Electric Vehicle Charging Station Permitting and Inspection Streamlining Guidance for Sonoma County

REDWOOD EMPIRE ASSOCIATION OF CODE OFFICIALS

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REACO

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Electric Vehicle Charging Station Permitting and Inspection Streamlining Guidance

Recognizing the role of permitting in the deployment of infrastructure, California legislators passed a law in 2015 requiring local governments to streamline the permitting process.[1] AB 1236 required communities with populations greater than 200,000 to adopt ordinances that expedites the permitting process for EV charging stations by September 30, 2016. All other jurisdictions must adopt an ordinance by September 30, 2017.

The required ordinance must include a number of streamlining elements. Local governments must provide a permitting checklist; installation projects that meet all requirements on the checklist must be eligible for expedited review. Cities and counties can use the latest version of the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" from the *Zero-Emission Vehicles in California: Community Readiness Guidebook* published by the Governor's Office of Planning and Research (OPR)[2]; they can also modify the standards based on "unique climactic, geological, seismological, or topographical conditions." In addition to developing streamlined procedures, permitting offices must provide the permitting materials on the government's website and must allow for electronic submittal of the application materials online. Electronic submittal can include the use of email, the internet, and or facsimile.

California Building Officials (CALBO) provides templates that jurisdictions can use as model language for ordinances and staff reports as part of an AB 1236 Toolkit. CALBO provided templates for both an Administrative Ordinance, which would be part of an administrative chapter of a code, and a Technical Ordinance, which would be part of the technical chapters.[3] Current CALBO templates are available in the Appendix.

The following permitting information for EV Charging Equipment Installation can serve as a model for jurisdictions that do not yet have an EVSE-specific permit form. The information is based on the California Code of Regulations Title-24 Parts 2, 3 and 11 as of January 1, 2017.

Recommendations[4]

- **Implement method for online permitting.** All jurisdictions will be required to accept electronic submission of EVCS installation permit applications; electronic submission includes online, email, or fax methods. Automated permitting for simple residential permit applications can speed up standard project; Los Angeles provides immediate responses for online permit submissions.
- **Implement method for online submission, review, and modification of project drawings and plans and payment of permit fees.** Allowing for online submission of fees and plans for projects requiring plan review can reduce the permitting time, especially in conjunction with the electronic methods for submitting permit applications.

[1] Full text of chaptered Assembly Bill 1236 available at the California Legislative Information webpage: https://leginfo.legislature.ca.gov/faces/billVersionsCompareClient.xhtml?bill_id=201520160AB1236

[2] Materials available from the Governor's Office of Planning and Research at: https://www.opr.ca.gov/s_zero-emissionvehicles.php

[3] CALBO points out that "an advantage of an Administrative only Ordinance is that you will not have to create new Chapters due to legislative changes."

[4] Solano Transportation Authority Permitting and Inspection Guidance document

- **Develop a standard checklist for all jurisdictions in Sonoma County.** Standardizing the permitting and inspection process throughout Solano County will reduce the administrative burden for installers. Some electricians reported that they prepare permit application materials the same for all projects regardless of jurisdiction by preparing based on the jurisdiction with the most stringent requirements; thus, they are often preparing more than necessary rather than tailor their submissions for each permitting office. A standard checklist would still allow for city-specific modifications.
- **Implement an expedited permitting and inspection program for simple residential installations.** A majority of projects will be relatively simple Level 1 or Level 2 charger installations at single family residences, similar to many electrical projects at homes, which are unlikely to vary widely. For this reason, many cities and counties offer a simplified permitting process for standard projects; some cities do not require permits for Level 1 chargers that plug directly into an existing standard 120V receptacle outlet and significantly simplify Level 2 charger installation requirements. The simplified process may include: fully online permitting processes; no plan checks; standardize permit fees; and expedited application review or inspections. Cities or counties offering these types of express programs include EVCS installations requiring less than 400 amps of service, which covers most Level 2 chargers.
- **Familiarize permitting and inspection staff with EVCS installation projects.** As more charging stations come to Sonoma County, it is helpful to have staff aware of the key issues for installations, as well as the elements that are unique but common to charging stations. Some experienced contractors noted that they have had to educate first-time EVCS inspectors on designs and applicable codes for their projects. Beyond just training staff, some cities and counties have set aside inspectors who prioritize and specifically focus on EVCS installations; however, this is likely only helpful in locations seeing higher-than-average charging station projects.
- **Simplify the inspection process.** Standard inspection forms specific to types of EVCS installations could speed up inspections. Additionally, such forms could include standard corrections for more common EVCS installation issues that installers could implement. Also, as noted previously, many projects will be relatively standard Level 1 or Level 2 EVCS installations at single family homes. Inspection offices could expedite standard EVCS inspections or even consider accepting digital images in an online inspection process for these simple installations.
- **Create clear and consistent website information**. Providing permit requirements and procedures to potential applicants online, in addition to at the permit counter, reduces demands on permitting staff. Recommendations for effective website best practices include:

    1. Clearly define permit application requirements for residential and nonresidential EVCS projects
    2. Provide “one-click” links to permit applications
    3. List EVCS permit requirements by project type and use and include easy-to-understand key words, such as “Electric Vehicle Charging”

Guidance for Permit for Charging Equipment Installation

Compliance with the following permit will allow the construction and operation of electric vehicle charging equipment at a residence in the jurisdiction. This permit addresses one of the following situations:

- Only a branch circuit and meter would be constructed at the residence
- A hard---wired charging station would be constructed at the residence. The requirements for the charging station are taken directly out of the 2016 edition of the California Electrical Code, Article 625 Electric Vehicle Charging System

This permit contains a general reference to the CEC or California Electrical Code used in the jurisdiction. All work and installed equipment will comply with the requirements of the CEC or the electrical code used in the jurisdiction. The jurisdiction maintains the authority/responsibility to conduct any inspections deemed necessary to protect public safety; however, due to the projected plug---in hybrid electric vehicle (PHEV) volume, it is suggested for consideration that a qualified electrician be approved to self---inspect the system enabling system operation in advance of jurisdiction inspection. The charging station installer shall also be responsible for notifying or coordinating any work with the utility company where needed.

Section 1 of the permit application requires basic identifying information be submitted. Note that there is a separate portion of the form requesting information on the property owner who may not be the individual requesting the installation.

Section 2 of the permit application identifies which code needs to be complied with depending on whether a branch circuit and meter or a hard---wired charging station is being installed.

The technical installation requirements address the following specific elements of electric vehicle charging station safety:

- Listing and labeling requirements
- Wiring methods
- Breakaway requirements
- Overcurrent protection
- Indoor siting
- Outdoor siting

Code relating to CalGreen and Accessibility can be found in the appendix.

Section 3 consists of a standard certification statement that could be modified as needed by the jurisdiction. By signing the certification statement, the applicant agrees to comply with the standard permit conditions and other applicable requirements. This consent would give the jurisdiction the option of allowing the applicant to proceed with installation and operation of the charging equipment.

Section 4 of the document gives an example of a checklist the jurisdiction could develop to track key information on the application. The example under section 4 contains only a few items of the many that the jurisdiction might wish to track.

Information each jurisdiction would add to permit:

- Date utility notified of work completed
- Information on installation sent to tax assessor
- Indoor/outdoor location
- Modification to existing service required
- Other items as determined by the jurisdiction

This permit package also includes a schematic drawing depicting a typical indoor installation. In this installation, the wiring path follows the exterior of the structure, and the charging station is located indoors. The CEC allows for interior wiring and outdoor installations. The purpose of the schematic is only to show how the charging station equipment could be arranged and is not intended to convey any permit requirements.

The Appendix includes template staff report and ordinance language, template checklist review sheets, applicable code requirements, and references.

Attachment A Level 2 Electric Vehicle Charger Service Load Calculator

Application for Installation of Electric Vehicle Charging Equipment

Note: All work and installed equipment must comply with requirements of the California Electrical Code (CEC), or the electrical code used in the jurisdiction.

Section 1: Permit Applicant Information

Name:			
Installation Street Address (P.O. box not acceptable):	Contact Person:		Phone Number: ( ) -
City:	County:	State:	Zip Code:
Owner Name:	Street Address:		Phone Number: ( ) -
City:	State		Zip Code:
Submitter's Name/Company:	Street Address:		Phone Number: ( ) -
City:	State:		Zip Code:
General description of equipment to be installed:			
Does the EVCS require a hard-wired charging station installed? (California Electrical Code, 2016 Edition, Article 625 Electric Vehicle Charging System)			

Section 2: Permit Code Information

Requirements for wiring the charging station are taken directly from the 2016 California Electrical Code.

This article does not provide all of the information necessary for the installation of an electric vehicle charging equipment. Please refer to the current edition of the electric code adopted by the local jurisdiction for additional installation requirements [insert link here].

CEC[5] Chapter or Article	Description
Chapter 2 and 3	**BRANCH CIRCUIT** A new electrical box added on a branch circuit shall comply with California Electrical Code Chapter 2 Wiring and Protection and Chapter 3 Wiring Methods and Materials and all administrative requirements of the CEC.
625.1.1 (HCD 1) (BSC-CG)	**ELECTRIC VEHICLE (EV) CHARGING FOR NEW CONSTRUCTION** In addition to requirements in this Article, electric vehicle charging shall comply with the California Green Building Standards Code (CALGreen) Chapter 4, Division 4.1 (CALGreen) Chapter 5 Division 5.1
625.4	**VOLTAGES** Unless other Voltages are specified, the nominal AC system voltages of 120, 120/240, 208Y/120, 240, 480Y/277, 480, 600Y/347, and 600 Volts and DC system voltages of up to 600 volts shall be used to supply equipment.
625.5	**LISTED** All electrical materials, devices, fittings, and associated equipment shall be listed.
625.10	**ELECTRIC VEHICLE COUPLER** The electric vehicle coupler shall comply with 625.10(A) through (F). **(A) Polarization.** The electric vehicle coupler shall be polarized. *Exception: A coupler that is part of a listed electrical vehicle supply system.* **(B) Noninterchangeability**. The electric vehicle coupler shall have a configuration that is noninterchangeable with wiring devices in other electrical systems. Nongrounding---type electric vehicle couplers shall not be interchangeable with grounding---type electric vehicle couplers. **(C) Construction and Installation**. The electric vehicle coupler shall be constructed and installed so as to guard against inadvertent contact by persons with parts made live from the electric vehicle supply equipment or the electric vehicle battery. **(D) Unintentional Disconnection**. The electric vehicle coupler shall be provided with a positive means to prevent unintentional disconnection. **(E) Grounding Pole.** The electric vehicle coupler shall be provided with a grounding pole, unless provided as part of a listed isolated electric vehicle equipment system. **(F) Grounding Pole Requirements**. If a grounding pole is provided, the electric vehicle coupler shall be so designed that the grounding pole connection is the first to make and the last to break contact.
625.15	**MARKINGS** The electric vehicle supply equipment shall comply with 625.15(A) through (C).

