



# LIGHT-DUTY ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS

California updated its electric vehicle (EV) charging infrastructure requirements for light-duty vehicles (LDV) in the 2022 California Green Building Standards Code (also known as CALGreen), effective on July 2024.

## What is Light-Duty Electric Vehicle Charging Infrastructure?

Light-Duty EV charging infrastructure includes both charging stations and electrical equipment to power vehicles such as cars, minivans, SUVs, and pickup trucks.



## Why does this matter?

California has updated EV infrastructure requirements in the 2022 CALGreen Interim Update to advance strategic statewide goals to reduce carbon emissions and pollutants through the electrification of the transportation sector. Including fixed infrastructure during new construction will limit costly retrofits to accommodate the charging capacity required for EVs as the state prepares to require 100% of new car sales to be zero-emission by 2035.<sup>1</sup>

## Who is affected by these requirements?

In the 2022 CALGreen, the EV charging infrastructure requirements affect new single-family homes, duplexes, townhomes, multifamily dwellings, hotels, motels, and non-residential buildings. The requirements also affect newly added or altered spaces associated with existing multifamily buildings, hotels, and motels.

<sup>1</sup> California, State of. California Enacts World-Leading Plan to Achieve 100 Percent Zero-Emission Vehicles by 2035, Cut Pollution, Office of Governor Gavin Newsom, 25 Aug. 2022, <https://www.gov.ca.gov/2022/08/25/california-enacts-world-leading-plan-to-achieve-100-percent-zero-emission-vehicles-by-2035-cut-pollution/>.

# What types of EV spaces are required in 2022 CALGreen?

2022 CALGreen defines three types of EV spaces that can meet EV infrastructure requirements:

- Level 2 EV Supply Equipment (EVSE) spaces
- EV Ready spaces with low power Level 2 EV charging receptacles
- EV Capable spaces



## What are the requirements for the three types of EV Spaces?

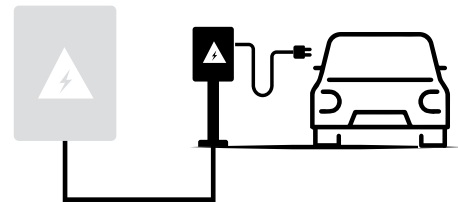
The requirements for each EV space type are shown below.

### Level 2 EV Supply Equipment (EVSE) Requirements

- 1) A 208/240 Volt 40-ampere minimum branch circuit
- 2) A Level 2 EVSE
- 3) Located adjacent to accessible parking, on an accessible route and meets requirements in Chapter 11 of the California Building Code.
- 4) Serving a charging space with a minimum length of 18 feet and minimum width of 9 feet (residential only)

#### EVSE INSTALLED

EVSE fully installed from the electrical panel to the EV Space.

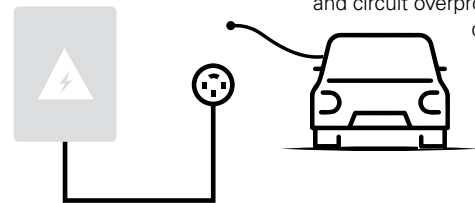


### EV Ready Spaces with low power Level 2 EV Charging Receptacles Requirements

- 1) A 208/240 Volt 20-ampere branch circuit
- 2) A receptacle that can be used by an EV driver to charge their vehicle.
- 3) Signage or pavement markings that meet Caltrans requirements.

#### EV READY

EV Space that has circuit installations and panel capacity, raceway with wiring, receptacle, and circuit overprotection devices.

