



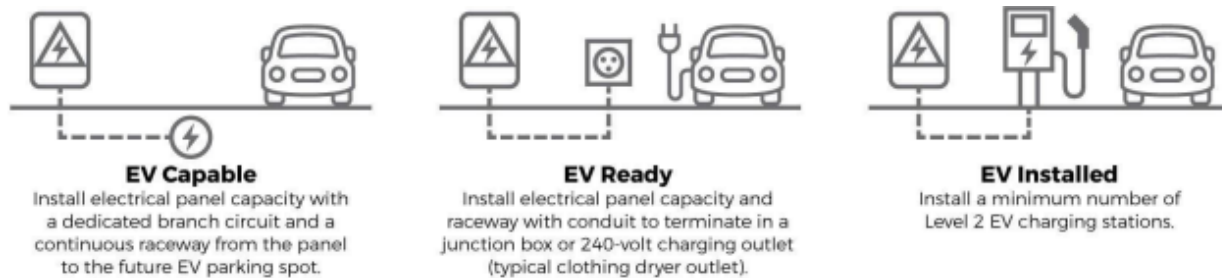
INFORMATION BULLETIN/CALGREEN CODE

Electrical Vehicle (EV) Charging for Nonresidential Buildings

The California Green Code (CALGreen) sets requirements for installing Electric Vehicle (EV) capable infrastructure in new nonresidential buildings. CALGreen contains minimum requirements that apply state-wide.

The new construction of nonresidential buildings must have raceway and panel capacity to support future installation of Level 2 charging stations. These EV infrastructures align with the state policies, including Assembly Bill (AB) 2565 and AB 1796.

This Information Bulletin provides a summary of the CALGreen requirements for the Electric Vehicle (EV) charging for new construction of nonresidential projects.



DEFINITIONS:

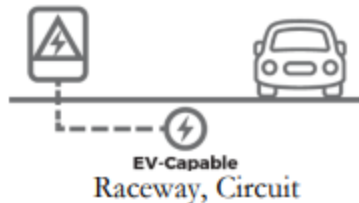
ACCESSIBILITY. [DSA-AC & HCD 1-AC] The combination of various elements in a building, facility, site or area, or portion thereof which allows access, circulation and the full use of the building and facilities by persons with disabilities in compliance with this code.

ACCESSIBLE. [DSA-AC & HCD 1-AC] A site, building, facility, or portion thereof that is approachable and usable by persons with disabilities in compliance with this code.

ACCESSIBLE ROUTE. [DSA-AC & HCD 1-AC] A continuous unobstructed path connecting accessible elements and spaces of an accessible site, building or facility that can be negotiated by a person with a disability using a wheelchair, and that is also safe for and usable by persons with other disabilities. Interior accessible routes may include corridors, hallways, floors, ramps, elevators and lifts. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts.

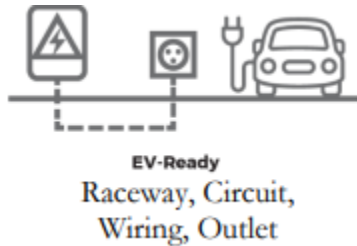
ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the California Electrical Code, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats and the like, are not included.

ELECTRIC VEHICLE (EV) CAPABLE SPACE. A vehicle space with electrical panel space and load capacity to support a branch circuit and necessary raceways, both underground and/or surface mounted, to support EV charging.



ELECTRIC VEHICLE (EV) CHARGER. Off-board charging equipment used to charge an electric vehicle.

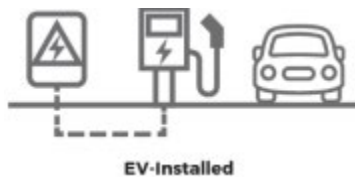
ELECTRIC VEHICLE (EV) READY SPACE. [HCD] A vehicle space which is provided with a branch circuit; any necessary raceways, both underground and/or surface mounted; to accommodate EV charging, terminating in a receptacle or a charger.



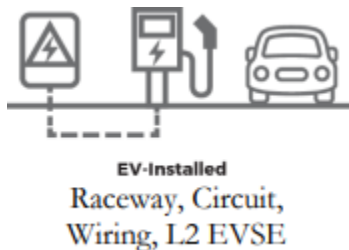
ELECTRIC VEHICLE CHARGING SPACE (EV SPACE). A space intended for future installation of EV charging equipment and charging of electric vehicles.

ELECTRIC VEHICLE CHARGING STATION (EVCS). One or more electric vehicle charging spaces served by electric vehicle charger(s) or other charging equipment allowing charging of electric vehicles. Electric vehicle charging stations are not considered parking spaces.

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.



LEVEL 2 ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). [HCD] The 208/240-volt 40-ampere branch circuit, and the electric vehicle charging 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.



NEIGHBORHOOD ELECTRIC VEHICLE (NEV). A motor vehicle that meets the definition of "low-speed vehicle" either in Section 385.5 of the Vehicle Code or in 49 CFR571.500 (as it existed on July 1, 2000) and is certified to zero-emission vehicle standards.

