Building Department

390 Towne Centre Dr, Lathrop, CA 95330
Phone: (209) 941-7270

ONE- & TWO-FAMILY RESIDENTIAL ELECTRIC VEHICLE CHARGING SYSTEMS (EVCS) PERMITTING GUIDELINES & EXPEDITED PERMITTING ELIGIBILITY

These Guidelines clarify the Permitting Requirements for Residential One- & Two-Family Homes, as well as provide a basis for Expedited Permitting qualifications, for installations of Electric Vehicle Charging Systems (EVCS).

An Electrical Permit is required for an Electric Vehicle Charging System (EVCS) to be installed at a residential home. All work shall be done in accordance with Article 625 of the current California Electric Code. There are separate requirements for Multi-Family Homes, Hotels & Motels, and Commercial Developments; please only refer to these Guidelines if you are planning to install an EVCS at your one- or two-family residential home.

A CA Licensed Electrical Contractor (C-10) is recommended to provide a preliminary consultation for permits, and the installation of the EVCS. Electrical Contractors have a specific California Contractor's License designation, perform work such as placing installing, erecting, or connecting electrical appliances and components. General Contractors that have a "B" License cannot pull permits for work that is primarily electrical unless there are unrelated trades in the project with carpentry as the primary trade.

Preliminary Steps to Installing Residential EVCS

Before a Residential EVCS permit is applied for, it is necessary to evaluate the home's electrical service to verify if it will be adequate for the new electrical demands of the charging device. This can be confirmed by completing the **Residential Electrical Load Calculation Worksheet** attached in these Guidelines. Depending on the charging requirements that a vehicle needs, a residential home's Electrical Service Panel may need to be upgraded or replaced to accommodate the Electrical Vehicle Supply Equipment (EVSE), consisting of the connector, cord, and interface to utility power, recommended for the vehicle.

There are two levels of EVCS for Single-Family Homes (one- and two- family dwellings) installations:

- **Level 1 Charging:** (120 VAC, 15/20 A), this is the standard electrical outlet found in most homes. This charging level can take 8-15 hours to fully charge a vehicle, depending on how drained the battery is and the size of the battery.
- **Level 2 Charging:** (240 VAC, 40A or larger), many newer homes use this type of outlet for a clothes dryer. This level of charging can take 4-6 hours to fully charge a vehicle, depending on how drained the battery is and the size of the battery.

Prior to starting your project, determine the type of charging system to install, as each Level of Charging requires different information when applying for a permit. See the Submittal Checklist section of these Guidelines for submittal requirements.

Expedited Permitting Eligibility

As required by AB 1236 & AB 970, an Expedited Permitting Process is in place to minimize timelines of plan review and approvals for EVCS. Please refer to the Eligibility Checklist for Expedited Permitting section of these Guidelines for more information.

RESIDENTIAL EV CHARGING SYSTEMS (EVCS) GUIDELINES

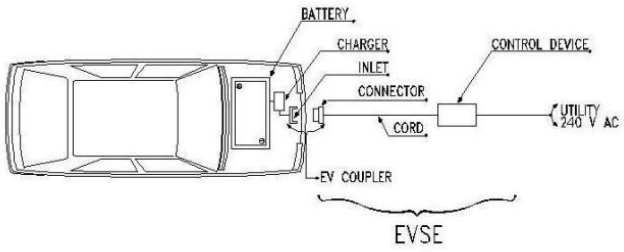
Submittal Checklist for EVCS Permitting

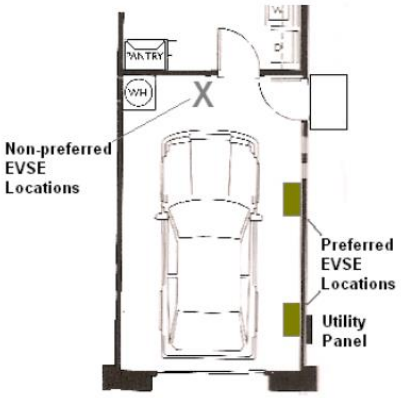
Please refer to the General Building Permit Submittal Guidelines before submitting for Application, to avoid delays in the permitting process for your project.