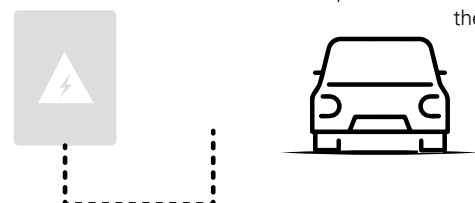


### EV Capable Space Requirements

- 1) A raceway not less than 1-inch (25 mm) diameter that can accommodate a 208/240 Volt 40-ampere branch circuit
- 2) Space on electrical panel or subpanel reserved for a 208/240 Volt 40-ampere branch circuit
- 3) Electrical capacity able to simultaneously charge future EVs at a minimum of 30-ampere.
- 4) Service panel or subpanel circuit directory identified as "EV CAPABLE"

#### EV CAPABLE

EV Space that has electrical panel capacity and conduit, (called raceway). Installed to implement EV charging in the future.





## What are the requirements for new single-family, duplex, and townhomes?



The 2022 CALGreen requirements for single-family, duplex, and townhome occupancies are the same as 2019 CALGreen requirements. All new construction must be EV Capable by installing a raceway to accommodate a future branch circuit for future EVSE installation.

Each dwelling unit must install the following:

- A raceway of at 1-inch (25 mm) diameter to accommodate a future 208/240 Volt 40-ampere branch circuit going from the service panel or subpanel to the EV Capable space.
- The electrical service panel or subpanel must have dedicated space for an overcurrent protection device and the electrical capacity for a 208/240 Volt 40-ampere branch circuit

## What are the EV charging infrastructure requirements for new and existing multifamily and hotel/motel buildings?



The 2022 CALGreen Interim Update includes important changes to residential requirements for multifamily, hotel, and motel properties. CALGreen no longer distinguishes requirements based on how many dwelling units or guest rooms the property has. Further, the Interim Update increases the required number of EV Ready spaces with low power level 2 charging receptacles and Level 2 EVSE while doing away with EV Capable space requirements for these property types.

For multifamily properties specifically, the 2022 CALGreen Interim Update includes a new requirement for EV charging receptacles to be provided with a dedicated branch circuit connected to the dwelling unit's electrical panel, unless determined as infeasible by the project builder or designer and subject to concurrence of the local enforcing agency.

For a complete set of requirements beyond those outlined in this factsheet, including receptacle and connector types, automatic load management systems, guest chargers, and assigned parking chargers, review the [2022 CALGreen with July 2024 Supplement](#).

## Summary of EV Requirements for Multifamily and Hotel/Motel Occupancies

| Topic                                   | Type                        | 2022 CALGreen Interim Update Requirement   |
|---|-----------------------------|--|
| Number of EV Spaces Required            | Multifamily                 | <p>40% of parking spaces are EV Ready with low power Level 2 charging receptacles, located in at least one assigned parking space per dwelling unit with assigned parking, but need not exceed 40% of the total number of assigned parking spaces on the site, AND</p> <p>10% of parking spaces are equipped with Level 2 EV chargers, located in common use parking spaces where provided and available to all residents and guests</p> |
|   | Hotel/Motel                 | <p>40% of parking spaces are EV Ready with low power Level 2 charging receptacles, AND</p> <p>10% of parking spaces are equipped with Level 2 EV chargers</p>  |
| Automatic Load Management System (ALMS) | Multifamily and Hotel/Motel | Where low power Level 2 EV charging receptacles or Level 2 EV chargers are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS   |



# Example Application for Hotel with 65 Parking Spaces

## MANDATORY

40% EV Ready with low power Level 2 charging receptacles installed = 26 Spaces (LPL2)