[5] 2016 California Electrical Code (http://www.bsc.ca.gov/Codes)

	(A) **General.** All electric vehicle supply equipment shall be marked by the manufacturer as follows: FOR USE WITH ELECTRIC VEHICLES (B) **Ventilation Not Required.** Where marking is required by 625.52(A), the electric vehicle supply equipment shall be clearly marked by the manufacturer as follows: VENTILATION NOT REQUIRED The marking shall be located so as to be clearly visible after installation. (C) **Ventilation Required.** Where marking is required by 625.52(B), the electric vehicle supply equipment shall be clearly marked by the manufacturer, "Ventilation Required." The marking shall be located so as to be clearly visible after installation.
625.16	**MEANS OF COUPLING** The means of coupling to the electric vehicle shall be either conductive or inductive. Attachment plugs, electric vehicle connectors, and electric vehicle inlets shall be listed or labeled for the purpose.
625.17	**CORDS AND CABLES** **(A) Power Supply Cord.** The cable for cord connected equipment shall comply with all of the following: (1) Be any of the types specified in 625.17(B)(1) or hard service cord, junior hard service cord, or portable power cable types in accordance with Table 400.4. Hard service cord, junior hard service or portable power cable types shall be listed, as applicable, for exposure to oil and damp and wet locations. (2) Have an ampacity as specified in Table 400.5(A)(1) or, for 8 AWG and larger, in the 60ºC columns of Table 400.5(A)(2) (3) Have an overall length as specified in 625.17(A)(3) a or b as follows a. When the interrupting device of the personnel protection system specified in 625.22 is located within the enclosure of the supply equipment or charging system, the power-supply cord shall be not more than 300mm (12in.) long. b. When the interrupting device of the personnel protection system specified in 625.22 is located at the attachment plug, or within the first 300mm (12in.) of the power cord, the overall length shall be a minimum of 1.8 m (6ft.) and shall not be greater than 4.6m (15Ft.). **(B) Output Cable to the Electric Vehicle.** The output cable to the electric vehicle shall be Type EV, EVJ, EVE, EVJE, EVT, or EVJT flexible cable as specified in Table 400.4. **(C) Overall Cord and Cable Length**. The overall usable length shall not exceed 7.5 m (25 ft.) unless equipped with a cable management system that is part of the listed electric vehicle supply equipment. (1) Not Fastened in Place. Where the electric vehicle supply equipment or charging system is not fastened in place, the cord-exposed usable length shall be measured from the face of the attachment plug to the face of the electric vehicle connector. (2) Fastened in Place. Where the electric vehicle supply equipment or charging system is fastened in place, the usable length of the output cable shall be measured from the cable exit of the electric vehicle supply equipment or charging system to the face of the electric vehicle connector.
625.18	**INTERLOCK** Electric vehicle supply equipment shall be provided with an interlock that de-energizes the electric vehicle connector whenever the electrical connector is uncoupled from the electric

	vehicle. An interlock shall not be required for portable cord-and-plug-connected electric vehicle supply equipment intended for connection to receptacle outlets rated at 125 volts, single phase, 15 and 20 amperes. An interlock shall not be required for dc supplies less than 50 volts dc.
625.19	**AUTOMATIC DE-ENERGIZATION OF CABLE** The electric vehicle supply equipment or the cable-connector combination of the equipment shall be provided with an automatic means to de-energize the cable conductors and electric vehicle connector upon exposure to strain that could result in either cable rupture or separation of the cable from the electric connector and exposure of live parts. Automatic means to de-energize the cable conductors and electric vehicle connector shall not be required for portable cord-and-plug connected electric vehicle supply equipment intended for connection to receptacle outlets rated at 125 volts, single phase, 15 and 20 amperes. An interlock shall not be required for dc supplies less than 50 volts dc.
625.22	**PERSONNEL PROTECTION SYSTEM** The electric vehicle supply equipment shall have a listed system of protection against electric shock of personnel. Where cord-and-plug-connected electric vehicle supply equipment is used, the interrupting device of a listed personnel protection system shall be provided and shall be an integral part of the attachment plug or shall be located in the power supply cord not more than 300mm (12 in.) from the attachment plug.
625.40	**OVERCURRENT PROTECTION** Overcurrent protection for feeders and branch circuits supplying electric vehicle supply equipment shall be sized for continuous duty and shall have a rating of not less than 125 percent of the maximum load of the electric vehicle supply equipment. Where noncontinuous loads are supplied from the same feeder or branch circuit, the overcurrent device shall have a rating of not less than the sum of the noncontinuous loads plus 125 percent of the continuous loads.
625.42	**DISCONNECTING MEANS** For electric vehicle supply equipment rated more than 60 amperes or more than 150 volts to ground, the disconnecting means shall be provided and installed in a readily accessible location. The disconnecting means shall be lockable open in accordance with 110.25.
625.25	**LOSS OF PRIMARY SOURCE** Means shall be provided such that, upon loss of voltage from the utility or other electrical system(s), energy cannot be back fed through the electric vehicle and the supply equipment to the premises wiring system unless permitted by 625.48.
625.48	**INTERACTIVE SYSTEMS** Electric vehicle supply equipment and other parts of a system, either on-board or off-board the vehicle, that are intended to be interconnected to a vehicle and also serve as an optional standby system or an electric power production source or provide for bi-directional power feed shall be listed and marked as suitable for that purpose. When used as an optional standby system, the requirements of Article 702 shall apply, and when used as an electric power production source, the requirements of Article 705 shall apply.
625.50	**LOCATION** The electric vehicle supply equipment shall be located for direct electrical coupling of the EV connector (conductive or inductive) to the electric vehicle. Unless specifically listed and marked for the location, the coupling means of the electric vehicle supply equipment shall be stored or located at a height of not less than 450 mm (18 in.) above the floor level for

	indoor locations and not more than 600mm (24 in.) above the grade level for outdoor locations.
625.52	**VENTILATION** The ventilation requirement for charging an electric vehicle in an indoor enclosed space shall be determined by 625.52 (A) or (B). **(A) Ventilation Not Required**. Where electric vehicle storage batteries are used or where the electric vehicle supply equipment is listed for charging electric vehicles indoors without ventilation and marked in accordance with 625.15(B), mechanical ventilation shall not be required. **(B) Ventilation Required.** Where the electric vehicle supply equipment is listed for charging electric vehicles that require ventilation for indoor charging, and is marked in accordance with 625.15(C), mechanical ventilation, such as a fan, shall be provided. The ventilation shall include both supply and exhaust equipment and shall be permanently installed and located to intake from, and vent directly to, the outdoors. Positive pressure ventilation systems shall be permitted only in vehicle charging buildings or areas that have been specifically designed and approved for that application. Mechanical ventilation requirements shall be determined by one of the methods specified in 625.52(B)(1) through (B)(4). **(1) Table Values.** For supply voltages and currents specified in Table 625.52(B)(1) or Table 625.52(B)(2), the minimum ventilation requirements shall be as specified in Table 625.52(B)(1) or Table 625.52(B)(2) for each of the total number of electric vehicles that can be charged at one time. **(2) Other Values**. For supply voltages and currents other than specified in Table 625.52(B)(1) or Table 652.52(B)(2), the minimum ventilation requirements shall be calculated by means of general formulas as applicable. **(3) Engineered Systems.** For an electric vehicle supply equipment ventilation system designed by a person qualified to perform such calculations as an integral part of a building's total ventilation system, the minimum ventilation requirements shall be permitted to be determined in accordance with calculations specified in the engineering study. **(4) Supply Circuits.** The supply circuit to the mechanical ventilation equipment shall be electrically interlocked with the electric vehicle supply equipment and shall remain energized during the entire electric vehicle charging cycle. Electric vehicle supply equipment shall be marked in accordance with 625.15. Electrical vehicle supply equipment receptacles rated at 125 volts, single phase, 15 and 20 amperes shall be switched, and the mechanical ventilation system shall be electrically interlocked through the switch supply power to the receptacle. Electric vehicle supply equipment supplied from less than 50 volts dc shall be marked in accordance with 625.15 (C) and shall be switched, and the mechanical ventilation system shall be electrically interlocked through the switch supply power to the electric vehicle supply equipment. **(C) Ventilation Required (SFM)** *Where the electric vehicle supply equipment listed or labeled as suitable for charging electric vehicles that require ventilation for indoor charging and marked in accordance with Section 625.15 (C), mechanical ventilation such as fans, shall be provided as specified in the California Building Code.*

Table 625.52(B)(1) Minimum Ventilation Required in Cubic Meters per minute for Each of the Total Number of Electric Vehicles That Can be Charged at One Time								
	Branch-Circuit Voltage							
	Single Phase				3 Phase			
Branch Circuit Ampere Rating	**DC≥50V**	**120V**	**208V**	**240V or 120/240V**	**208v or 208Y/120**	**240V**	**480V or 480Y/277V**	**600V or 600Y/347**
15	0.5	1.1	1.8	2.1	---	---	---	---
20	0.6	1.4	2.4	2.8	4.2	4.8	9.7	12
30	0.9	2.1	3.6	4.2	6.3	7.2	15	18
40	1.2	2.8	4.8	5.6	8.4	9.7	19	24
50	1.5	3.5	6.1	7.0	10	12	24	30
60	1.8	4.2	7.3	8.4	13	15	29	36
100	2.9	7.0	12	14	21	24	48	60
150					31	36	73	91
200					42	48	97	120
250					52	60	120	150
300					63	73	145	180
350					73	85	170	210
400					84	97	195	240

Section 3: Certification Statement

I hereby certify that the electrical work described on this permit application shall be/has been installed in compliance with the conditions in this permit applicable electrical code currently adopted and enforced within the jurisdiction of installation. Furthermore, all associated work with circuits, electrical service and meters shall be/has been completed in compliance with applicable electrical code currently adopted and enforced within the jurisdiction of installation. By agreeing to the above requirements, the licensee or owner shall be permitted to install and operate the charging station. The licensee also insures that appropriate load calculations have been done to ensure that the residence has adequate electrical capacity to support electric vehicle charging equipment.

Existing circuits provided for garages may supply other loads and may not have sufficient capacity for electric vehicle charging equipment.

In some older installations, the residential electrical service may not have sufficient capacity to supply electric vehicle charging equipment. Capacity problems are likely to be encountered on 60 ampere services or on 100 ampere services with multiple 240 volt loads. In such cases load calculations must be performed to insure adequate capacity.

Signature of Licensee:	Date:

Signature of Owner:	Date:

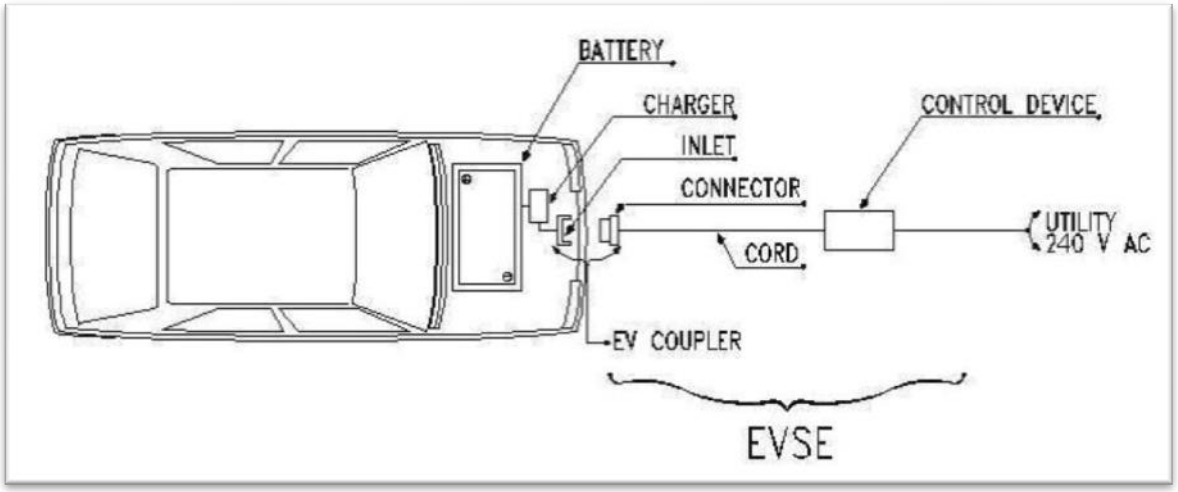
Section 4: Jurisdiction Checklist

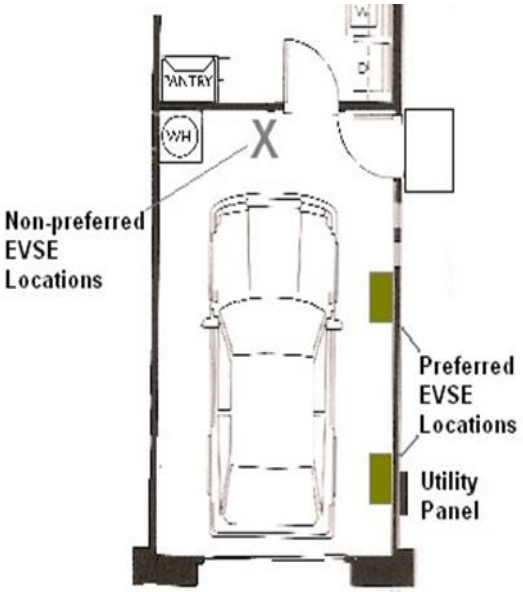
Installation and Permitting Checklist Template