ZEV. Any vehicle certified to zero-emission standards.

EV Requirements- Nonresidential Mandatory Measures per Chapter 5 of California Green Code (CALGreen).

Electric Vehicle (EV) Charging

New Nonresidential Construction shall provide electric vehicle infrastructure and facilitate electric vehicle charging per Table 5.106.5.3.1.

The EV shall be provided in accordance with regulations in the California Building Code and the California Electrical Code.

Parking spaces accessible only by automated mechanical car parking systems are not required to comply with this code section.

TABLE 1

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CAPABLE SPACES	NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE) ²
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 total ¹	25 percent of EV capable spaces ¹

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.

Electric Vehicle (EV) Capable Spaces

EV capable spaces shall be provided in accordance with Table 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.

Electric Vehicle Charging Stations (EVCS)

EV capable spaces shall be provided with EVSE to create EVCS in the number indicated in Table 1. The EVCS required by Table 1 may be provided with EVSE in any combination of Level 2 and Direct Current Fast Charging (DCFC), except that 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 **"Electric Vehicle (EV) Capable Spaces"** for each EV capable space is accumulatively supplied to the EV charger.

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

Use of Automatic Load Management Systems (ALMS)

ALMS is permitted for EVCS. When ALMS is installed, the required electrical load capacity for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS. Each EVSE controlled by an ALMS shall deliver a minimum 30 amperes to an EV when charging one vehicle and shall deliver a minimum 3.3 kW while simultaneously charging multiple EVs.

See **"Electric Vehicle (EV) Capable Spaces"** for the required load capacity for each EVCS as follows:

- 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.

Electric Vehicle Charging Readiness Requirements for Warehouses, Grocery Stores and Retail Stores With Planned Off-Street Loading Spaces

New Construction shall comply with this section to facilitate future installation of medium- and heavy-duty electric vehicle supply equipment (EVSE).

In order to avoid future demolition when adding EV supply and distribution equipment, spare raceway(s) or busway(s) and adequate capacity for transformer(s), 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:

- The transformer, main service equipment and subpanels shall meet the minimum power requirement in Table 2 to accommodate the dedicated branch circuits for the future installation of EVSE.
- The construction documents shall indicate one or more location(s) convenient to the planned off-street loading space(s) reserved for medium- and heavy-duty ZEV charging cabinets and charging dispensers, and a pathway reserved for routing of conduit from the termination of the raceway(s) or busway(s) to the charging cabinet(s) and dispenser(s), as shown in Table 2.
- Raceway(s) or busway(s) originating at a main service panel or a subpanel(s) serving the area where potential future medium- and heavy-duty EVSE will be located and shall terminate in close proximity to the potential future location of the charging equipment for medium- and heavy-duty vehicles.
- The raceway(s) or busway(s) shall be of sufficient size to carry the minimum additional system load to the future location of the charging for medium- and heavy-duty ZEVs as shown in Table 2.

TABLE 2

RACEWAY CONDUIT AND PANEL POWER REQUIREMENTS FOR MEDIUM- AND HEAVY-DUTY EVSE [N]			
BUILDING TYPE	BUILDING SIZE (SQ. FT.)	NUMBER OF OFF-STREET LOADING SPACES	ADDITIONAL CAPACITY REQUIRED (KVA) FOR RACEWAY & BUSWAY AND TRANSFORMER & PANEL
Grocery	10,000 to 90,000	1 or 2	200
		3 or Greater	400
	Greater than 90,000	1 or Greater	400
Retail	10,000 to 135,000	1 or 2	200
		3 or Greater	400
	Greater than 135,000	1 or Greater	400
Warehouse	20,000 to 256,000	1 or 2	200
		3 or Greater	400
	Greater than 256,000	1 or Greater	400

- Area of parking facilities served by parking lifts are exempt from providing EV Ready spaces

Electric Vehicle Charging Stations (EVCS) Dimensions

- Surface slope of EV space shall not exceed 1:48 (1 unit vertical in 48 unit horizontal) slope in any direction
- Accessible parking space dimensions shall comply with Section 11B-502 and 11B-812.6 of California Building Code
- Minimum number of the required accessible EVCS(s) shall comply with Section 11B-228.3 of California Building Code
- Accessible route to EVCS shall comply with Section 11B-812.5 of California Building Code

Accessible EVCS Spaces

When EVSE is installed, accessible EVCS shall be provided in accordance with the California Building Code, Chapter 11B, Section 11B-228.3.

Note: For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

EVCS Location

- EVCS space shall be located on accessible route

EV Space Requirements

- Listed raceway capable of accommodating a 208/240- volt dedicated branch circuit
- Raceway shall not be less than trade size 1 (nominal 1-inch inside diameter)
- Raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box, or enclosure in close proximity to the location or the proposed location of EV space
- Service panel or subpanel shall have a 40-ampere minimum dedicated branch circuit, including branch circuit overcurrent protective device installed, or space(s) reserved to permit installation of a branch circuit overcurrent protective device

SIGNAGE

Electric vehicle ready spaces shall be identified by signage or pavement markings in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavements markings).

