.2.1. Please note that accessible EVCS required by the CBC Section 11B-228.3 is separate from, and in addition to, regular accessible parking spaces required by the CBC Section 11B-208. The minimum number and type of accessible EVCS required are as follows:

**CBC TABLE 11B-228.3.2.1
 ELECTRIC VEHICLE CHARGING FOR PUBLIC USE AND COMMON USE**

Total Number of EVCS at a Facility ¹	Minimum Number (by type) of EVCS Required to Comply with Section 11B-812		
	Van Accessible	Standard Accessible	Ambulatory
1 to 4	1	0	0
5 to 25	1	1	0
26 to 50	1	1	1
51 to 75	1	2	2
76 to 100	1	3	3
101 and over	1, plus 1 for each 300, or fraction thereof, over 100	3, plus 1 for each 60, or fraction thereof, over 100	3, plus 1 for each 50, or fraction thereof, over 100

1. Where an EV charger can simultaneously charge more than one vehicle, the number of EVCS provided shall be considered equivalent to the number of electric vehicles that can be simultaneously charged.

Surface Marking for EVCS. EVCS vehicle spaces shall provide surface marking stating “EV CHARGING ONLY” in letter 12 inches high minimum. The centerline of the text shall be a maximum of 6 inches from the centerline of the vehicle space and its lower corner at, or lower side aligned with, the end of the parking space length. See Figure 11B-812.9 for illustration.



**CBC FIGURE 11B-812.9
 SURFACE MARKING**

Accessible Route. EVCS that serve a particular building or facility shall be located on an accessible route to an entrance complying with the CBC Section 11B-206.4.

Operable Parts. EVCS operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The maximum height of operable parts shall be 48 inches above the finished floor.

Clear Floor Space. A 30-inch x 48-inch minimum clear floor space shall be positioned for either forward or parallel approach to the EV Charger. One full-unobstructed side of clear floor space shall adjoin an accessible route.

Access Aisle. Access Aisles shall be 60-inch minimum wide extending the full required length of the vehicle space they serve and shall adjoin an accessible route.

Identification Signs. Where 5 to 25 total EVCS are provided, 1 van accessible EVCS shall be identified by an International Symbol of Accessibility (ISA) complying with the CBC Section 11B-703.7.2.1. The required standard accessible EVCS shall not be required to be identified with an ISA. Where 26 or more total EVCS are provided, all required van accessible and standard accessible EVCS shall be identified by an ISA complying with the CBC Section 11B-703.7.2.1.

Location of Signs. Identification signs shall be reflectorized with a minimum area of 70 square inches. Required identification signs shall be visible from the EVCS it serves. Signs shall be permanently posted either immediately adjacent to the vehicle space or within the projected vehicle space width at the head end of the vehicle space. Signs identifying van accessible vehicle spaces shall contain the designation “van accessible.” Signs shall be 60 inches minimum above the finished floor or ground surface measured to the bottom of the sign. Signs located within an accessible route shall be 80 inches minimum above the finished floor or ground surface measured to the bottom of the sign. Signs may also be permanently posted on a wall at the interior end of the vehicle space.

PART E. REQUIREMENTS FOR EVSE

Standards. EVSE shall be installed in accordance with the CEC Article 625 Electric Vehicle Charging System. EVSE shall be listed by a nationally recognized testing laboratory in compliance with UL 2202 “Standard for Electric Vehicle Charging System Equipment” and/or UL 2594 “Standard for Electric Vehicle Supply Equipment.”

Location. EVSE shall be installed in accordance with manufacturer’s guideline and shall be suitable for the environment (indoor/outdoor). If installed indoors, the EVSE shall be clearly marked by the manufacturer as “VENTILATION NOT REQUIRED” in a location clearly visible after installation and the Electric Vehicle Coupler (i.e., the nozzle) shall be located between 18 inches and 48 inches above the floor level. If installed outdoors, the Electric Vehicle Coupler shall be located between 24 inches and 48 inches above the floor level.

Prevent Physical Damage. If the EVSE or EV Charger is located in an area subject to vehicular damage, an enclosure or guard shall be so arranged and of such strength as to prevent the damage. A 4-inch diameter steel pipe filled with concrete, a minimum of 40 inches above the floor level, and installed in a footing measuring 12-inch diameter and 3 feet deep is deemed as adequate protection.