✓	ACTION	NOTES
	Pre-installation	
	Identify electric vehicle model and obtain charging equipment manufacturer specifications with UL listed number or other approved nationally recognized testing laboratory (NRTL), in compliance with UL2202, "Standard for Electric Vehicle (EV) Charging System Equipment"	
	Assess electrical system capacity and determine if upgrades (including new dedicated circuits) are needed	
	Contact electric utility to notify planned installation, consult on necessary upgrades, and discuss charging level, meter, and rate options	Visit PG&E EVCS installation website or call PG&E at 877-743-7782
	Permit Application	
	Submit site plan with property lines, garage or parking space dimensions, and clearances of proposed charging system location including location of additional meter, if applicable	
	Submit electrical single line diagram showing (1) location of new and existing meter/sub meter and charger controller; (2) wire sizing and routing	
	Provide manufacturer installation details and specifications for the electrical supply charging unit	
	Demonstrate physical protection of the Electric Vehicle Supply Equipment. (CEC 110.27)	
	Provide information from the manufacturer indicating whether or not ventilation is required, label plans accordingly and provide mechanical ventilation, if required	
	Complete the Electrical Load Calculation Worksheet and provide load calculation of electrical service; include the electrical load required to charge the vehicle at 125%	
	Note the voltage (120V or 240V) and ampacities of the vehicle charger	
	List or label all supply equipment	
	Pay permit fees	[List any standardized fees]
	Installation	

	Meet all 2016 California Electrical code requirements (Article 625 Electric Vehicle Charging System)	Requirements include: • Coupling means of electric vehicle supply equipment shall be stored or located at a height of not less than 18" and not more than 48" above the floor level. • Electric vehicle supply equipment rated 125 volt, 15 or 20 amp may be cord and plug connected; all other EV supply equipment shall be permanently connected and fastened in place, if operating at 50 volts or more it shall be guarded against accidental contact by approved enclosures. • The electric vehicle supply equipment is provided with an interlock that de-energizes the electric vehicle connector and it cable whenever the electric connector is uncoupled from the electric vehicle. • When equipment is rated more than 60 amps or more than 150 volts to ground, the disconnecting means shall be provided and installed in a readily accessible location. (CEC Art. 625.42) • If both 120V and 240V circuits are desired to be monitored by the electric vehicle meter, a meter distribution will be required
	Meet CalGreen (California Green Building Standards Code) requirements ***(new building construction only)***	Requirements include: • Number of required EV Charging Spaces
	Meet all California Building Code Standards requirements relating to Accessibility (11B) ***(public EV charging stations only)***	Requirements include: • When EV Charging Stations (EVCS) are installed, accessible EVCS must be provided complying with requirements • Meeting EVCS Parking stalls dimension requirements for van and ambulatory parking spaces • Meeting path of travel requirements including unobstructed path of travel
	Inspection	
	Schedule inspection(s)	For standard residential installations, one inspection after installation is typically sufficient; more complex projects may require multiple inspections at points before wiring and final installation

Figure 1. Example of a Residential Level 2 Charging Equipment Installations





Appendix

AB 1236 Ordinance and Staff Report Templates

AB 1236 Staff Report Template

To: Honorable Mayor and City Council/Honorable Board of Supervisors

From: Name, Community Development Director or Building Official

Subject:Adopt an Ordinance amending Chapter _____ of the City of _____ Municipal Code / County of _____ County Code by setting forth an expedited, streamlined permitting process for electric vehicle charging stations as required by Government Code Section 65850.7.

Recommended Action

Staff recommends that the City Council:

Introduce for first reading the attached ordinance which sets forth an expedited, streamlined permitting process for electric vehicle charging stations.

Executive Summary

In 2015, the State of California adopted Assembly Bill 1236 (2015, Chiu, Codified as Government Code Section 65850.7), which requires local jurisdictions with a population of 200,000 or more residents to adopt an ordinance to create an expedited, streamlined permitting process for electric vehicle charging stations on or before September 30, 2016. Local jurisdictions with a population of less than 200,000 residents are required to adopt an ordinance on or before September 30, 2017.

An electric vehicle charging station is any level of electric vehicle supply equipment station which deliver electricity from a source outside an electric vehicle into a plug-in electric vehicle. AB 1236 may refer to the recommendations in the most current version of the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" of the "Zero-Emission Vehicles in California: Community Readiness Guidebook" published by the Governor's Office of Planning and Research.

Background

Assembly Bill 1236, which amended Government Code Section 65850.7 to require jurisdictions with a population of 200,000 or more residents to establish procedures for expedited, streamlined processes for permitting of electric vehicle charging stations. The amendments to Section 65850.7 include the requirement for a jurisdiction to adopt an ordinance for the expedited, streamlined process on or before September 30, 2017. The ordinance shall include the requirement that a jurisdiction adopt a checklist of requirements with which a permit application for an electric vehicle charging station will be eligible for expedited review.

This process includes the establishment of a checklist containing objective requirements for the installation of an electric vehicle charging station and a process for electronic submittal of permit applications. The content of the checklist requires the permit applicant to check the features of the existing electrical service such as rating in amperes, system voltage, connected or calculated load, spare capacity in amperes, voltage and ampere rating of the electric vehicle supply equipment, circuit rating of

the electric vehicle supply equipment, location of the electric vehicle supply equipment, if ventilation is/or is not required, and clearances of the charging equipment to comply with all applicable building and fire safety laws. The checklist also assists the applicant in confirming that the location of the electric vehicle supply equipment will comply with any vehicle clearance requirements in the City's / County's Zoning Ordinance. Section 65850.7 requires that the City's / County's checklist may be based on the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" of the "Zero-Emission Vehicles in California: Community Readiness Guidebook" of the Governor's Office of Planning and Research.

Assembly Bill 1236 (2015) also clarifies that a jurisdiction shall not condition approval of a permit for an electric vehicle charging station based on the approval of an association as defined in California Civil Code, Section 4080.

Staff recommends that City Council / County Board of Supervisors introduce for First Reading the attached ordinance, given Government Code Section 65850.7's requirement that local agencies adopt such an ordinance to create an expedited, streamlined permitting process for electric vehicle charging stations on or before September 30, 2016. Most of the procedures, such as electronic submittal of plans are currently in place and comply with the requirements of the Assembly Bill and staff is assuring that successful implementation of an expedited, streamlined process will be available to permit applicants by September 30, 2016.

Building and Safety Commission Action

The Building Officer and Fire Marshal held a public meeting with the Building and Safety Commission on _____, 2017 where the Commission heard staff's proposed procedures for an expedited, streamlined process for electric vehicle charging stations. The Commission provided comments regarding balancing the requirement for expedited processing while verifying the fire, life and safety aspects of electric vehicle charging stations and maintenance of public protection. Staff intends for the application and checklist process to create a standardized system of issuing permits for compliant installations. Staff assured the Commission that all requirements of fire-life-safety will be verified during the review and inspection for the electric vehicle charging stations.

The Commission's action was a recommendation to approve the ordinance / hold the ordinance until further study.

Next Steps

Concurrent with Council's / the Board's adoption of the ordinance, staff, is taking the measures to meet all requirements of Assembly Bill 1236 (2015) by September 30, 2017. This includes finalizing the application checklist in conjunction with the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" of the "Zero-Emission Vehicles in California: Community Readiness Guidebook", measures for electrical compliance, and standard items for fire prevention safety. Building and Fire inspection staff are also developing procedures for expedient and thorough inspection of the electric vehicle charging stations.

Financial Impacts & Budget Actions

There is no immediate financial impact or budget action necessary as a result of the recommended action.

AB 1236 Sample Ordinance Template - *Administrative*

ORDINANCE NUMBER ____

AN ORDINANCE OF THE CITY COUNCIL / COUNTY BOARD OF SUPERVISORS OF THE CITY OF _____ / COUNTY OF _____

SETTING FORTH PROCEDURES FOR EXPEDITING PERMITTING PROCESSING FOR ELECTRIC VEHICLE CHARGING SYSTEMS

WHEREAS, the State of California and the City of _____ / County of _____ has consistently promoted and encouraged the use of fuel-efficient electric vehicles; and

WHEREAS, the State of California recent adopted Assembly Bill 1236, which requires local agencies to adopt an ordinance that creates an expedited and streamlined permitting process for electric vehicle charging systems; and

WHEREAS, creation of an expedited, streamlined permitting process for electric vehicle charging stations would facilitate convenient charging of electric vehicles and help reduce the City's / County's reliance on environmentally damaging fossil fuels.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF _____ / COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF _____ DOES ORDAIN AS FOLLOWS:

SECTION 1. TITLE, WORDS AND PHRASES

This Ordinance shall be known as the City of _____ / County of _____ Electric Vehicle Charging Station Permit Expediting Ordinance. The terms, phrases, and words used in this Ordinance shall be construed in compliance with the definitions set forth by California Government Code Section 65850.7.

SECTION 2. Section _____ of the City of _____ Municipal Code / County of _____ County Code is hereby added to read as follows:

Section _____ Expedited Electric Vehicle Charging Station Permitting

Electric Vehicle Charging Stations which qualify for expedited permit processing, pursuant to Government Code Section 65850.7, shall be subject to the administrative permitting procedures set forth in the City's Electric Vehicle Charging Station Permit Expediting Ordinance.

SECTION 3. EXPEDITED REVIEW PROCESS

Consistent with Government Code Section 65850.7, the Building Official shall implement an expedited administrative permit review process for electric vehicle charging stations, and adopt a checklist of all requirements with which electric vehicle charging stations shall comply with in order to be eligible for expedited review. The expedited administrative permit review process and checklist may refer to the recommendations in the checklist prescribed by the most current version of the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" of the "Zero-Emission Vehicles in California: Community Readiness Guidebook" published by the Governor's Office of Planning and Research. The City's / County's adopted checklist shall be published on the City's / County's website.

SECTION 4. ELECTRONIC SUBMITTALS

Consistent with Government Code Section 65850.7, the Building Official shall allow for electronic submittal of permit applications covered by this Ordinance and associated supporting documentations. In accepting such permit applications, the Building Official shall also accept electronic signatures on all forms, applications, and other documentation in lieu of a wet signature by any applicant.

SECTION 5. ASSOCIATION APPROVAL

Consistent with Government Code Section 65850.7, the Building Official shall not condition the approval for any electric vehicle charging station permit on the approval of such a system by an association, as that term is defined by Civil Code Section 4080.

SECTION 6. PERMIT APPLICATION PROCESSING

A permit application that satisfies the information requirements in the City's / County's adopted checklist shall be deemed complete and be promptly processed. Upon confirmation by the Building Official that the permit application and supporting documents meets the requirements of the City / County adopted checklist, and is consistent with all applicable laws, the Building Official shall, consistent with Government Code Section 65850.7, approve the application and issue all necessary permits. Such approval does not authorize an applicant to energize or utilize the electric vehicle charging station until approval is granted by the City / County. If the Building Official determines that the permit application is incomplete, he or she shall issue a written correction notice to the applicant, detailing all deficiencies in the application and any additional information required to be eligible for expedited permit issuance.

SECTION 7. TECHNICAL REVIEW

It is the intent of this Ordinance to encourage the installation of electric vehicle charging stations by removing obstacles to permitting for charging stations so long as the action does not supersede the Building Official's authority to address higher priority life-safety situations. If the Building Official makes a finding based on substantial evidence that the electric vehicle charging station could have a specific adverse impact upon the public health or safety, as defined in Government Code 65850.7, the City / County may require the applicant to apply for a use permit.

