Peninsula Clean Energy (PCE), Silicon Valley Clean Energy (SVCE), and East Bay Community Energy (EBCE) provide a 2022 model of the Electric Vehicle (EV) Charging Infrastructure reach code, representing recommended local building code amendments to the municipal zoning code. The code intends to reach beyond the EV charging infrastructure requirements in the 2022 Green Building Standards, Title 24 Part 11, also known as CALGreen. Building developers must meet the most stringent requirements of CALGreen and this zoning code.

All requirements represent additions to a zoning code without prior EV charging infrastructure requirements. Enumeration is generic and intended to serve as structural guidance when integrating with the municipal code. Please visit BayAreaReachCodes.Org to review related information, including a calculation demonstrating how the EV charging model zoning code exceeds the 2022 CALGreen requirements.

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| **Version Date** | **Summary of Updates** |
| January 25, 2022 | 1st draft |
| February 16, 2022 | 1. Added hotel requirements to be consistent with CALGreen.
2. Updated nonresidential space EV Capable spaces to L2 to be consistent with CALGreen.
3. Exempted R-2.1 and R-3.1 from meeting the same requirements as R-2 and R-3.
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| July 19, 2022 | 1. Updated multifamily new construction requirements to have a high-power option of 15% EVCS and 85% Low Power Level 2 EV Ready.
2. Consolidated affordable housing requirements, including an exemption for $400 customer-side cost per space
3. Added requirements to convert Level 1 Capable spaces to Level 1 Ready spaces for Existing for applicable occupancies.
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| September 2022 | 1. Revised definitions to match July CALGreen code release.
2. Note clarifying that multifamily EV spaces are 100% of either parking spaces or dwelling units, whichever is less, to account for designs with decoupled and/or unassigned parking.
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September 2022 Updates in tracked changes.

For jurisdictions that have already began using the July version of the model code, the substantive changes are pasted in the boxes below as **tracked changes (red text)** to enable jurisdictions to accommodate the September updates into the jurisdiction draft.





**Section 30-0 – OFF-STREET ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REGULATIONS.**

**30-0.1 – Purpose and Intent.**

The off-street parking electric vehicle charging regulations are established in order to:

1. Implement the City’s climate change, transportation, affordable housing, and economic development objectives established by (cite relevant plans);
2. Provide for the safe, efficient, and equitable use of electric automobiles; and
3. Reduce the air pollution and greenhouse gas emissions generated by automobile use.

Electric vehicle (EV) charging infrastructure shall be provided and maintained for projects whenever off-street parking is provided, including in existing parking facilities. The infrastructure shall be provided in accordance with the requirements of the California Green Building Standards Code, Title 24 Part 11, and the requirements in this Section, whichever provides greater number of off-street parking spaces with access to EV charging infrastructure. All accessibility provisions shall meet California Building Code Chapters 11A and 11B. All signage provisions shall meet Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

All such spaces shall count toward the minimum required parking spaces. Where two or more primary uses occupy a single site, the EV infrastructure required for each use shall be calculated separately. Calculations for the required minimum number spaces with EV infrastructure shall be rounded up to the nearest whole number. Requirements represent the minimum charging infrastructure required, and increases in installed infrastructure, such as EV Supply Equipment and delivered power, shall be permissible.

**30-0.3 – Off-Street Electric Vehicle Charging Requirements**.
The provisions of this section (Section 30-0) shall apply to new buildings, new dwelling units, and existing buildings as defined in Section 30-0.3.2.

