

# 2022 CALGREEN ELECTRIC VEHICLE CHARGING REQUIREMENTS

## Introduction

As California moves forward with newly-adopted statewide Building Energy Efficiency Standards, it also looks forward to a new version of the statewide Green Buildings Standards Code, or CALGreen. Approved by the California Building Standards Commission in mid-December, 2022 CALGreen will become effective January 1, 2023.

Some of 2022 CALGreen's most impactful provisions focus on electric vehicle (EV) infrastructure as a means of advancing the state's strategic goals of electrification as a primary driver towards decarbonization. These changes were also spurred by Executive Order N-79-20, which mandates 100% in-state sales of new zero-emission passenger vehicles (ZEV) by 2035.

This fact sheet summarizes 2022 CALGreen requirements for residential construction, including single-family, multi-family, and hospitality (hotels and motels) facilities, as well as nonresidential new construction, including new provisions for medium- and heavy-duty EVs.

Before we take a look at the new CALGreen provisions, let's review some important terminology. These definitions were added in the 2022 CALGreen to provide consistency as the terms have been defined differently in the past.

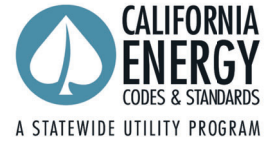


2022 CALGreen includes several new requirements for EV charging in residential construction.



The new 2022 CALGreen EV charging requirements for nonresidential construction include provisions for medium- and heavy-duty vehicles.

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## Definitions

### Automatic Load Management System (ALMS):

A system designed to manage load across one or more vehicles with electric vehicle supply equipment (EVSE) to share electrical capacity and/or automatically manage power at each connection point.

### 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.

### EV Ready Space:

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.

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

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 and the electric vehicle.

### Low Power Level 2 EV Charging Receptacle:

A 208/240 Volt 20-ampere minimum branch circuit and a receptacle for use by an EV driver to charge their electric vehicle or hybrid electric vehicle.



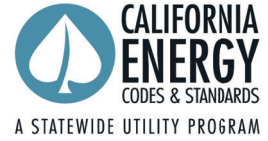
CALGreen is formally known as the California Green Building Standards Code, Title 24, Part 11.

CALGreen is a mandatory green building code with additional voluntary provisions. Mandatory measures apply statewide and voluntary measures can be adopted by local jurisdictions.

Voluntary measures are organized into two tiers with their own respective prerequisites and elective measures: Tier 1 prerequisites set a higher baseline than CALGreen mandatory measures while Tier 2 prerequisites include all of Tier 1 prerequisites plus some enhanced or additional measures. Many local jurisdictions choose to adopt those provisions because those are more resource-efficient and environmentally friendly than state-mandated building codes.



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## EV Space Requirements:

The EV Space must consist of a listed raceway (not less than trade size 1) capable of accommodating a 208/240-volt dedicated branch circuit, that originates at the main service or subpanel and terminates into a listed cabinet, box or enclosure. This enclosure must be in close proximity to the location or the proposed location of the EV space.

The raceway termination point, receptacle or charger location(s) must be identified on construction documents, as applicable. The service panel and/or subpanel shall have a 40-amp 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.

If multiple EV spaces are required, the construction documents must also indicate the raceway termination point and the location of installed or future EV spaces, receptacles, or EV chargers, as well as information on amperage of installed or future receptacles or EVSE, raceway method(s), wiring schematics and electrical load calculations (plan design based upon a 40-amp minimum branch circuit). Required 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.

## EV Ready Space Signage Requirements:

EV Ready spaces must be identified by signage or pavement markings that comply with Caltrans requirements.

## Resources and Links to CALGreen Electric Vehicle Charging Requirements

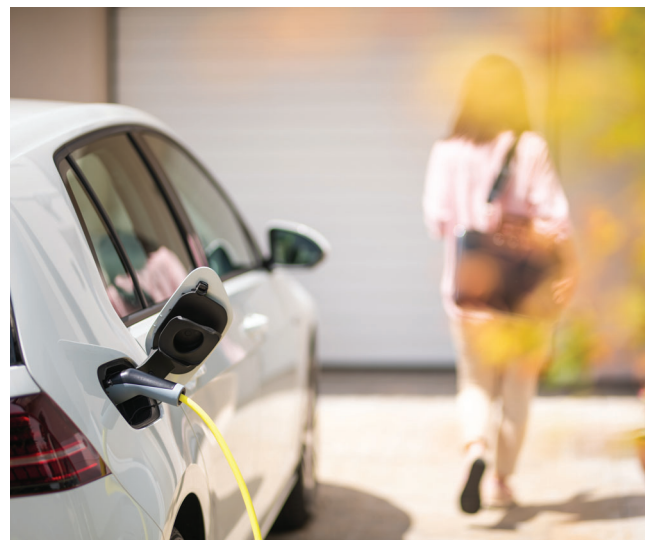
CALGreen is published by the California Building Standards Commission. The 2022 Standard was published on July 1, 2022.

EV definitions can be found in Chapter 2.

