



INFORMATION BULLETIN

IB-050

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Electric Vehicle Charging Infrastructure for New Construction

Electric Vehicle (EV) use rates in California and the City of Long Beach (City) are growing rapidly. To meet this rising demand, proactive planning for the expansion of 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 assist applicant in navigating the various requirements associated with EV charging infrastructure, this Information Bulletin (IB) summarizes some of the pertinent requirements from the 2019 Edition of the California Green Building Standards Code (CGBSC), California Building Code (CBC), California Electrical Code (CEC) and the Long Beach Municipal Code (LBMC) for the design, construction and installation of EV charging infrastructure for newly constructed buildings.

This IB provides specific information on the minimum number of Electric Vehicle Charging Space (EV Space) and Electrical Vehicle Charging Station (EVCS) required for newly constructed buildings, the accessibility standards applicable to EV Space or EVCS, EV charging infrastructure required to facilitate future installation and use of Electric Vehicle Supply Equipment (EVSE) or EV Chargers, and how to demonstrate the project's capability and capacity to support EV infrastructure on the construction documents. In addition to the requirements highlighted in this IB, more information on EV charging infrastructure requirements can be found in the CGBSC §4.106.4 and §5.106.5.3; CBC §11B-228 and §11B-812; CEC §625; and LBMC §18.47.020, §18.47.030, and §18.47.050.

PART A. DEFINITIONS

The following words and terms used in this IB are defined in the CBC Chapter 2, CGBSC Chapter 2, and/or CEC §625. They shall have the following meaning:

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

Electric Vehicle Charging Space (EV Space). A space intended for the future installation of EV charging equipment and charging of EVs.

Electric Vehicle Charging Station (EVCS). One or more EV Spaces served by an EV Charger(s) or other charging equipment allowing charging of EVs. EVCS are not considered parking spaces (*for building code purposes*).

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

Newly Constructed (or New Construction). A newly constructed building (or new construction) does not include additions, alterations or repairs.

PART B. MINUMIN NUMBER OF EV SPACES AND EVCS FOR NEW CONSTRUCTION

New One- and Two-Family Dwellings and Townhouses. An EV Space is required for each newly constructed dwelling unit. [CGBSC §4.106.4.1]

New Multifamily Dwellings. If residential parking is available, twenty-five percent (25%) of the total number of residential parking spaces on a newly constructed multifamily dwelling building site, provided for all types of parking facilities, shall be EV Spaces capable of supporting future EVSE and five percent (5%) of the total number of residential parking spaces on a newly constructed multifamily dwelling building site, provided for all types of parking facilities, shall be EVCS. Calculations for the required number of EV Spaces and EVCS shall be rounded up to the nearest whole number. [CGBSC §4.106.4.2 as amended by LBMC §18.47.020]

Exceptions: In lieu of the EV Spaces and EVSE requirements, the following uses are permitted to calculate the required number of EV Spaces capable of supporting future EVSE at ten percent (10%) of the number of residential parking spaces:

1. Affordable housing.
2. Multifamily dwellings containing less than 17 units.
3. Where alternative and innovative parking system are to be installed as determined by the Building Official.

New Hotel and Motel Buildings. The number of required EV Spaces and EVCS for newly constructed hotels and motels shall be based on the total number of parking spaces provided for all type of parking facilities in accordance with CGBSC Table 4.106.4.3.1. Calculations for the required number of EV Spaces and EVCS shall be rounded up to the nearest whole number. [CGSBC §4.106.4.3 and Table 4.106.3.1 as amended by LBMC §18.47.030]

CGBSC TABLE 4.106.4.3.1
[AMENDED BY LBMC §18.47.030]

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES	NUMBER OF REQUIRED EVCS
0-9	0	0
10-25	3	1
26-50	8	3
51-75	16	6
76-100	23	8
101-150	31	11
151-200	46	16
201 and over	30% of total	10% of total