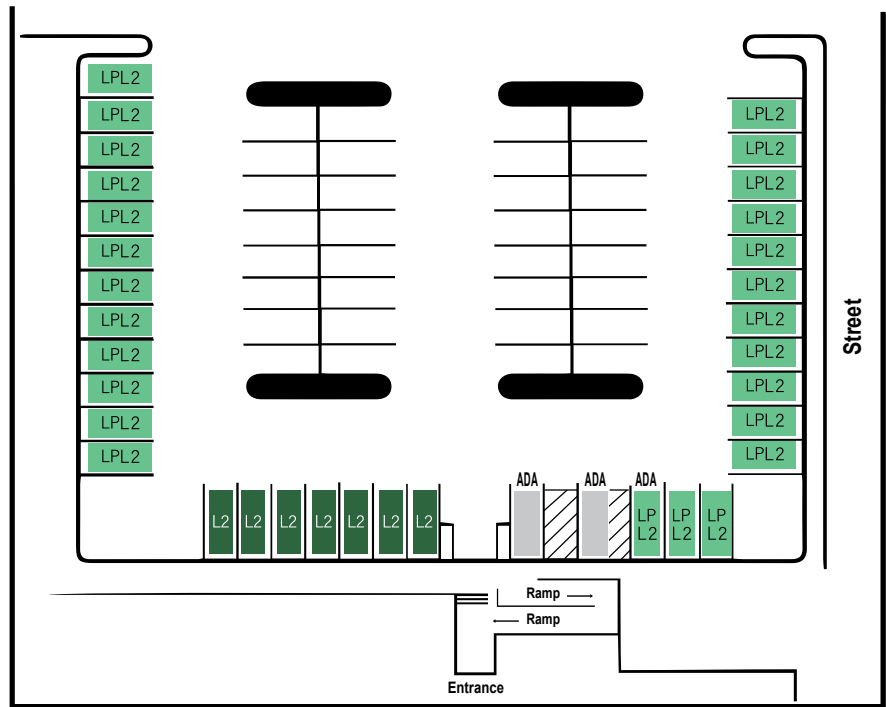
10% Level 2 EVSE installed = 7 spaces (L2)

*Note: One in 25 spaces that are required to have an EV charger are also required to be ADA accessible per CALGreen requirements.*

### Legend

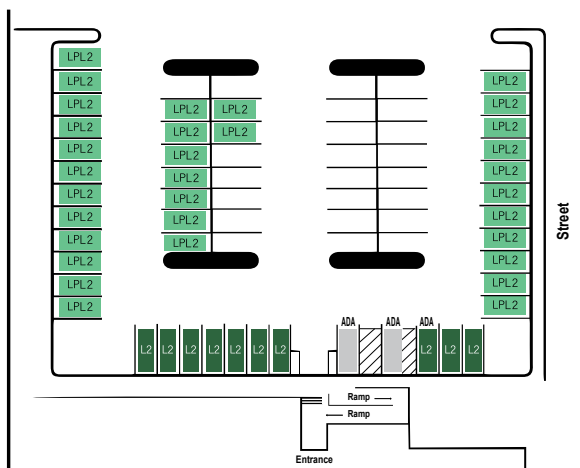
**LPL2:** EV Ready with low power Level 2 charging receptacles

**L2:** EV Installed with Level 2 EVSE



CALGreen includes two additional tiers of requirements that increase the number and level of required EVSE that local jurisdictions may voluntarily adopt.

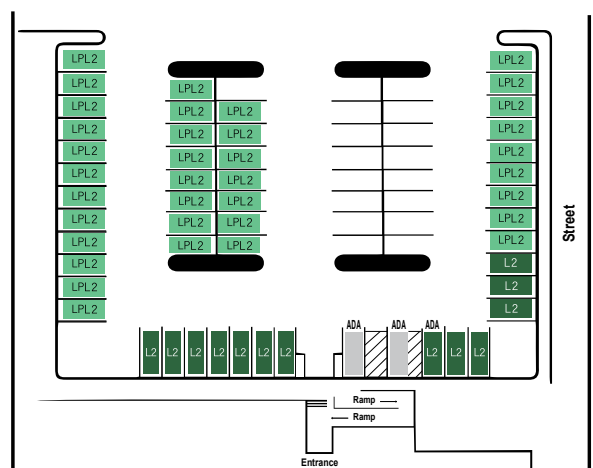
## VOLUNTARY TIER 1



50% EV Ready with low power Level 2 charging receptacles installed = 33 spaces (LPL2)