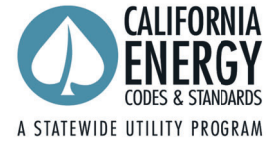
Mandatory residential requirements are located in Chapter 4, while the voluntary provisions (Tiers 1 and 2) are located in Appendix A4.

Mandatory nonresidential requirements are located in Chapter 5, while voluntary provisions (Tiers 1 and 2) are located in Appendix A5.

The statewide reach codes program offers technical assistance to local staff in developing measures, including the Cost Effectiveness Explorer, an interactive map of jurisdictions that have adopted reach codes tied to the 2019 code cycle or earlier code cycles, numerous Frontrunner success stories as well as webinars and a monthly newsletter.



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## Requirements for Residential Construction

This table outlines the new requirements in 2022 CALGreen by residential occupancy type, including the mandatory, Tier 1 and Tier 2 voluntary provisions. There were no changes to the requirements for single-family homes or townhomes from the 2019 CALGreen Standards.

**Table 1. Requirements for Residential Construction**

Occupancy Type	2022 CALGreen Mandatory Provisions	2022 CALGreen Tier 1 Voluntary Provisions	2022 CALGreen Tier 2 Voluntary Provisions
<b>One- and Two-Family Homes, Townhomes with Private Garages</b>	<ul style="list-style-type: none"> <li>• All EV Capable</li> <li>• Raceway</li> <li>• Service Panel and/or Subpanel Capacity and Space(s)</li> </ul>	<ul style="list-style-type: none"> <li>• For each dwelling unit, a dedicated 208/240V branch circuit installed in raceway required by § 4.106.4.1.</li> </ul>	<ul style="list-style-type: none"> <li>• For each dwelling unit, a dedicated 208/240V branch circuit installed in raceway required by § 4.106.4.1.</li> </ul>
<b>Multi-Family Dwellings, Hotels and Motels</b>	<p><b>NEW CONSTRUCTION:</b></p> <ul style="list-style-type: none"> <li>• 10% of parking spaces to be EV Capable</li> <li>• 25% of parking spaces require EV Ready w/Low Power Level 2 Receptacles*</li> <li>• 5% of parking spaces in buildings with 20 + units require Level 2 EV Supply Equipment (EVSE)*</li> <li>• Spaces identified on plans</li> </ul> <p><b>EXISTING BUILDINGS (Multi-Family only):</b></p> <ul style="list-style-type: none"> <li>• 10% of new added parking spaces for existing buildings to be EV Capable Spaces</li> <li>• 10% of altered spaces to be EV Capable (permitted activities)</li> </ul>	<p><b>NEW CONSTRUCTION:</b></p> <ul style="list-style-type: none"> <li>• 35% of parking spaces require EV Ready w/Low Power Level 2 Receptacles</li> <li>• Projects with 20+ units must offer 10% of total parking spaces w/level 2 EV Supply Equipment (EVSE)**</li> </ul>	<p><b>NEW CONSTRUCTION:</b></p> <ul style="list-style-type: none"> <li>• 40% of parking spaces require EV Ready w/Low Power Level 2 Receptacles</li> <li>• Projects with 20+ units must offer 15% of total parking spaces w/level 2 EV Supply Equipment (EVSE)**</li> </ul>

\*When low power Level 2 EV charging receptacles or Level 2 EVSE 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.

\*\* When EV chargers (Level 2 EVSE) are installed in a number less than the required number of EV capable spaces, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed.





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## Requirements for Nonresidential New Construction

**Table 2. Requirements for Nonresidential Construction**

Total Number of Parking Spaces	Number of Required EV Capable Spaces	Number of EVCS (EV Capable provided with EVSE) <sup>2</sup>
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 & more	20% Of total <sup>1</sup>	25% of EV Capable Spaces <sup>1</sup>

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.

CALGreen 2022 also establishes mandatory requirements for specific types of construction with regard to future installation of medium- and heavy-duty EVSE. These building types include grocery stores, retail and warehouse buildings with planned off-street loading spaces. Construction plans must include:

- Transformer, main service equipment and subpanels must comply with requirements in Table 3, to accommodate dedicated circuits for future EVSE installations.
- Location(s) convenient to the spaces reserved for medium- and heavy-duty EV charging cabinets and dispensers
- Raceways or busways that originate at the main service panel or subpanel that will serve the future medium- and heavy-duty EVSE locations and that will terminate in close proximity to these locations.

**Table 3. Requirements for Grocery Stores, Retail, and Warehouses for Medium- and Heavy-Duty EVs**

Building Type	Building Size (ft <sup>2</sup> )	Number of Off-Street Loading Spaces	Additional capacity for raceway, busway, transformer & panel
Grocery	10,000–90,000	1 or 2 3 or greater	200 400
	Greater than 90,000	1 or greater	400
Retail	10,000– 35,000	1 or 2 3 or greater	200 400
	Greater than 135,000	1 or greater	400
Warehouse	20,000–256,000	1 or 2 3 or greater	200 400
	Greater than 256,000	1 or greater	400

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