SECTION 8.

Any provision of the City of _____ Municipal Code / County of _____ County Code or appendices thereto, inconsistent with the provisions of this Ordinance, to the extent of such inconsistencies and no further, are hereby repealed or modified to that extent necessary to effect the provisions of this Ordinance.

SECTION 9.

If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by a decision of any court of any competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council / County Board of Supervisors hereby declares that it would have passed this Ordinance, and each and every Section, subsection, sentence, clause, or phrase not declared invalid or unconstitutional without regard to whether any portion of the Ordinance would be subsequently declared invalid or unconstitutional.

SECTION 10.

The Mayor shall sign and the City / County Clerk shall attest to the passage of this Ordinance. The City / County Clerk shall cause this Ordinance, or a summary thereof to be published once in the official newspaper within 15 days after its adoption. This Ordinance shall become effective on September 30, 2016.

APPROVED AS TO FORM:

_____

NAME

City Attorney / County Counsel

AB 1236 Sample Ordinance Template - *Technical*

ORDINANCE NUMBER ____

AN ORDINANCE OF THE CITY COUNCIL / COUNTY BOARD OF SUPERVISORS OF THE CITY OF _____ / COUNTY OF _____
SETTING FORTH PROCEDURES FOR EXPEDITING PERMITTING PROCESSING FOR ELECTRIC VEHICLE CHARGING SYSTEMS

WHEREAS, the State of California and the City of _____ / County of _____ has consistently promoted and encouraged the use of fuel-efficient electric vehicles; and

WHEREAS, the State of California recent adopted Assembly Bill 1236, which requires local agencies to adopt an ordinance that creates an expedited and streamlined permitting process for electric vehicle charging systems; and

WHEREAS, creation of an expedited, streamlined permitting process for electric vehicle charging stations would facilitate convenient charging of electric vehicles and help reduce the City's / County's reliance on environmentally damaging fossil fuels.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF _____ / COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF _____ DOES ORDAIN AS FOLLOWS:

MUNICIPAL CODE / COUNTY CODE CHAPTER _____

SECTION 1. PURPOSE

The purpose of this Chapter is to promote and encourage the use of electric vehicles by creating an expedited, streamlined permitting process for electric vehicle charging stations while promoting public health and safety and preventing specific adverse impacts in the installation and use of such charging stations. This Chapter is also purposed to comply with California Government Code Section 65850.7.

SECTION 2. DEFINITIONS

(a) "Electric vehicle charging station" or "charging station" means any level of electric vehicle supply equipment station that is designed and built in compliance with Article 625 of the California Electrical Code, as it reads on the effective date of this Chapter, and delivers electricity from a source outside an electric vehicle into a plug-in electric vehicle.
(b) "Specific, adverse impact" means a significant, quantifiable, direct, and unavoidable impact, based on objective, identified, and written public health or safety standards, policies, or conditions as they existed on the date the application was deemed complete.
(c) "Electronic submittal" means the utilization of one or more of the following:
    a. Electronic mail or email.
    b. The internet.
    c. Facsimile.

SECTION 3. EXPEDITED PERMITTING PROCESS

Consistent with Government Code Section 65850.7, the Building Official shall implement an expedited, streamlined permitting process for electric vehicle charging stations, and adopt a checklist of all requirements with which electric vehicle charging stations shall comply with in order to be eligible for expedited review. The expedited, streamlined permitting process and checklist may refer to the recommendations contained in the most current version of the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" of the "Zero-Emission Vehicles

in California: Community Readiness Guidebook" as published by the Governor's Office of Planning and Research. The City's / County's adopted checklist shall be published on the City's / County's website.

SECTION 4. PERMIT APPLICATION PROCESSING

(a) Prior to submitting an application for processing, the applicant shall verify that the installation of an electric vehicle charging station will not have specific, adverse impact to public health and safety and building occupants. Verification by the applicant includes but is not limited to: electrical system capacity and loads; electrical system wiring, bonding and overcurrent protection; building infrastructure affected by charging station equipment and associated conduits; areas of charging station equipment and vehicle parking.
(b) A permit application that satisfies the information requirements in the City's / County's adopted checklist shall be deemed complete and be promptly processed. Upon confirmation by the Building Official that the permit application and supporting documents meets the requirements of the City / County adopted checklist, and is consistent with all applicable laws and health and safety standards, the Building Official shall, consistent with Government Code Section 65850.7, approve the application and issue all necessary permits. Such approval does not authorize an applicant to energize or utilize the electric vehicle charging station until approval is granted by the City / County. If the Building Official determines that the permit application is incomplete, he or she shall issue a written correction notice to the applicant, detailing all deficiencies in the application and any additional information required to be eligible for expedited permit issuance.
(c) Consistent with Government Code Section 65850.7, the Building Official shall allow for electronic submittal of permit applications covered by this Ordinance and associated supporting documentations. In accepting such permit applications, the Building Official shall also accept electronic signatures on all forms, applications, and other documentation in lieu of a wet signature by any applicant.

SECTION 5. TECHNICAL REVIEW

(a) It is the intent of this Ordinance to encourage the installation of electric vehicle charging stations by removing obstacles to permitting for charging stations so long as the action does not supersede the Building Official's authority to address higher priority life-safety situations. If the Building Official makes a finding based on substantial evidence that the electric vehicle charging station could have a specific adverse impact upon the public health or safety, as defined in this Chapter, the City / County may require the applicant to apply for a use permit.
(b) In the technical review of a charging station, consistent with Government Code Section 65850.7, the Building Official shall not condition the approval for any electric vehicle charging station permit on the approval of such a system by an association, as that term is defined by Civil Code Section 4080.

SECTION 6. ELECTRIC VEHICLE CHARGING STATION INSTALLATION REQUIREMENTS

(a) Electric vehicle charging station equipment shall meet the requirements of the California Electrical Code, the Society of Automotive Engineers, the National Electrical Manufacturers Association, and accredited testing laboratories such as Underwriters Laboratories, and rules of the Public Utilities Commission or a Municipal Electric Utility Company regarding safety and reliability.
(b) Installation of electric vehicle charging stations and associated wiring, bonding, disconnecting means and overcurrent protective devices shall meet the requirements of Article 625 and all applicable provisions of the California Electrical Code.
(c) Installation of electric vehicle charging stations shall be incorporated into the load calculations of all new or existing electrical services and shall meet the requirements of the California Electrical Code. Electric vehicle charging equipment shall be considered a continuous load.

(d) Anchorage of either floor-mounted or wall-mounted electric vehicle charging stations shall meet the requirements of the California Building or Residential Code as applicable per occupancy, and the provisions of the manufacturer's installation instructions. Mounting of charging stations shall not adversely affect building elements.

SECTION 7. Any provision of the City of _____ Municipal Code / County of _____ County Code or appendices thereto, inconsistent with the provisions of this Ordinance, to the extent of such inconsistencies and no further, are hereby repealed or modified to that extent necessary to effect the provisions of this Ordinance.

SECTION 8. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by a decision of any court of any competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council / County Board of Supervisors hereby declares that it would have passed this Ordinance, and each and every Section, subsection, sentence, clause, or phrase not declared invalid or unconstitutional without regard to whether any portion of the Ordinance would be subsequently declared invalid or unconstitutional.

SECTION 9. The Mayor shall sign and the City / County Clerk shall attest to the passage of this Ordinance. The City / County Clerk shall cause this Ordinance, or a summary thereof to be published once in the official newspaper within 15 days after its adoption. This Ordinance shall become effective on September 30, 2016.

APPROVED AS TO FORM:

_____

NAME

City Attorney / County Counsel

Checklist Review for Residential Electric Vehicle Charging Station Permits - Template

Check One	Type of Charging Station(s) Proposed	Power Levels (proposed circuit rating)
❑	Level 1	110/120 volt alternating current (VAC) at 15 or 20 Amps
❑	Level 2 - 3.3 kilowatt (kW) (low)	208/240 VAC at 20 or 30 Amps
❑	Level 2 - 6.6kW (medium)	208/240 VAC at 40 Amps
❑	Level 2 - 9.6kW (high)	208/240 VAC at 50 Amps
❑	Level 2 - 19.2kW (highest)	208/240 VAC at 100 Amps
❑	Other (provide detail)	

PERMIT APPLICATION REQUIREMENTS

1) Is the permit application complete with the following information: Project address, parcel #, builder/owner name, contractor name, valid contractor license #, phone numbers and any other requirement? Yes ☐ No ☐
2) Does the application include electric vehicle charging station model number, manufacturer's specs and installation guidelines? Yes ☐ No ☐

ELECTRICAL LOAD CALCULATION WORKSHEET

1) Is an electrical load calculation worksheet included? (CEC[6] 220) Yes ☐ No ☐
2) Based on the load calculation worksheet, is a new electrical service panel upgrade required[7]? Yes ☐ No ☐
    a. If yes to Q2, do plans include the electrical service panel upgrade? Yes ☐ No ☐
    b. If yes to Q2, is the PG&E work order included with permit application? Yes ☐ No ☐
3) Is the charging circuit appropriately sized for a continuous load (125%)? Yes ☐ No ☐
4) If charging equipment proposed is a Level 2 - 9.6kW station with a circuit rating of 50 amps or higher, is a completed circuit card with electrical calculations included with the single-line diagram? Yes ☐ No ☐ Not Applicable ☐

SITE PLAN & SINGLE LINE DRAWING

1) Is a site plan and electrical plan with a single-line diagram included with the permit application? Yes ☐ No ☐

[6] 2016 California Electrical Code. Article 220 Branch-Circuit, Feeder, and Service Calculations

[7] Load Calculation Worksheet review instructions: The size of the existing service MUST be equal to or larger than the minimum required size of main service breaker. If the existing service panel is smaller than the minimum required size of existing electrical services, then a new upgraded electrical service panel must be installed in order to handle the added electrical load from the proposed EVCS.

a. If mechanical ventilation requirements are triggered for indoor venting requirements (CEC 625.29 (D)), is a mechanical plan included with the permit application? Yes ☐ No ☐

2) Is the site plan fully dimensioned and drawn to scale? Yes ☐ No ☐
   a. Showing location, size, and use of all structures? Yes ☐ No ☐
   b. Showing location of electrical panel to charging system? Yes ☐ No ☐
   c. Showing type of charging system and mounting? Yes ☐ No ☐
   d. Is the type of mounting for charging system included if the charging system is not wall-mounted? Yes ☐ No ☐ Not Applicable ☐

COMPLIANCE WITH 2016 CALIFORNIA ELECTRCIAL CODE

1) Does the plan include EVCS manufacturer's specs and installation guidelines? Yes ☐ No ☐
2) Does the electrical plan identify the amperage and location of existing electrical service panel? Yes ☐ No ☐
   a. If yes to Q2, does the existing panel schedule show room for additional breakers? Yes ☐ No ☐
   b. Are sizes for the conduit and conductor included? Yes ☐ No ☐
3) Is the charging unit rated more than 60 amps or more than 150V to ground? Yes ☐ No ☐
   a. If yes to Q3, are disconnecting means provided in a readily accessible location in line of site and within 50' of EVCS? (CEC 625.23) Yes ☐ No ☐
4) Does the charging equipment have a Nationally Recognized Testing Laboratory (NRTL) approved listing mark? (UL 2202/UL 2200) Yes ☐ No ☐
5) If trenching is required, is the trenching detail called out? Yes ☐ No ☐
   a. Is the trenching in compliance with electrical feeder requirements from structure to structure? (CEC 225) Yes ☐ No ☐
   b. Is the trenching in compliance of minimum cover requirements for wiring methods or circuits? (18" for direct burial per CEC 300) Yes ☐ No ☐

COMPLIANCE WITH 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE

1) Do CALGreen EV Readiness installation requirements apply to this project? (Is this a new construction of a one-family or two family dwelling?) Yes ☐ No ☐

   a. If yes to Q1, each dwelling must install a listed raceway to accommodate a dedicated 208.240-volt branch circuit in accordance with section 4.106.4.1