15% Level 2 EVSE installed = 10 Spaces (L2)

## VOLUNTARY TIER 2



55% EV Ready with low power Level 2 charging receptacles installed = 36 spaces (LPL2)

20% Level 2 EVSE installed = 13 Spaces (L2)

# EV Charging Infrastructure Requirements for New Nonresidential Buildings

The 2022 CALGreen Interim Update includes two compliance options for new nonresidential buildings: a space allocation or a power allocation method. The space allocation method requires both infrastructure for future EVSE installation and the installation of charging equipment as defined in Table 5.106.5.3.1. Alternatively, the power allocation method specifies the total kVA requirement as defined in Table 5.106.5.3.6, instead of the number of EV capable spaces and EVCS (which may be met with any combination of EV Capable Spaces, low power Level 2, Level 2, or DCFC EVSEs) with a requirement that at least one Level 2 EVSE is provided.

## Space Allocation Method

MANDATORY

| Total Number of Actual Parking Spaces | Number Required EV Capable Spaces         | Number of EVCS (EV Capable Provided with EVSE) <sup>2</sup> |
|---------------------------------------|---|---|
| 0-9                                   | 0   | 0   |
| 10-25                                 | 4   | 0   |
| 25-50                                 | 8   | 2   |
| 51-75                                 | 13  | 3   |
| 76-100                                | 17  | 4   |
| 101-150                               | 25  | 6   |
| 151-200                               | 35  | 9   |
| 201 and over                          | 20% of actual parking spaces <sup>1</sup> | 25% of EV Capable Spaces <sup>1</sup>                       |

1. Calculation for spaces shall be rounded to the nearest 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
3. At least one Level 2 EVSE shall be provided

## Power Allocation Method

| Total Number of Actual Parking Spaces | Minimum Total kVA @ 6.6 kVA        | Total kVA Required in Any Combination of EV Capable <sup>3,4</sup> , LPL2, Level 2 <sup>1,2</sup> , or DCFC |
|---------------------------------------|------------------------------------|---|
| 0-9                                   | 0                                  | 0   |
| 10-25                                 | 26.4                               | 26.4  |
| 26-50                                 | 52.8                               | 52.8  |
| 51-75                                 | 85.8                               | 85.8  |
| 76-100                                | 112.2                              | 112.2   |
| 101-150                               | 165                                | 165   |
| 151-200                               | 231                                | 231   |
| 201 and over                          | 20% of actual parking spaces x 6.6 | Total required kVA=Parking spaces x 0.2 x 6.6   |

1. Level 2 EVSE @ 6.6 kVA minimum
2. At least one Level 2 EVSE shall be provided
3. Maximum allowed kVA to be utilized for EV capable spaces is 75%
4. If EV Capable spaces are utilized they shall meet the requirements of §5.106.5.3.1

Cities and counties may elect to mandate additional requirements beyond the mandatory limits from either Table 5.106.5.3.1 or Table 5.106.5.3.6 by adopting either the Voluntary Tier 1 or Tier 2 requirements in Appendix A5 of CALGreen 2022. The two additional tiers are available for the space allocation or the power allocation compliance pathways.

VOLUNTARY TIER 1

| Total Number of Actual Parking Spaces | Number Required EV Capable Spaces         | Number of EVCS (EV Capable Provided with EVSE) <sup>2</sup> |
|---------------------------------------|---|---|
| 0-9                                   | 2   | 0   |
| 10-25                                 | 5   | 2   |
| 25-50                                 | 11  | 4   |
| 51-75                                 | 19  | 6   |
| 76-100                                | 26  | 9   |
| 101-150                               | 38  | 13  |
| 151-200                               | 53  | 18  |
| 201 and over                          | 30% of actual parking spaces <sup>1</sup> | 33% of EV Capable Spaces <sup>1</sup>                       |