**30-0.3.1 Definitions**

1. “Affordable Housing” shall mean residential buildings that entirely consist of units below market rate and whose rents or sales prices are governed by local agencies to be affordable based on area median income.
2. “Automatic Load Management Systems (ALMS)” shall mean a control system designed to manage load across one or more electric vehicle supply equipment (EVSE), circuits, or panels, and share electrical capacity and/or automatically manage power at each connection point. ALMS systems must be designed to deliver no less than 3.3 kVa (208/240 volt, 16-ampere) to each EV Capable, EV Ready or EVCS space served by the ALMS, and meet the requirements of California Electrical Code Article 625. The connected amperage to the building site for the EV charging infrastructure shall not be lower than the required connected amperage per California Green Building Standards Code, Title 24 Part 11.
3. “Direct Current Fast Charging (DCFC)” shall mean a parking space provided with electrical infrastructure that meets the following conditions:
	1. A minimum of 48 kVa (480 volt, 100-ampere) capacity wiring.
	2. *Electric vehicle supply equipment* (EVSE) located within three (3) feet of the parking space providing a minimum capacity of 80-ampere.
4. “Electric Vehicle Charging Station (EVCS)” shall mean a parking space that includes installation of *electric vehicle supply equipment* (EVSE) at an EV Ready space. An EVCS space may be used to satisfy EV Ready space requirements. *EVSE* shall be installed in accordance with the California Electrical Code, Article 625.
5. “Electric Vehicle Supply Equipment (EVSE)” shall mean 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.
6. “Level 2 EV Capable” shall mean a parking space provided with electrical infrastructure that meets the following requirements:
	1. Conduit that links a listed electrical panel with sufficient capacity to a junction box or receptacle located within three (3) feet of the parking space.
	2. The conduit shall be designed to provide at least 8.3 kVa (208/240 volt, 40-ampere) per parking space. Conduit shall have a minimum nominal trade size of 1 inch inside diameter and may be sized for multiple circuits as allowed by the California Electrical Code. Conduit shall be installed at a minimum in spaces that will be inaccessible after construction, either trenched underground or where penetrations to walls, floors, or other partitions would otherwise be required for future installation of branch circuits, and such additional elements deemed necessary by the Building Official. Construction documents shall indicate future completion of conduit from the panel to the parking space, via the installed inaccessible conduit.
	3. The electrical panel shall reserve a space for a 40-ampere overcurrent protective device space(s) for EV charging, labeled in the panel directory as “EV CAPABLE.”
	4. Electrical load calculations shall demonstrate 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 a minimum of 40 amperes.
	5. The parking space shall contain signage with at least a 12” font adjacent to the parking space indicating the space is EV Capable.
7. “Level 1 EV Ready” shall mean a parking space that is served by a complete electric circuit with the following requirements:
	1. A minimum of 2.2 kVa (110/120 volt, 20-ampere) capacity wiring.
	2. A receptacle labeled “Electric Vehicle Outlet” or *electric vehicle supply equipment* located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 16-ampere.
	3. Conduit oversized to accommodate future Level 2 EV Ready (208/240 volt, 40-ampere) at each parking space.
8. “Level 2 EV Ready” shall mean a parking space that is served by a complete electric circuit with the following requirements:
	1. A minimum of 8.3 kVa (208/240 volt, 40-ampere) capacity wiring.
	2. A receptacle labeled “Electric Vehicle Outlet” or *electric vehicle supply equipment* located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 30-ampere.
9. “Low Power Level 2 EV Ready” shall mean a parking space that is served by a complete electric circuit with the following requirements:
	1. A minimum of 4.1 kVA (208/240 Volt, 20-ampere) capacity wiring.
	2. A receptacle labeled “Electric Vehicle Outlet” or *electric vehicle supply equipment* located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 16-ampere.
	3. Conduit oversized to accommodate future Level 2 EV Ready (208/240 volt, 40-ampere) at each parking space.
10. “Off-Street Loading Spaces" shall mean an area, other than a public street, public way, or other property (and exclusive of off-street parking spaces), permanently reserved or set aside for the loading or unloading of motor vehicles, including ways of ingress and egress and maneuvering areas. Whenever the term "loading space" is used, it shall, unless the context clearly requires otherwise, be construed as meaning off-street loading space. This excludes designated passenger loading/unloading.