NOTES:

Checklist Review for Multi-Unit Dwellings (MUD) Electric Vehicle Charging Station Permit-Template

Check One	Type of Charging Station(s) Proposed	Power Levels (proposed circuit rating)
❑	Level 1	110/120 volt alternating current (VAC) at 15 or 20 Amps
❑	Level 2 - 3.3 kilowatt (kW) (low)	208/240 VAC at 20 or 30 Amps
❑	Level 2 - 6.6kW (medium)	208/240 VAC at 40 Amps
❑	Level 2 - 9.6kW (high)	208/240 VAC at 50 Amps
❑	Level 2 - 19.2kW (highest)	208/240 VAC at 100 Amps
❑	Other (provide detail)	

PERMIT APPLICATION REQUIREMENTS

1) Is the permit application complete with the following information: Project address, parcel #, builder/owner name, contractor name, valid contractor license #, phone numbers and any other requirement? Yes ☐ No ☐

ELECTRICAL LOAD CALCULATION WORKSHEET

1) Is an electrical load calculation worksheet included? (CEC[8] 220) Yes ☐ No ☐
2) Based on the load calculation worksheet, is a new electrical service panel upgrade required[9]? Yes ☐ No ☐
    a. If yes to Q2, do plans include the electrical service panel upgrade? Yes ☐ No ☐
    b. If yes to Q2, is the PG&E work order included with permit application? Yes ☐ No ☐
3) Is the charging circuit appropriately sized for a continuous load (125%)? Yes ☐ No ☐
4) If charging equipment proposed is a Level 2 – 9.6 kW station with a circuit rating of 50 Amps or higher, is a completed circuit card with electrical calculations included with the single line diagram? Yes ☐ No ☐

[8] 2016 California Electrical Code. Article 220 Branch-Circuit, Feeder, and Service Calculations

[9] Load Calculation Worksheet review instructions: The size of the existing service MUST be equal to or larger than the minimum required size of main service breaker. If the existing service panel is smaller than the minimum required size of existing electrical services, then a new upgraded electrical service panel must be installed in order to handle the added electrical load from the proposed EVCS.

SITE PLAN & SINGLE LINE DRAWING

1) Is a site plan and electrical plan with a single-line diagram included with the permit application? Yes ☐ No ☐
    a. If mechanical ventilation requirements are triggered for indoor venting requirements (CEC 625.29 (D)), is a mechanical plan included with the permit application? Yes ☐ No ☐
2) Is the site plan fully dimensioned and drawn to scale? Yes ☐ No ☐
    a. Showing location, size, and use of all structures? Yes ☐ No ☐
    b. Showing location of electrical panel to charging system? Yes ☐ No ☐
    c. Showing type of charging system and mounting? Yes ☐ No ☐
    d. Is the type of mounting for charging system included if the charging system is not wall-mounted? Yes ☐ No ☐ Not Applicable ☐

COMPLIANCE WITH 2016 ENERGY CODE[10] (FOR HIGH-RISE RESIDENTIAL ONLY, 4 STORIES AND OVER)

1) Is the Electrical Power Distribution form, NRCC-ELC-E, included to document the voltage drop requirements for the new feeder and branch circuit? (Section 141.0(b)2Piii) Yes ☐ No ☐

COMPLIANCE WITH 2016 CALIFORNIA ELECTRCIAL CODE

1) Does the plan include EVCS manufacturer's specs and installation guidelines? Yes ☐ No ☐
2) Does the electrical plan identify the amperage and location of existing electrical service panel? Yes ☐ No ☐
    a. If yes to Q2, does the existing panel schedule show room for additional breakers? Yes ☐ No ☐
    b. Are sizes for the conduit and conductor included? Yes ☐ No ☐
3) Is the charging unit rated more than 60 amps or more than 150V to ground? Yes ☐ No ☐
    a. If yes to Q3, are disconnecting means provided in a readily accessible location in line of site and within 50' of EVCS? (CEC 625.23) Yes ☐ No ☐
4) Does the charging equipment have a Nationally Recognized Testing Laboratory (NRTL) approved listing mark? (UL 2202/UL 2200) Yes ☐ No ☐
5) If trenching is required, is the trenching detail called out? Yes ☐ No ☐
    a. Is the trenching in compliance with electrical feeder requirements from structure to structure? (CEC 225) Yes ☐ No ☐
    b. Is the trenching in compliance of minimum cover requirements for wiring methods or circuits? (18" for direct burial per CEC 300) Yes ☐ No ☐

COMPLIANCE WITH 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE

1) Do CALGreen EV Readiness installation requirements apply to this project? Yes ☐ No ☐
    a. Do the plans demonstrate conformance with mandatory measures for 3% of total parking spaces, but no less than one, for new multifamily dwellings with 17+ units that must be EV capable? (4.106.4.2) Yes ☐ No ☐

[10] 2016 California Energy Code, Title 24 Part 6

b. Do the construction documents indicate the location of the proposed EV spaces where at least one is located in common use areas and available to all residents for use? (4.106.4.2.1)

2) When EV chargers are installed, EV spaces required by Section 4.106.4.2.2 item 3 shall comply with at least one of the following options:
   a. The EV space shall be located adjacent to an accessible parking space that complies with California Building Code Chapter 11-A, to allow use of the EV charger from the accessible parking space.
   b. The EV space shall be located on an accessible route, as defined by California Building Code Chapter 2, to the building.
   c. EV charging space(s) comply with Section 4.106.4.2.2, items 1, 2 and 3 (below).
      - The minimum length of each EV space shall be 18 feet (5486 mm).
      - The minimum width of each EV space shall be 9 feet (2743 mm).
      - One in every 25 EV spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).
        - Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

NOTES:

_____
_____
_____
_____

Checklist Review for Non-Residential Electric Vehicle Charging Station Permit- Template

CHECK ONE	Type of Charging Station(s) Proposed	Power Levels (proposed circuit rating)	Typical NON-RES Charging Locations
❑	Level 1	110/120 volt alternating current (VAC) at 15 or 20 Amps	Commercial office building
❑	Level 2 - 3.3kW (low)	208/240 VAC at 20 or 30 Amps	Commercial office building Public access
❑	Level 2 - 6.6kW (medium)	208/240 VAC at 40 Amps	
❑	Level 2 - 9.6kW (high)	208/240 VAC at 50 Amps	
❑	Level 2 - 19.2kW (highest)	208/240 VAC at 100 Amps	
❑	DC Fast Charging	440 or 480 VAC	Public access Large commercial office buildings or parks Hospitality & recreation
❑	Other (provide detail)		

PERMIT APPLICATION

1) Is the permit application complete with the following information: Project address, parcel #, builder/owner name, contractor name, valid contractor license #, phone numbers and any other requirement? Yes ☐ No ☐
2) Does the application include electric vehicle charging station model number, manufacturer's specs and installation guidelines? Yes ☐ No ☐

COMPLIANCE WITH 2016 ENERGY CODE[11]

2) Is the Electrical Power Distribution form, NRCC-ELC-E, included to document the voltage drop requirements for the new feeder and branch circuit? Yes ☐ No ☐

Section 141.0(b)2Piii. Voltage Drop. Alterations of feeders and branch circuits where the alteration includes addition, modification, or replacement of both feeders and branch circuits, the altered circuits shall meet the requirements of Section 130.5(c), where the maximum combined voltage drop on both installed feeder conductors and branch circuit conductors to the farthest connected load or outlet shall

[11] 2016 California Energy Code, Title 24 Part 6

not exceed 5 percent. EXCEPTION to Section 141.0(b)2Piii: Voltage drop permitted by California Electrical Code Sections 647.4, 695.6 and 695.7.

ELECTRICAL LOAD CALCULATION WORKSHEET

1) Is an electrical load calculation worksheet included? (CEC[12] 220) Yes ☐ No ☐
2) Based on the load calculation worksheet, is a new electrical service panel upgrade required[13]? Yes ☐ No ☐
    a. If yes to Q2, do plans include the electrical service panel upgrade? Yes ☐ No ☐
    b. If yes to Q2, is the PG&E work order included with permit application? Yes ☐ No ☐
3) Is the charging circuit appropriately sized for a continuous load (125%)? Yes ☐ No ☐
4) If charging equipment proposed is a DC Fast Charging station or a Level 2 - 9.6kW station with a circuit rating of 50 amps or higher, is a completed circuit card with electrical calculations included with the single-line diagram? Yes ☐ No ☐ Not Applicable ☐

SITE PLAN & SINGLE LINE DRAWING

1) Is a site plan and electrical plan with a single-line diagram included with the permit application? Yes ☐ No ☐
    a. If mechanical ventilation requirements are triggered for indoor venting requirements (CEC 625.29 (D)), is a mechanical plan included with the permit application? Yes ☐ No ☐
2) Is the site plan fully dimensioned and drawn to scale? Yes ☐ No ☐
    a. Showing location, size, and use of all structures? Yes ☐ No ☐
    b. Showing location of electrical panel to charging system? Yes ☐ No ☐
    c. Showing type of charging system and mounting? Yes ☐ No ☐
    d. Is the type of mounting for charging system included if the charging system is not wall-mounted? Yes ☐ No ☐ Not Applicable ☐

COMPLIANCE WITH 2016 CALIFORNIA ELECTRCIAL CODE

1) Does the plan include EVCS manufacturer's specs and installation guidelines? Yes ☐ No ☐
2) Does the electrical plan identify the amperage and location of existing electrical service panel? Yes ☐ No ☐
    a. If yes to Q2, does the existing panel schedule show room for additional breakers? Yes ☐ No ☐
    b. Are sizes for the conduit and conductor included? Yes ☐ No ☐
3) Is the charging unit rated more than 60 amps or more than 150V to ground? Yes ☐ No ☐
    a. If yes to Q3, are disconnecting means provided in a readily accessible location in line of site and within 50’ of EVCS? (CEC 625.23) Yes ☐ No ☐
4) Does the charging equipment have a Nationally Recognized Testing Laboratory (NRTL) approved listing mark? (UL 2202/UL 2200) Yes ☐ No ☐
5) If trenching is required, is the trenching detail called out? Yes ☐ No ☐

[12] 2016 California Electrical Code. Article 220 Branch-Circuit, Feeder, and Service Calculations

[13] Load Calculation Worksheet review instructions: The size of the existing service MUST be equal to or larger than the minimum required size of main service breaker. If the existing service panel is smaller than the minimum required size of existing electrical services, then a new upgraded electrical service panel must be installed in order to handle the added electrical load from the proposed EVCS.

a. Is the trenching in compliance with electrical feeder requirements from structure to structure? (CEC 225) Yes ☐ No ☐

b. Is the trenching in compliance of minimum cover requirements for wiring methods or circuits? (18" for direct burial per CEC 300) Yes ☐ No ☐

6) Has physical protection or bollards been installed to prevent vehicle impact to equipment? (CEC 110.27 (B)) Yes ☐ No ☐ Not Applicable ☐

7) Has the equipment been mounted with the appropriate vertical clearance at a height of 18-48 inches above the finished floor? (CEC 625.50) Yes ☐ No ☐Not Applicable ☐

8) Has a disconnect been installed in a readily accessible location for EVCS system that is rated more than 60 amps or more than 150 Volts to ground? (CEC 625.23) Yes ☐ No ☐

a. Is the location of the disconnect in a readily accessible location in line of site and within 50'of the EVCS? Yes ☐ No ☐

b. Are main service disconnects installed per CEC 230.71, 72? Yes ☐ No ☐

i. Are they grouped? Yes ☐ No ☐

ii. Are there more than 6 disconnect sets in any group? Yes ☐ No ☐

COMPLIANCE WITH 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE

1) Do CALGreen EV Readiness installation requirements apply to this project? Yes ☐ No ☐

2) Do the plans demonstrate conformance with Table 5.105.5.3.3 (below) for the minimum required number of charging stations?