| Total Number of Actual Parking Spaces | Minimum Total kVA @ 6.6 kVA        | Total kVA Required in Any Combination of EV Capable <sup>3,4</sup> , LPL2, Level 2 <sup>1,2</sup> , or DCFC |
|---------------------------------------|------------------------------------|---|
| 0-9                                   | 13.2                               | 13.2  |
| 10-25                                 | 33                                 | 33  |
| 26-50                                 | 72.6                               | 72.6  |
| 51-75                                 | 125.4                              | 125.4   |
| 76-100                                | 171.6                              | 171.6   |
| 101-150                               | 250.8                              | 250.8   |
| 151-200                               | 349.8                              | 349.8   |
| 201 and over                          | 30% of actual parking spaces x 6.6 | Total required kVA=Parking spaces x 0.3 x 6.6   |

VOLUNTARY TIER 2

| Total Number of Actual Parking Spaces | Number Required EV Capable Spaces         | Number of EVCS (EV Capable Provided with EVSE) <sup>2</sup> |
|---------------------------------------|---|---|
| 0-9                                   | 3   | 0   |
| 10-25                                 | 8   | 3   |
| 25-50                                 | 17  | 6   |
| 51-75                                 | 28  | 9   |
| 76-100                                | 40  | 13  |
| 101-150                               | 57  | 19  |
| 151-200                               | 79  | 26  |
| 201 and over                          | 45% of actual parking spaces <sup>1</sup> | 33% of EV Capable Spaces <sup>1</sup>                       |

| Total Number of Actual Parking Spaces | Minimum Total kVA @ 6.6 kVA        | Total kVA Required in Any Combination of EV Capable <sup>3,4</sup> , LPL2, Level 2 <sup>1,2</sup> , or DCFC |
|---------------------------------------|------------------------------------|---|
| 0-9                                   | 28.8                               | 28.8  |
| 10-25                                 | 76.8                               | 76.8  |
| 26-50                                 | 163.2                              | 163.2   |
| 51-75                                 | 268.8                              | 268.8   |
| 76-100                                | 384                                | 384   |
| 101-150                               | 547.2                              | 547.2   |
| 151-200                               | 758.4                              | 758.4   |
| 201 and over                          | 45% of actual parking spaces x 6.6 | Total required kVA=Parking spaces x 0.45 x 6.6  |

# Example Space Allocation Compliance Path for New Nonresidential Building

Nonresidential new construction project providing 65 new parking spaces.

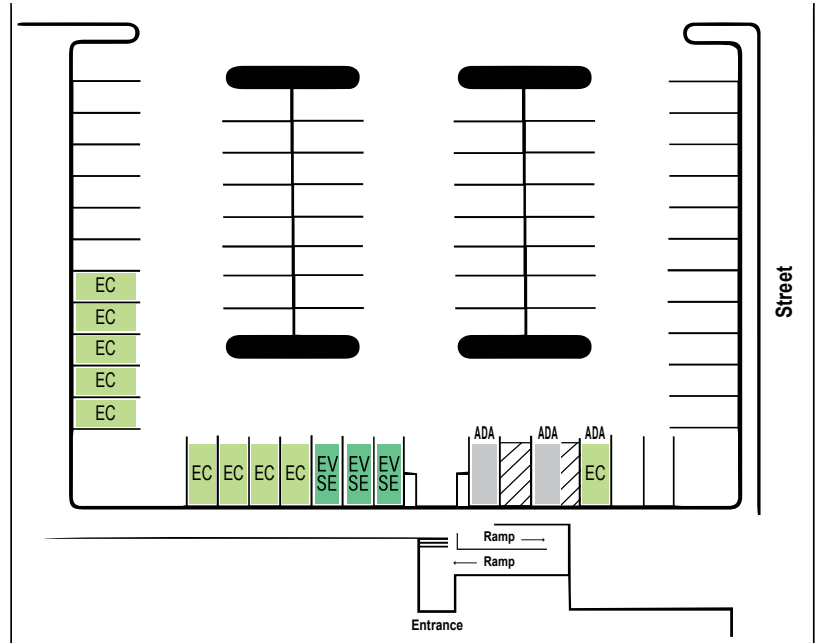
## MANDATORY

Per Table 5.106.5.3.1 = 10 EV Capable spaces and 3 EVSE spaces

*Note: Refer to the California building code for accessibility requirements in non-residential applications*