Processing of Permit Applications to install Electric Vehicle Charging Stations

In compliance with Assembly Bill (AB) 970 (2021), the permit application to install Electric Vehicle Charging Station(s) will be processed and reviewed within 10 working days from the time the application and the supporting documents are submitted to the city to Permits@ElSegundo.org.

Required Documents:

- Completed Building Permit Application
- Site Plans showing the location of the proposed EV capable and EVCS spaces
- Plans to show compliance with Accessibility requirements per Chapter 11B as applicable
- Provide parking analysis on the plans showing the number of the required and provided parking spaces
- Floor plan showing the location of the proposed EVCSs when installed inside a building
- Completed "Checklist for Permitting Electric Vehicles and Electric Vehicle Service Equipment (EVSE) for Nonresidential Buildings"

- Electrical Plans

Resources:

- **Electric Vehicle Charging Station Permitting Guidebook**
<https://static.business.ca.gov/wp-content/uploads/2019/12/GoBIZ-EVCharging-Guidebook.pdf>
- **Assembly Bill (AB) 1236 (2015)**
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1236
- **Assembly Bill (AB) 970 (2021)**
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB970
- **California Permitting Electric Vehicle Charging Stations: Best Practices**
<https://business.ca.gov/industries/zero-emission-vehicles/plug-in-readiness/permitting-electric-vehicle-charging-stations-best-practices/>
- **Sothern California Edison (SCE)**
<https://www.sce.com/residential/ev-overview>
- **Accessibility and Signage for Plug-In Electric Vehicle Charging Infrastructure**
https://www.calbo.org/sites/main/files/file-attachments/ca_accessibility_for_ev_charging.pdf?1524861081
- **Building Permit Application**
<https://www.elsegundo.org/home/showdocument?id=2857&t=638036651038172110>

Sample EVCS Layouts

Figure 1: Two EVCS = one van accessible EV space required

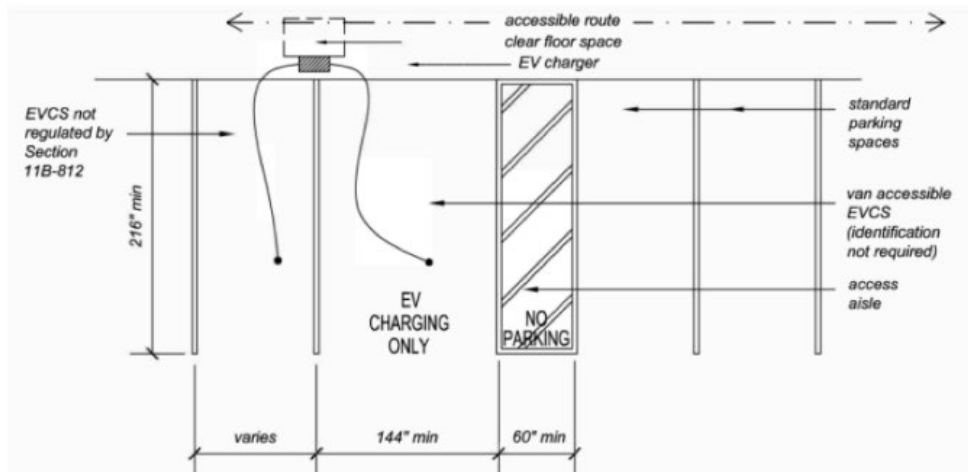


Figure 2: Five EVCS = two accessible EV spaces required

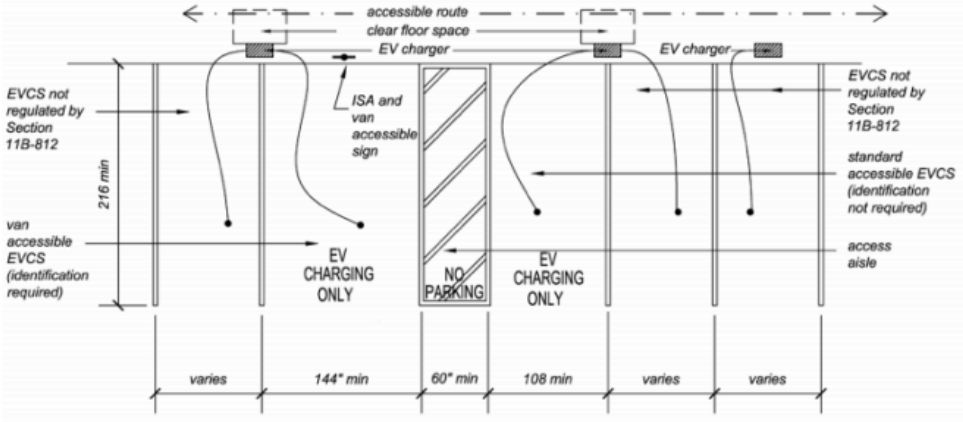


Figure 3: 26 EVCS = three accessible EV Spaces required