New Nonresidential Buildings. The number of required EV Spaces and EVCS for newly constructed nonresidential buildings shall be based on the total number of parking spaces provided in accordance with CGBSC Table 4.106.4.3.1. Calculations for the required number of EV Spaces and EVCS shall be rounded up to the nearest whole number. [CGSBC §4.106.4.3 and Table 4.106.3.1 as amended by LBMC §18.47.030]

All newly constructed nonresidential buildings shall provide EV spaces capable of supporting future installation of EVSE and EVCS. LBMC Table 5.106.5.3.3 shall be used to determine the number of required EV Spaces and EVCS based on the total number of parking spaces provided for all type of parking facilities.

CGBSC TABLE 5.106.5.3.3
[AMENDED BY LBMC §18.47.050]

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES	NUMBER OF REQUIRED EVCS
0-9	0	0
10-25	3	1
26-50	7	2
51-75	13	3
76-100	19	4
101-150	26	6
151-200	38	8
201 and over	25% of total	5% of total

New surface parking lots. Newly constructed surface parking lots not associated with newly constructed buildings, as determined by the Building Official, are not required to install EV Spaces or EVCS.

Leased off-site parking lots. Leased off-site parking lots are not required to be counted as parking spaces when determining minimum number of required EV Spaces and EVCS.

PART C. EV SPACE DIMENSION REQUIREMENTS

Non-Accessible EV Space. The stall dimensions for non-accessible EV Space shall be as follows:

BUILDING TYPE	STALL DIMENSIONS	CODE
One-Family Dwellings Two-Family Dwellings Townhouses	8'-6" x 18'-0" standard stall 8'-0" x 15'-0" compact stall	LBMC TITLE 21
Multifamily Dwellings Hotel Buildings Motel Buildings	9'-0" x 18'-0" standard stall + 8'-0" wide min aisle OR 12'-0" x 18'-0" standard stall + 5'-0" wide min aisle (for 1 in 25 EV Spaces) 9'-0" x 18'-0" standard stall (for all other EV Spaces)	CGBSC CH. 4
Nonresidential Buildings	8'-6" x 18'-0" standard stall	LBMC TITLE 21

Accessible EV Space. The stall dimensions for accessible EV Space shall be in accordance with the CBC Chapter 11A or 11B. Refer to Part D of this IB for a general summary of requirements for accessible EVCS.

PART D. ACCESSIBLE EVCS REQUIREMENTS

Public Buildings, Public Accommodations, Commercial Buildings and Public Housing. Where EVCS are provided or required for public buildings, public accommodations, commercial buildings and public housing, EVCS shall comply with the accessibility requirements of the CBC §11B-228.3 and CBC Table 11B-228.3.2.1. Please note that accessible EVCS required by the CBC §11B-228.3 is separate from, and in addition to, regular accessible parking spaces required by the CBC §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**