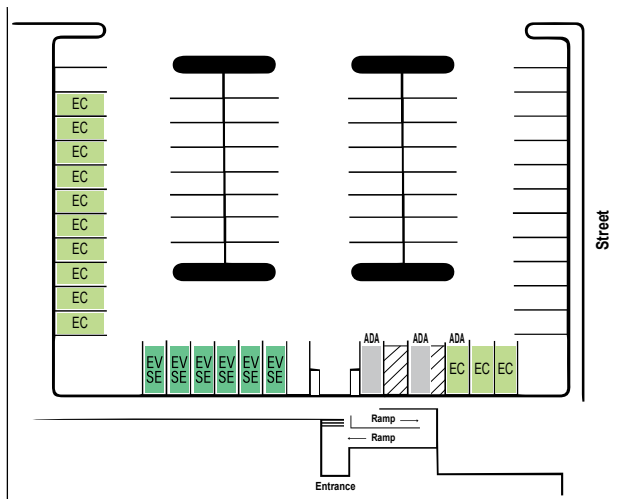
### Legend

- EC:** EV Capable
- EVSE:** EV Capable space provided with EV Supply Equipment



CALGreen includes two additional tiers of requirements that increase the number and level of required EVSE that local jurisdictions may voluntarily adopt.

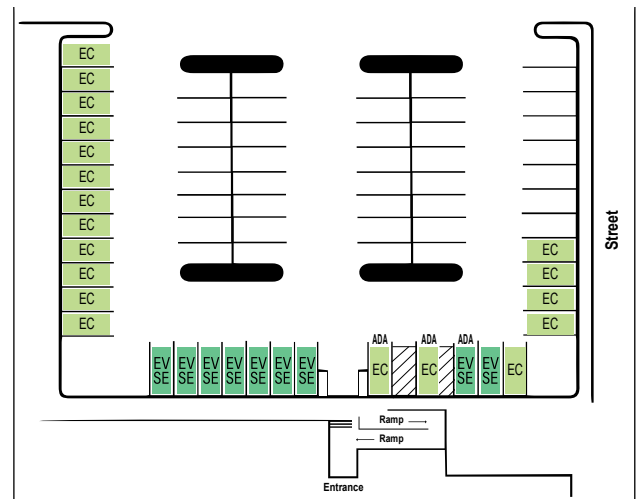
## VOLUNTARY TIER 1



### Voluntary Tier 1:

Per Table A5.106.5.3.1 = 14 EV Capable spaces and 6 EVSE spaces

## VOLUNTARY TIER 2



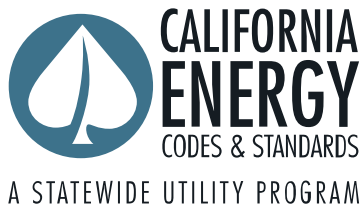
### Voluntary Tier 2:

Per Table A5.106.5.3.3 = 19 EV Capable spaces and 9 EVSE spaces



For more information:

<https://newbuildings.org/resource/electric-vehicle-supply-equipment-energy-storage-and-solar-permitting-and-inspection-guidelines/>



The Codes & Standards program is designed to improve compliance with the state's building and appliance energy codes and standards. The program aims to advance the adoption and effective implementation of energy efficiency measures and building practices to lock in long-term energy and GHG savings to meet California's ZNE, decarbonization and climate goals. The program recognizes that codes and standards are one of the most effective pathways to ensuring sustained market transformation—and the key to making them work well are well-informed industry professionals and consumers.



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