Table 5.105.5.3.3

Total Number of Actual Parking Spaces	**Number of Required EV Charging Spaces**
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 and over	6% of total (rounded up to the nearest whole number)

3) Do the construction plans comply with the design requirements set forth in 5.106.5.3.1 for single charging spaces or 5.106.5.3.2 for multiple charging stations?

COMPLIANCE WITH 2016 CALIFORNIA BUILDING CODE, CHAPTER 11B ACCESSIBILITY REQUIREMENTS

1) Is there at least 1 EVCS parking stall out of 4 EVCS parking stalls that meet Chapter 11B accessibility dimension requirements for a van accessible parking space (144 inches wide with an adjacent access aisle)? Yes ☐ No ☐

a. Access aisles shall comply with Section 11B-302.

2) For parking stalls with 5 to 25 EVCS, is there 1 EVCS parking stalls that meets Chapter 11B accessibility dimension requirements for a van accessible parking space (144 inches wide with an adjacent access aisle) and 1 EVCS parking stall that meets the standard accessible parking space (108 inches wide with an adjacent access aisle)? Yes ☐ No ☐

3) Is the path of travel to the EVCS from the accessible parking stall demonstrated to be unobstructed? Yes ☐ No ☐

4) Is the accessible path of travel from the EVCS parking stall demonstrated to be with 200 feet of a main building entrance? Yes ☐ No ☐

Notes:

_____
_____
_____

Applicable Code Sections for Reference

CalGreen

CalGreen[14] Chapter or Article	Description
Residential	
4.106.4	**ELECTRIC VEHICLE (EV) CHARGING FOR NEW CONSTRUCTION** New construction shall comply with Sections 4.106.4.1 and 4.106.4.2 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625. Exceptions: On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions: 1. Where there is no commercial power supply. 2. Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than $400.00 per dwelling unit.
4.106.4.1	**NEW ONE-AND-TWO FAMILY DWELLINGS AND TOWNHOUSES WITH ATTACHED PRIVATE GARAGES.** For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240 volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The race shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed spaces. 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. **4.106.4.1.1 Identification**. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".
4.106.4.2	**NEW MULTIFAMILY DWELLINGS.** Where 17 or more multifamily dwellings are constructed on a building site, 3 percent of the total number of parking spaces provided for all types of parking facilities, but in no less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. Note: Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.
4.106.4.2.1	**Electric vehicle charging space (EV space) locations**. Construction documents shall indicate the location of proposed EV spaces. At least one EV space shall be located in common use areas and available for use by all residents. When EV chargers are

[14] California Green Building Standards Coe (http://www.bsc.ca.gov/Codes)

	installed, EV spaces required by Section 4.106.4.2.2, Item 3, shall comply with at least one of the following options: 1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. 2. The EV space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.
4.106.4.2.2	**Electric vehicle charging space (EV space) dimensions**. The EV spaces shall be designed to comply with the following: 1. The minimum length of each EV space shall be 18 feet (5486 mm). 2. The minimum width of each EV space shall be 9 feet (2743 mm). 3. One in every 25 EV spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm). a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.
4.106.4.2.3	**Single EV space required**. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV spaces. Construction documents shall identify the raceway termination point. 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.
Residential Voluntary Measures	
A4.106.8.1	Tier 1 and 2 for one- and two-family dwellings and townhouses with attached private garages. Install a dedicated 208/240-volt branch circuit, including an overcurrent protective device rated at 40 amperes minimum per dwelling unit. See section for complete language.
A4.106.8.2	Tier 1 and Tier 2 for multifamily dwellings. Provide capability for future electric vehicle charging in 5 percent of total parking spaces, as specified. See section for complete language.
Nonresidential Voluntary Measures	
5.106.5.3	Electric Vehicle (EV) charging. Requirements similar to 4.106.4 for single space. See section 5.106.5.3.2 for multiple charging space requirements.
A5.106.5.3	Tier 1 and 2 requirements. A5.106.5.3.1 Tier 1. per Table A5.106.5.3.1 (approx. 8%) A5.106.5.3.2 Tier 2. per Table A5.106.5.3.2 (approx. 10%) A5.106.5.3.3 Identification. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV CAPABLE.” The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.” See section A5.106.5.3 for complete language.

California Building Code

California Building Code[15] Chapter or Section	Description
Energy Code, Part 6 Section 141(b)2P Electrical Power Distribution Systems	
Section 141.0(b)2Piii.	Voltage Drop. Alterations of feeders and branch circuits where the alteration includes addition, modification, or replacement of both feeders and branch circuits, the altered circuits shall meet the requirements of Section 130.5(c), where the maximum combined voltage drop on both installed feeder conductors and branch circuit conductors to the farthest connected load or outlet shall not exceed 5 percent. EXCEPTION to Section 141.0(b)2Piii: Voltage drop permitted by California Electrical Code Sections 647.4, 695.6 and 695.7.
11B-812 Electric vehicle charging stations	
11B-812.1	**GENERAL** Electric vehicle charging stations (EVCS) shall comply with Section 11B-812 as required by Section 11B-228.3. Where vehicle spaces and access aisles are marked with lines, measurements shall be made from the centerline of the markings. **Exception:** Where vehicle spaces or access aisles are not adjacent to another vehicle space, access aisle, or parking space, measurements shall be permitted to include the full width of the line defining the vehicle space or access aisle.
11B-812.2	**OPERABLE PARTS** Operable parts shall comply with Section 11B-309.
11B-812.3	**FLOOR OR GROUND SURFACES** Vehicle spaces and access aisles serving them shall comply with Section 11B-302. Access aisles shall be at the same level as the vehicle space they serve. Changes in level, slopes exceeding 1:48, and detectable warnings shall not be permitted in vehicle spaces and access aisles.
11B-812.4	**VERTICAL CLEARANCE** Vehicle spaces, access aisles serving them, and vehicular routes serving them shall provide a vertical clearance of 98 inches (2489 mm) minimum. Where provided, overhead cable management systems shall not obstruct required vertical clearance.
11B-812.5	**ACCESSIBLE ROUTES** **11B-812.5.1 Accessible route to building or facility.** EVCS complying with Section 11B-812 that serve a particular building or facility shall be located on an accessible route to an entrance complying with Section 11B-206.4. Where EVCS do not serve a particular building or facility, EVCS complying with Section 11B-812 shall be located on an accessible route to an accessible pedestrian entrance of the EV charging facility. **Exception:** EVCS complying with Section 11B-812 shall be permitted to be located in different EV charging facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, charging fee, and user convenience. **11B-812.5.2 Accessible route to EV charger**

[15] 2016 California Building Standards Code (Cal. Code Regulations., Title 24 Part 2, Vol. 1) (http://www.bsc.ca.gov/Codes)

	An accessible route complying with Section 11B-402 shall be provided between the vehicle space and the EV charger which serves it. **11B-812.5.3 Relationship to accessible routes** Vehicle spaces and access aisles shall be designed so that when the vehicle space is occupied the required clear width of adjacent accessible routes is not obstructed. A curb, wheel stop, bollards, or other barrier shall be provided if required to prevent encroachment of vehicles over the required clear width of adjacent accessible routes. **11B-812.5.4 Arrangement** Vehicle spaces and access aisles shall be designed so that persons using them are not required to travel behind vehicle spaces or parking spaces other than the vehicle space in which their vehicle has been left to charge. **Exceptions:** 1. Ambulatory EVCS shall not be required to comply with Section 11B-812.5.4. 2. Vehicle spaces installed in existing facilities shall comply with Section 11B-812.5.4 to the maximum extent feasible. **11B-812.5.5 Obstructions** EVCS shall be designed so accessible routes are not obstructed by cables or other elements.
11B-812.6	**VEHICLE SPACES.** Vehicle spaces serving van accessible, standard accessible, ambulatory and drive-up EVCS shall be 216 inches (5486 mm) long minimum and shall comply with Sections 11B-812.6.1 through 11B-812.6.4 as applicable. All vehicle spaces shall be marked to define their width. **Exceptions:** 1. Where the long dimension of vehicle spaces is parallel to the traffic flow in the adjacent vehicular way, the length of vehicle spaces shall be 240 inches (6096 mm) minimum. 2. Vehicle spaces at drive-up EVCS shall be 240 inches (6096 mm) long minimum and shall not be required to be marked to define their width. **11B-812.6.1 Van accessible** Vehicle spaces serving van accessible EVCS shall be 144 inches (3658 mm) wide minimum and shall have an adjacent access aisle complying with Section 11B-812.7. **11B-812.6.2 Standard Accessible** Vehicle spaces serving standard accessible EVCS shall be 108 inches (2743 mm) wide minimum and shall have an adjacent access aisle complying with Section 11B-812.7. **11B-812.6.3 Ambulatory** Vehicle spaces serving ambulatory EVCS shall be 120 inches (3048 mm) wide minimum and shall not be required to have an adjacent access aisle. **11B-812.6.4 Drive-Up** Vehicle spaces serving drive-up EVCS shall be 204 inches (5182 mm) wide minimum and shall not be required to have an adjacent access aisle.
11B-812.7	**ACCESS AISLE** Access aisles shall adjoin an accessible route. Two vehicle spaces shall be permitted to share a common access aisle. Access aisles shall be 60 inches (1524 mm) wide minimum and shall extend the full required length of the vehicle spaces they serve. **11B-812.7.1 Location**

	Access aisles at vehicle spaces shall not overlap the vehicular way and may be placed on either side of the vehicle space they serve except for van accessible spaces which shall have access aisles located on the passenger side of the vehicle spaces. **11B-812.7.2 Marking** Access aisles at vehicle spaces shall be marked with a painted borderline around their perimeter. The area within the borderlines shall be marked with hatched lines a maximum of 36 inches (914 mm) on center. The color of the borderlines, hatched lines, and letters shall contrast with that of the surface of the access aisle. The blue color required for identification of access aisles for accessible parking shall not be used. Access aisle markings may extend beyond the minimum required length. **11B-812.7.3 Lettering** The words "NO PARKING" shall be painted on the surface within each access aisle in letters a minimum of 12 inches (305 mm) in height and located to be visible from the adjacent vehicular way.
11B-812.8	**IDENTIFICATION SIGNS** EVCS identification signs shall be provided in compliance with Section 11B-812.8. **11B-812.8.1 Four or fewer** Where four or fewer total EVCS are provided, identification with an International Symbol of Accessibility (ISA) shall not be required. **11B-812.8.2 Five to twenty-five** Where five to twenty-five total EVCS are provided, one van accessible EVCS shall be identified by an ISA complying with Section 11B-703.7.2.1. The required standard accessible EVCS shall not be required to be identified with an ISA. **11B-812.8.3 Twenty-six or more** Where twenty-six or more total EVCS are provided, all required van accessible and all required standard accessible EVCS shall be identified by an ISA complying with Section 11B-703.7.2.1. **11B-812.8.4 Ambulatory** Ambulatory EVCS shall not be required to be identified by an ISA. **11B-812.8.5 Drive-Up** Drive-up EVCS shall not be required to be identified by an ISA. **11B-812.8.6 Finish and size** Identification signs shall be reflectorized with a minimum area of 70 square inches (45,161 mm2). **11B-812.8.7 Location** Required identification signs shall be visible from the EVCS it serves. Signs shall be permanently posted either immediately adjacent to the vehicle space or within the projected vehicle space width at the head end of the vehicle space. Signs identifying van accessible vehicle spaces shall contain the designation "van accessible." Signs shall be 60 inches (1525 mm) minimum above the finish floor or ground surface measured to the bottom of the sign. Signs located within an accessible route shall be 80 inches (2032 mm) minimum above the finish floor or ground surface measured to the bottom of the sign. Signs may also be permanently posted on a wall at the interior end of the vehicle space.
11B-812.9	**SURFACE MARKING** EVCS vehicle spaces shall provide surface marking stating "EV CHARGING ONLY" in letters 12 inches (305 mm) high minimum. The centerline of the text shall be a maximum of 6inches (152 mm) from the centerline of the vehicle space and its lower corner at, or lower side aligned with, the end of the parking space length.