**30-0.3.2 Requirements by Building Type**

1. Parking Provided for Residential Occupancy R-3 Use - Units with Private, Dedicated Garage.
	1. New Construction
		1. One parking space provided shall be a *Level 2 EV Ready* space.
		2. If a second parking space is provided, it shall be provided with a *Level 1 EV Ready* space.
	2. Existing Building
		1. Parking additions or electrical panel upgrades must have reserved breaker spaces and electrical capacity according to the requirements of Section 30-0.3.2.a.i.
2. Parking Provided for Multifamily Residential Occupancy R-2 Use - Shared Parking Facilities.  The requirements apply to parking spaces that are assigned or leased to individual dwelling units, as well as unassigned residential parking. Visitor or common area parking is not included. The total number of EV charging spaces should be one-hundred percent (100%) of dwelling units or one-hundred percent (100%) of parking spaces, whichever is less.
	1. **[OPTION A - HIGH POWER OPTION]** New Construction
		1. Fifteen percent (15%) of dwelling units with parking spaces shall be provided with at least a *Level 2 EV Ready* space and be *EVCS. ALMS* shall be permitted to reduce load when multiple vehicles are charging.
		2. Eighty-five percent (85%) of dwelling units with parking spaces shall be provided with a *Low Power Level 2 EV Ready* space.
	2. **[OPTION B - LOW POWER OPTION]** New Construction
		1. Forty percent (40%) of dwelling units with parking spaces shall be provided shall be provided with at least a *Level 2 EV Ready* space and be *EVCS*. *ALMS* shall be permitted to reduce load when multiple vehicles are charging.
		2. Sixty percent (60%) of dwelling units with parking spaces shall be provided with at minimum a *Level 1 EV Ready* space.
	3. Existing Building
		1. When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten percent (10%) of the total number of parking spaces added or altered shall be *EVCS*. Any existing EV Capable spaces on the building property required by the locally adopted codes at the time of building permit shall be upgraded to a minimum of Level 1 EV Ready. Upgrades shall be required at currently designated vehicle parking spaces. Upgrades shall be required for remaining parking spaces after meeting the accessibility requirements of California Building Code Chapters 11A and 11B.
		2. When new parking facilities are added and ALMS is installed, the ALMS system must be designed to deliver no less than 2.2 kVa (110/120 volt, 20-ampere).
3. Parking Provided for Nonresidential Occupancy Class B Offices – Shared Parking Facilities.
	1. New Construction
		1. Twenty percent (20%) of parking spaces provided shall be *Level 2 EV Ready* and *EVCS*. *ALMS* shall be permitted to reduce load when multiple vehicles are charging.
		2. Thirty percent (30%) of parking spaces provided shall be *Level 2* *EV Capable.*
	2. Existing Building
		1. When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten percent (10%) of the total number of parking spaces added or altered shall be *Level 2* *EV Ready* and *EVCS*. Any existing EV Capable spaces on the building property required by the locally adopted codes at the time of building permit shall be upgraded to a minimum of Level 1 EV Ready. Upgrades shall be required at currently designated vehicle parking spaces. Upgrades shall be required for remaining parking spaces after meeting the accessibility requirements of California Building Code Chapters 11A and 11B.
4. Parking Provided for Hotel and Motel Occupancies – Shared Parking Facilities.
	1. New Construction
		1. Five percent (5%) of parking spaces provided shall be *Level 2 EV Ready* and *EVCS*. *ALMS* shall be permitted to reduce load when multiple vehicles are charging.
		2. Twenty-five percent (25%) of parking spaces provided shall be *Low Power Level 2 EV Ready* space*.*
		3. Ten percent (10%) of parking spaces provided shall be *Level 2* *EV Capable.*
	2. Existing Building