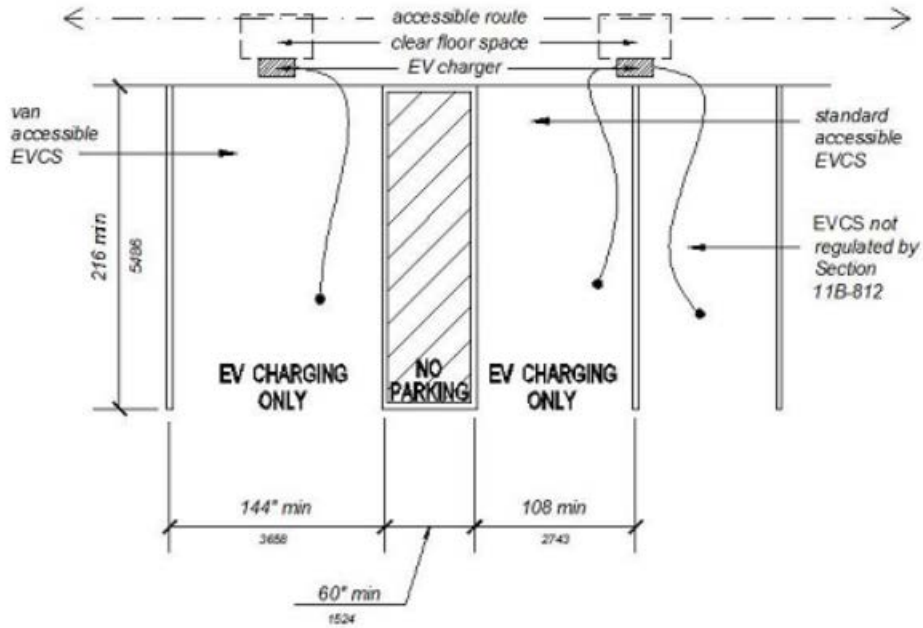
TOTAL NUMBER OF EVCS AT A FACILITY ¹	MINIMUM NUMBER (by type) OF EVCS REQUIRED TO COMPLY WITH SECTION 11B-812 ^{1,2}		
	Van Accessible	Standard Accessible	Ambulatory
1 to 4	1	0	0
5 to 25	1	1	0
26 to 50	1	1	1
51 to 75	1	2	2
76 to 100	1	3	3
101 and over	1, plus 1 for each 300, or fraction thereof, over 100	3, plus 1 for each 60, or fraction thereof, over 100	3, plus 1 for each 50, or fraction thereof, over 100

- 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.
- EVCS complying with Section 11B-812 shall be provided in accordance with Section 11B-228.3.2. for each combination of charging level and EV connector type integral to the EV charger. Each combination of charging level (such as, AC Level 1, AC Level 2, DC Fast Charge) and EV connector type shall be considered as a facility. Where EVCS are provided in more than one facility on a site, the number of EVCS complying with Section 11B-228.3.2 provided on the site shall be calculated according to the number required for each facility. In public housing facilities, EVCS provided for common use of residents shall comply with Section 11B-228.3.2.

Exceptions:

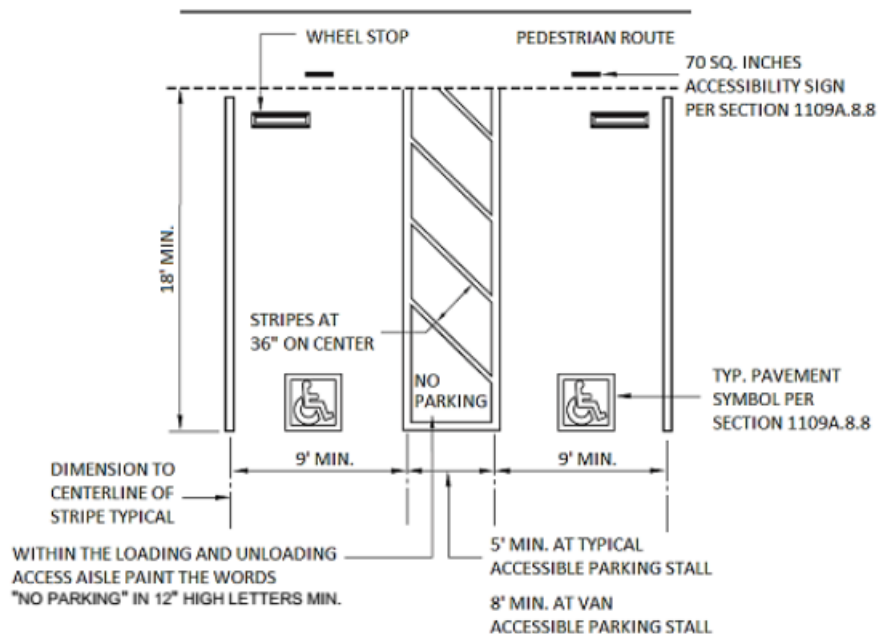
- EVCS not available to the general public and intended for use by a designated vehicle or driver shall not be required to comply with Section 11B-228.3.2. Examples include, but are not limited to, EVCS serving public or private fleet vehicles and EVCS assigned to an employee.
- In public housing facilities, EVCS intended for use by an EV owner or operator at their residence shall not be required to comply with Section 11B-228.3.2.