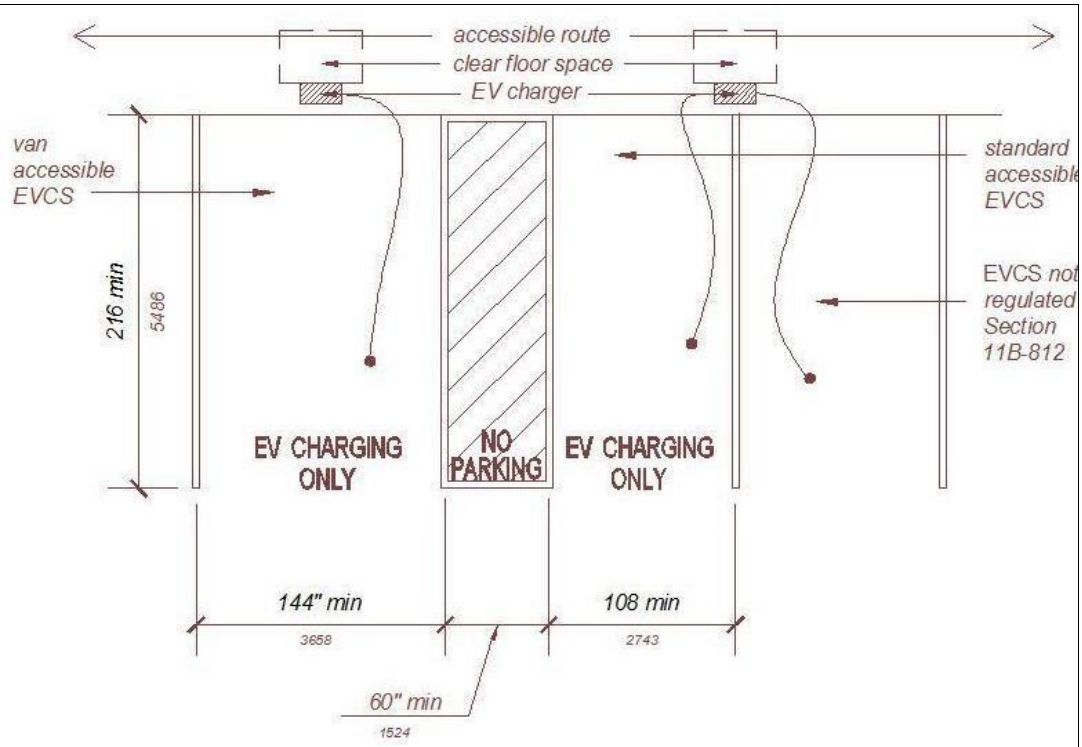


FIGURE 11B-812.9

11B-812.10

ELECTRIC VEHICLE CHARGERS

11B-812.10.1 General

EV chargers shall comply with Section 11B-812.10.

11B-812.10.2 Operable Parts

Operable parts and charging cord storage shall comply with Section 11B-309.

11B-812.10.3 Point-of-sale devices

Where provided, point-of-sale devices shall comply with Sections 11B-707.2, 11B-707.3, 11B-707.7.2, and 11B-707.9.

11B-812.10.4 Location

EV chargers shall be adjacent to, and within the projected width of the vehicle space being served.

Exceptions:

1. EV chargers serving more than one EVCS shall be adjacent to, and within the combined projected width of the vehicle spaces being served.
2. For alterations at existing facilities where an accessible route or general circulation path is not provided adjacent to the head end of the vehicle space or access aisle, the EV charger may be located within the projected width of the access aisle 36 inches (914 mm) maximum from the head end of the space.
3. Where the long dimension of a vehicle space is parallel to the vehicular way, the EV charger shall be adjacent to, and 48 inches (1219 mm) maximum from the head end or foot end of the vehicle space or access aisle being served.

	TABLE 11B·228.3.2.1 ***ELECTRIC VEHICLE CHARGING STATIONS FOR PUBLIC USE AND COMMON USE***

	MINIMUM NUMBER (by type) OF EVCS REQUIRED TO COMPLY WITH SECTION 11B-228.3.2.1		
***TOTAL NUMBER* OF EVCS AT A FACILTY'**	***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
1. 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.			

11B-309

OPERABLE PARTS

11B-309.1 General

Operable parts shall comply with Section 11B-309.

11B-309.2 Clear floor space

A clear floor or ground space complying with Section 11B-305 shall be provided.

***11B*-305.1 General.** Clear floor or ground space shall comply with *Section 11B*-305.

***11B*-305.2 Floor or ground surfaces.** Floor or ground surfaces of a clear floor or ground space shall comply with *Section 11B*-302. Changes in level are not permitted.

Exception: Slopes not steeper than 1:48 shall be permitted.

***11B*-305.3 Size.** The clear floor or ground space shall be 30 inches (*762* mm) minimum by 48 inches (*1219* mm) minimum.

***11B*-305.4 Knee and toe clearance.** Unless otherwise specified, clear floor or ground space shall be permitted to include knee and toe clearance complying with *Section 11B*-306.

***11B*-305.5 Position.** Unless otherwise specified, clear floor or ground space shall be positioned for either forward or parallel approach to an element.

***11B*-305.6 Approach.** One full unobstructed side of the clear floor or ground space shall adjoin an accessible route or adjoin another clear floor or ground space. *Clear floor or ground space may overlap an accessible route, unless specifically prohibited elsewhere in this chapter.*

***11B*-305.7 Maneuvering clearance.** Where a clear floor or ground space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearance shall be provided in accordance with *Sections 11B*-305.7.1 and *11B*-305.7.2.

***11B*-305.7.1 Forward approach.** Alcoves shall be 36 inches (*914* mm) wide minimum where the depth exceeds 24 inches (610 mm).

***11B*-305.7.2 Parallel approach.** Alcoves shall be 60 inches (*1524* mm) wide minimum where the depth exceeds 15 inches (*381* mm).

11B-309.3 Height

	Operable parts shall be placed within one or more of the reach ranges specified in Section 11B-308. ***11B*-308 Reach ranges** ***11B*-308.1 General.** Reach ranges shall comply with *Section 11B*-308. **11B-308.1.1 Electrical switches.** Controls and switches intended to be used by the occupant of a room or area to control lighting and receptacle outlets, appliances or cooling, heating and ventilating equipment, shall comply with Section 11B-308 except the low reach shall be measured to the bottom of the outlet box and the high reach shall be measured to the top of the outlet box. **11B-308.1.2 Electrical receptacle outlets.** Electrical receptacle outlets on branch circuits of 30 amperes or less and communication system receptacles shall comply with Section 11B-308 except the low reach shall be measured to the bottom of the outlet box and the high reach shall be measured to the top of the outlet box. ***11B*-308.2 Forward reach.** ***11B*-308.2.1 Unobstructed.** Where a forward reach is unobstructed, the high forward reach shall be 48 inches (*1219* mm) maximum and the low forward reach shall be 15 inches (*381* mm) minimum above the finish floor or ground. ***11B*-308.2.2 Obstructed high reach.** Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (*1219* mm) maximum where the reach depth is 20 inches (*508* mm) maximum. Where the reach depth exceeds 20 inches (*508* mm), the high forward reach shall be 44 inches (*1118* mm) maximum and the reach depth shall be 25 inches (635 mm) maximum. ***11B*-308.3 Side reach.** ***11B*-308.3.1 Unobstructed.** Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 48 inches (*1219* mm) maximum and the low side reach shall be 15 inches (*381* mm) minimum above the finish floor or ground. **Exceptions:** 1. An obstruction shall be permitted between the clear floor or ground space and the element where the depth of the obstruction is 10 inches (*254* mm) maximum. 2. Operable parts of fuel dispensers shall be permitted to be 54 inches (*1372* mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs. **11B-308.3.2 Obstructed high reach.** Where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (864 mm) maximum and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1219 mm) maximum for a reach depth of 10 inches (254 mm) maximum. Where the reach depth exceeds 10 inches (254 mm), the high side reach shall be 46 inches (1168 mm) maximum for a reach depth of 24 inches (610 mm) maximum. **Exceptions**: 1. The top of washing machines and clothes dryers shall be permitted to be 36 inches (914 mm) maximum above the finish floor.

	2. Operable parts of fuel dispensers shall be permitted to be 54 inches (1372 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs. **11B-309.4 Operation** Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum. **Exception**: Gas pump nozzles and electric vehicle connectors shall not be required to provide operable parts that have an activating force of 5 pounds (22.2 N) maximum.

Guidelines for Accessibility and ADA Compliance

EV Charging Stations must comply with provisions of the Americans with Disabilities Act (ADA). In 2013, the Governor's Office of Planning and Research, in cooperation with the Division of the State Architect, issued draft guidelines entitled, *Plug---in Electric Vehicles: Universal Charging Access Guidelines and Best Practices* https://www.opr.ca.gov/docs/ZEV_Guidebook.pdf

The Guidelines begin with a clear advisory regarding the positive mandate to provide ADA accessibility.

ADVISORY: EVG---250 Electric Vehicle Charging Stations. A reasonable portion of Electric Vehicle Charging Stations are required to be accessible. If provided by a state or local government on public property or on---street within the public right of way, vehicle charging is considered a program or service that must be accessible to and useable by individuals with disabilities. Accessibility covers not just the physical dimensions of the charging station, and operable parts of the device, but also the functionality of the 'self---contained, closed product' charging system. If provided at privately owned or operated public accommodations they must also be accessible as a service provided to the general public.

Accessibility standards can now be found in the 2016 California Building Code Section 11B-812 Electric Vehicle Charging Stations.

Introduction to the ADA: The Americans with Disabilities Act (ADA) became federal law in 1990 with the intent to prohibit discrimination of individuals on the basis of disabilities. Title I of the ADA prohibits private employers, state and local governments, employment agencies and labor unions from discriminating against qualified individuals with disabilities in job application procedures, hiring, firing, advancement, compensation, job training, and other terms, conditions, and privileges of employment. The ADA covers employers with 15 or more employees, including state and local governments.

An employer is required to make a reasonable accommodation to the known disability of a qualified applicant or employee if it would not impose an "undue hardship" on the operation of the employer's business. Reasonable accommodations are adjustments or modifications provided by an employer to enable people with disabilities to enjoy equal employment opportunities. The Equal Employment Opportunity Commission (EEOC) is the enforcing agency for Title I.

Title II of the ADA addresses State and local government services, and Title III addresses places of public accommodation and commercial facilities. Under titles II and III of the ADA, the

Access Board develops and maintains accessibility guidelines for buildings, facilities, and transit vehicles and provides technical assistance and training on these guidelines. The Department of Justice (DOJ) is

the enforcing agency for Title II, and the Department of Transportation, along with the DOJ are the enforcing agencies for Title III.

Accessible Electric Vehicle Charging Stations

Since public charging stations offer a service to the general public, the ADA prohibits discrimination of individuals on the basis of disabilities. Accessibility standards specific to public electric vehicle charging stations are in the California Building Code Part 2 Vol. 1 Chapter 11B Section 812.

New Construction or Alterations

- Electric Vehicle Charging Station (EVCS): The number of charging ports that can simultaneously charge vehicles are considered the number of EVCS at a facility for regulatory purposes
- When EVCSs are installed, accessible EVCSs complying with Table 11B-228.3.2.1 shall be provided.
- Exception: EVCSs not available to general public or for the owner of a residence in public housing need not comply. However, there may be future obligation for "reasonable accommodation" request based on ADA Title I Employment provisions.
- When new EVCSs are added to a site with existing EVCSs, total of new + existing EVCSs used for scoping.
- Technical provisions apply only to new EVCSs; no requirement to retrofit existing EVCSs unless they are altered or upgraded.
- Operable parts on ALL new EVCSs must comply with Operable Parts requirements in 11B-309.4.