		1. When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten percent (10%) of the total number of parking spaces added or altered shall be *Level 2* *EV Ready* and *EVCS*. Any existing EV Capable spaces on the building property required by the locally adopted codes at the time of building permit shall be upgraded to a minimum of Level 1 EV Ready. Upgrades shall be required at currently designated vehicle parking spaces. Upgrades shall be required for remaining parking spaces after meeting the accessibility requirements of California Building Code Chapters 11A and 11B.
5. Parking Provided for All Other Occupancies – Shared Parking Facilities.
	1. New Construction
		1. Ten percent (10%) of parking spaces provided shall be *Level 2 EV Ready* and *EVCS*. *ALMS* shall be permitted to reduce load when multiple vehicles are charging.
		2. Ten percent (10%) of parking spaces provided shall be *Level 2* *EV Capable.*
	2. Existing Building
		1. When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten percent (10%) of the total number of parking spaces added or altered shall be *Level 2* *EV Ready* and *EVCS*. Any existing EV Capable spaces on the building property required by the locally adopted codes at the time of building permit shall be upgraded to a minimum of Level 1 EV Ready. Upgrades shall be required at currently designated vehicle parking spaces. Upgrades shall be required for remaining parking spaces after meeting the accessibility requirements of California Building Code Chapters 11A and 11B.
6. Direct Current Fast Charging stations.
	1. One *DCFC* may be substituted for up to five (5) *EVCS* to meet the requirements of Section 30-0.3.2.b, Section 30-0.3.2.c, and Section 30-0.3.2.d.
	2. Where *ALMS* serve *DCFC* stations, the power demand from the *DCFC* shall be prioritized above Level 1 and Level 2 spaces.
7. By January 1st, 2025, multifamily and nonresidential properties shall upgrade existing EV Capable spaces required by the locally adopted codes at the time the building was permitted to a minimum of *Level 1 EV Ready*.
	1. Upgrades shall be required at currently designated vehicle parking spaces.
	2. Upgrades shall be required for remaining parking spaces after meeting the accessibility requirements of California Building Code Chapters 11A and 11B.
8. Non-proprietary infrastructure.
	1. Electric vehicle supply equipment installed pursuant to this subsection shall be compatible with a broad range of electric vehicle makes and models.
9. Medium-Duty and Heavy-Duty Vehicle Charging Infrastructure readiness requirements for new construction warehouses, grocery stores and retail stores with planned off-street loading spaces.
	1. 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:
		1. The transformer, main service equipment and subpanels shall meet the minimum power requirement in Table 30-0.3.2.j to accommodate the dedicated branch circuits for the future installation of EVSE.
		2. 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 EV 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 30-0.3.2.h.
		3. 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.
		4. 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 EVs as shown in Table 30-0.3.2.h.

**Table 30-0.3.2.j. Raceway Conduit and Panel power Requirements for Medium-and-Heavy-Duty EVSE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Building type** | **Building Size (ft2)** | **Number of off-street loading spaces** | **Additional capacity required (kVa) for raceway, busway, transformer, and panel** |
| Grocery | 10,000 - 90,000 | 1 or 2  | 200 |
| ≥ 3 | 400 |
| > 90,000 | ≥ 1 | 400 |
| Retail | 10,000 - 135,000 | 1 or 2 | 200 |
| ≥ 3 | 400 |
| > 135,000 | ≥ 1 | 400 |
| Warehouse | 20,000 - 256,000 | 1 or 2 | 200 |
| ≥ 3 | 400 |
| > 256,000 | ≥ 1 | 400 |

**30-0.3.3 – Exceptions.**

1. Where there is no local utility power supply, or the local utility is unable to supply adequate power.
2. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements directly related to the implementation of Section 30-0.3 may increase construction cost by the averages listed below. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.
	1. An average of $400 per parking space for *affordable housing.*
	2. An average of $4,500 per parking space for all other housing.
3. R-2.1 and R-3.1 occupancies may comply using Section 30-0.3.2.e.