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 CBC §11B-812 and CBC Figure 11B-812.9 for additional information.

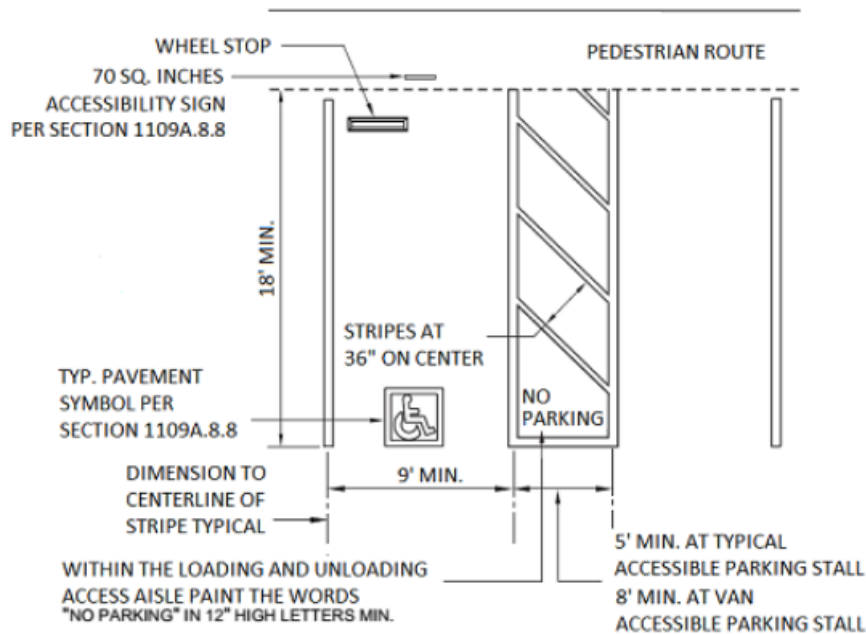


**CBC FIGURE 11B-812.9
SURFACE MARKING**

Multifamily Dwelling Buildings (that are not Public Housing). Where EVCS are provided or required for multifamily dwelling buildings, EVCS shall comply with the accessibility requirement of the CBC §1109A. See CBC Figures 11A-2A and 11A-2B for additional information.



**CBC FIGURE 11A-2A
DOUBLE PARKING STALLS**



**CBC FIGURE 11A-2B
SINGLE AND VAN ACCESSIBLE PARKING STALLS**

PART E. CONSTRUCTION DOCUMENT REQUIREMENTS

Architectural Plans. Architectural construction documents shall provide two types of parking plan:

Proposed Parking Plan – show proposed location of EVCS, utility room(s), and related electrical equipment and infrastructure for purpose of construction

Future Parking Plan – intended to demonstrate the project’s capability and capacity to facilitate future EV Spaces and related electrical equipment and infrastructure as reference sheet(s) and not for construction

Electrical Plans. Electrical construction documents shall provide two types of electrical plan:

Proposed Electrical Plan – reflects design and analysis to support the installation of EVCS and related electrical equipment and infrastructure for purpose of construction

Future Electrical Plan – intended to demonstrate the project’s capability and capacity to facilitate future EV Spaces and related electrical equipment and infrastructure as reference sheet(s) and not for construction.