EVCS Installation Example #1

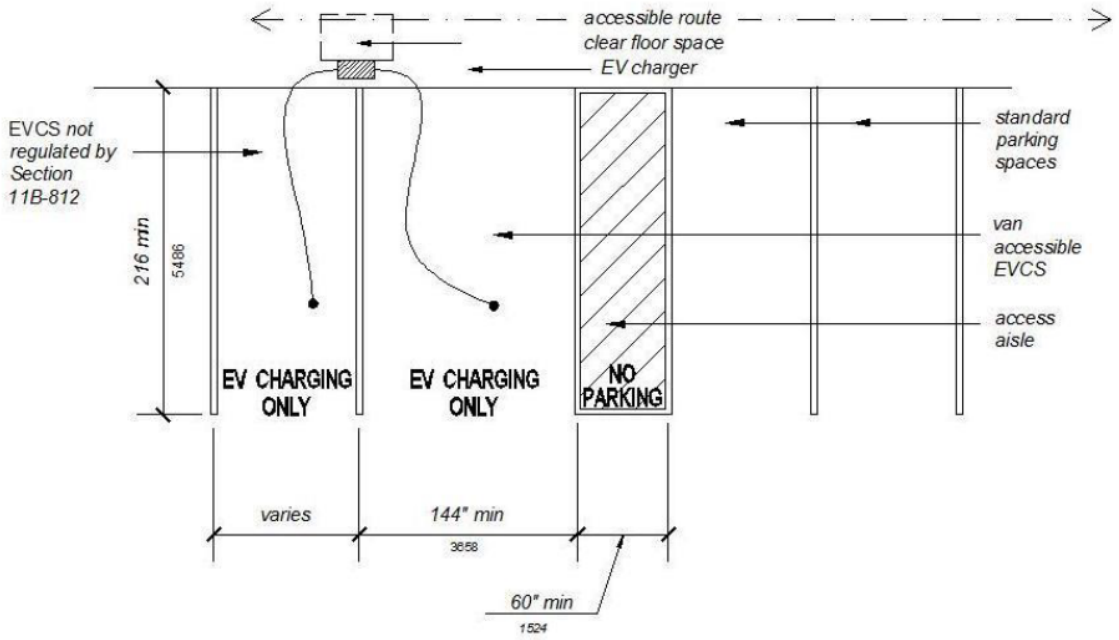
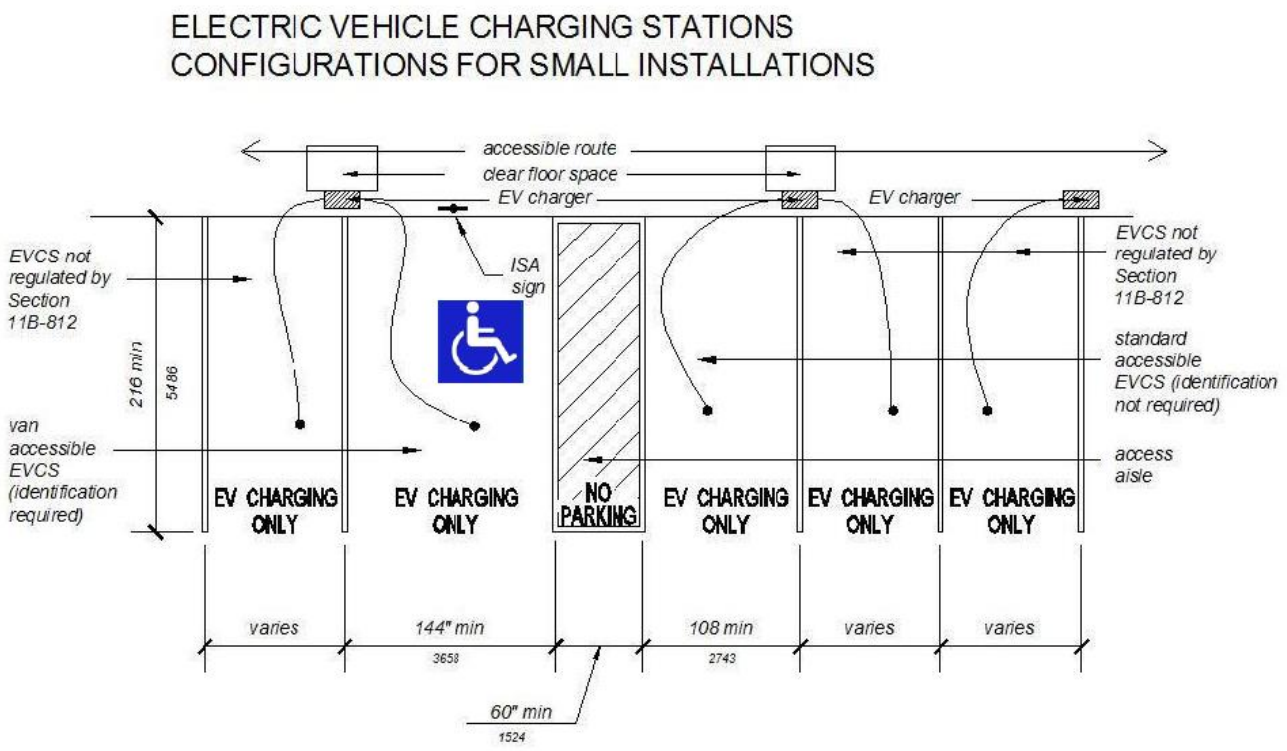


Image Example from DGS Presentation

No ISA (International Symbol of Accessibility – blue placard) required for installations of 1 to 4 EVCS, accessible EVCS available to all.

EVCS Installation Example #2

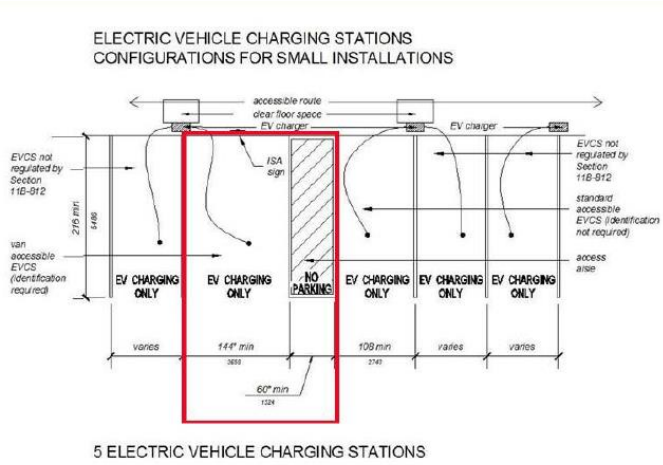


ISA required for installations of 5 or more EVCS

Scoping Provisions – EVCS Types

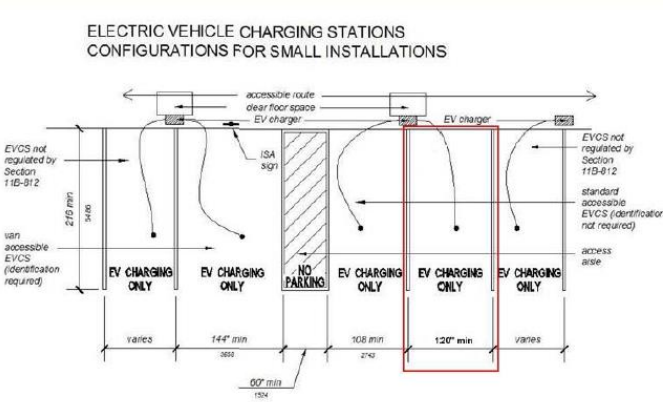
<u>Van Accessible</u>

- 12 feet (144 inches) minimum width
- 18 feet (216 inches) minimum length
- Access aisle 5 foot (60 inches) minimum width located on passenger side with head-in parking, may be shared with another EVCS vehicle space
- Accessible route requirements to EVSE and areas served by EVCS



Standard Accessible

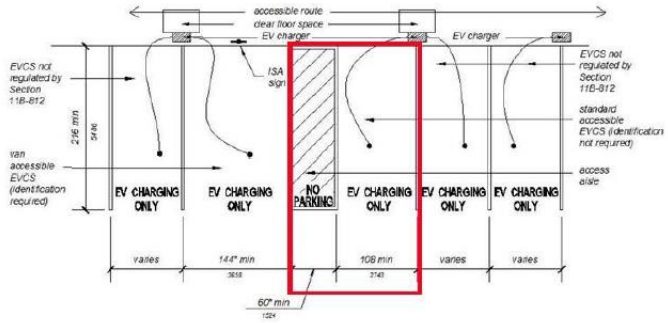
- 9 feet (108 inches) minimum width
- 18 feet (216 inches) minimum length
- Access aisle 5 foot (60 inches) minimum width either side of space, can be shared with another EVCS space
- Accessible route requirements to EVSE and areas served by EVCS



Ambulatory

No comparable requirement in accessible parking.

- 10 feet (120 inches) minimum width
- 18 feet (216 inches) minimum length
- No access aisle required; additional width of space provides increased access for individuals with limited or temporary mobility challenges
- Accessible route requirements to EVSE, facility entrance or site arrival point



Drive-Up

No comparable requirement in accessible parking, analogous to motor fuel pump island at filling stations.

- 17 feet wide (204 inches)
- 18 feet long (216 inches)
- No access aisle required
- Accessible route requirements to EVSE, facility entrance or site arrival point

EVCS Designated for the Disabled

EVCS for the exclusive use of the disabled shall be identified by a sign mounted International Symbol of Accessibility (ISA).

- 11B-812.8 Identification provides for EVCS reserved for use by the disabled.
- Table 11B-812.8 indicates type and number of EVCS that must be identified with an ISA.
- No ISA required for small scale installations with 1 to 4 EVCS, accessible EVCS available to all.

If properly signed per local ordinance, EVCS charging time limits apply to all users:

- Vehicle Code Section 22511.5 -Vehicles with disabled placards or license plates may park for unlimited periods of time in zones where the length of time is restricted or metered.
- EVCSs are “zones reserved for special types of vehicles”, per DMV, in which right to park for unlimited periods of time does not apply.

Path of Travel

- A Path of Travel (POT) needs to be present from an Accessible EVCS to the nearest Accessible Path of Travel.
- Exceptions
    - EVCS installations at facilities where vehicle fueling, recharging, parking or storage is NOT a primary function: Compliance with 11B-202.4 for POT upgrades not required.
    - EVCS installations at facilities where vehicle fueling, recharging, parking or storage is a primary function: Cost of compliance for required POT elements is limited to 20% of the adjusted construction cost.

Upgrade of Existing EVCSs

EVCSs not considered “site arrival points” per US Access Board.

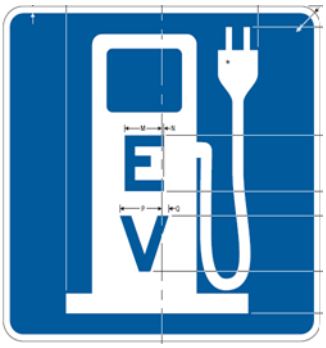
•Upgrade of existing EVCSs as POT elements is not triggered by alteration projects under 11B-202.4.

•Upgrades may be required when existing EVCSs are updated or altered.

EV Related Signage

Local and State agencies posting guidance or regulatory signs on public roadways, must do so in conformance with the current edition of the California Manual on Uniform Traffic Control Devices (CA MUTCD). Sign sizes, shapes and colors vary based upon the type of message, whether an international symbol exists, and the type of roadway where the sign is to be used.
http://www.dot.ca.gov/trafficops/policy/13-01.pdf

General Service Sign approved in the California MUTCD



G66-21B (CA)

Regulatory Signs

Regulatory signs are required for enforcing the time duration and days that electric vehicles are permitted to park and/or charge at public charging stations. Qualifying electric vehicles should be defined in local codes, and their charging status addressed (plugged in and charging, not charging, disconnected, etc.)

R-112 (CA)

R-113 (CA)

R-114 (CA)

References

Governor's Office of Planning and Research
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Association of Bay Area Governments
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