Proposed and future electrical plan shall show the required raceways and related components that are to be installed underground, enclosed, inaccessible or in concealed areas and spaces and shall be installed at the time of original construction and need to be reflected on the proposed electrical plan. The following is a minimum list of items that shall be addressed on the proposed and future electrical plan:

- Conduits – Show proposed conduits located underground, enclosed, or inaccessible areas.
- Penetrations – Show proposed conduit penetrations through walls and/or floors.
- Panels – Show proposed and future panel size and location.
- Transformers – Show proposed and future transformer size and location. Contact Southern California Edison (SCE) to obtain their approval for the proposed transformer location and approval in concept for the future transformer location. Attach SCE letter for the transformers on

the electrical plan. Transformers located in right-of-way shall require approval by the Public Works Department.

- Utility Room – Show location and size of proposed utility room with the capability and capacity to accommodate future switchgears and other related electrical equipment or components.
- Load Management Systems – Where automatic load management systems are used, the maximum equipment load on a service and feeder shall be the maximum load permitted by the system. Electric vehicle charging load is considered continuous load.

Single EV Space. A listed raceway to accommodate a dedicated 208/240-volt branch circuit shall be installed, shall not be less than trade size 1 (nominal 1-inch inside diameter), and shall originate at the main service or subpanel and terminate into a listed cabinet, box, or other enclosure in close proximity to the proposed and future location of EV Charger(s). 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. Electrical plan shall indicate the raceway termination point and proposed and future location of EV Charger(s), including information on amperage of proposed or 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 proposed EVCS or future EV Space(s) at the full rated amperage of the EVSE. Design shall be based upon a 40-ampere minimum branch circuit.

PART F. EXAMPLE OF PARKING COUNT

Example 1: This example is for a newly constructed multifamily building with 200 dwelling units that is not a public accommodation, not an affordable housing project, and does not use or receive any type of public funding. Total new residential assigned parking spaces provided onsite is 100.

Proposed Parking Plan: The # of EVCS required is 5 (which is 5% of the 100 residential parking spaces). This result in 95 residential parking spaces and 5 EV Spaces served by chargers or other charging equipment to be provided onsite. The number of residential parking spaces that shall be accessible spaces are 4 pursuant to CBC §1109A.4 (2% of the 200 dwelling units). The # of EVCS that shall be a van accessible space is 1 pursuant to CBC §1109A.8.6.

Future Parking Plan: The # of EV Spaces required is 25 (which is 25% of the 100 residential parking spaces). The # of EVCS required is 5 (which is 5% of the 100 residential parking spaces). This result in 75 residential parking spaces, 20 EV Spaces not served by chargers, and 5 EV Spaces served by chargers or other charging equipment (which is 5 EVCS). The number of residential parking spaces that shall be accessible spaces is 4 (which is 2% of the 200 dwelling units). The # of EV Space that shall be van accessible space is 1 (one in every eight accessible spaces). The # of EVCS that shall be van accessible space is 1.

Example 2: This example is for a newly constructed nonresidential building. Total new nonresidential parking spaces provided onsite is 200.

Proposed Parking Plan: The # of EVCS required is 8. This result in 192 nonresidential parking spaces and 8 EV Spaces served by chargers or other charging equipment to be provided onsite. The number of nonresidential parking spaces that shall be van accessible space is 1 and standard

accessible space is 3 pursuant to CBC Table 11B-208.2. The # of EVCS that shall be a van accessible space is 1 and standard accessible space is 1.

Future Parking Plan: The # of EV Spaces required is 38. The # of EVCS required is 8. This result in 162 nonresidential parking spaces, 30 EV Spaces not served by chargers, and 8 EV Spaces served by chargers or other charging equipment (which is 8 EVCS). The number of nonresidential parking spaces that shall be van accessible space is 1 and standard accessible space is 3 (per **CBC TABLE 11B-208.2**). The # of EV Space that shall be van accessible space is 1 and standard accessible space is 3. The # of EVCS that shall be van accessible space is 1 and standard accessible space is 1.

To request this information in an alternative format or to request a reasonable accommodation, please contact the Community Development Department at longbeach.gov/lbcd and 562.570.3807. A minimum of three business days is requested to ensure availability; attempts will be made to accommodate requests with shorter notice.