When submitting for a Residential EVCS, make sure to include all the following:

- □ A Completed Permit Application
- □ A Completed Owner-Builder Form (if applicable)
- □ EV Charging System Information
  - Indicate whether EVCS is Level 1 or Level 2
  - EVSE System with UL Listed Number or other approved Nationally Recognized Testing Laboratory (NRTL), in compliance with UL2202, "Standard for Electric Vehicle (EV) Charging System Equipment"
- □ The Manufacturer's Installation Guidelines
  - The Manufacturer's Installation Guidelines **must** be available at the site for the Building Inspector
- □ Site Plan, showing the house on the property, service lines, and proposed location of EVSE
  - Level 2 Chargers require a Single-Line Diagram Electrical Plan, showing the Service Size, EV Breaker Size, EV Conductor Size, Number of Conductors, and EVSE
- □ Completed Electrical Load Calculation Worksheet (attached)
  - If the Electrical Service Panel is not adequate for the installation of the EVSE (i.e. the existing service is less than 200 amps and/or the EV Charger circuit is over 30 amps) an additional permit will be required for an Electrical Service Panel Upgrade
    - Note: Some manufacturers require a minimum service size of 200A. Identify if a second electric meter is being installed, and check with PG&E or LID for their requirements
- □ Existing Electrical Service Panel size and location at the residence, including the EVSE load and circuit size
  - Level 1 Chargers require a 120v Dedicated 20 amp Circuit
  - Level 2 Chargers require a 240v Dedicated Circuit
- □ Clarify EVSE Location and Wiring Method. EVSE shall be installed in accordance with the Manufacturer's Guidelines and must be suitable for the location (indoor/outdoor)
- □ All new electrical wiring, including a Service Panel Upgrade, if necessary, shall be in conformance with the current California Electrical Code

Typical Installation Criteria for a Residential EVSE Installation:





ELECTRICAL LOAD CALCULATION WORKSHEET

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RESIDENTIAL ELECTRICAL LOAD CALCULATION

Based on the current California Electrical Code (CEC), Article 220 Optional Method

Permit #: _____ Address: _____

Contractor/Owner: _____ Date: _____

Phone #: _____ Email: _____

Total Floor Area of Dwelling: _____ sqft. Size of Service Panel: _____ amps

	Quantity			Load (In Volt Amperes)	Results (in VA)	
GENERAL LIGHTING						
1. General Lighting		Sqft.		3 VA/Sqft		
2. Small Appliance		Each		1500 VA		
3. Laundry		Each		1500 VA		
4. Total General Lighting Load (Add Lines 1, 2, & 3)						
5. First 3000VA @ 100%					3000 VA	
6. Total General Lighting Load @ 35% = (Line 5 – Line 4) x 35% =						
7. Net General Lighting Load (Per CEC §220.42) (add Lines 5 & 6):						
FIXED APPLIANCES						
Dishwasher		Each		1200 VA or NPR		
Disposal		Each		900 VA or NPR		
Microwave		Each		1500 VA or NPR		
Water Heater		Each		4500 VA or NPR		
Freezer		Each		1200 VA or NPR		
Other: _____		Each		_____ VA		
Other: _____		Each		_____ VA		
8. 3 or less Appliances, Total Appliance (VA) 4 or more Appliances, 75% of Total Appliance (VA) (Per CEC §220.53):						
OTHER LOADS (COOKING EQUIPMENT, MOTORS, EV CHARGERS, ETC.)						
9. Cook Top		Each		4000 VA or NPR		
10. Oven – Single		Each		8000 VA or NPR		
11. Oven - Double		Each		12000 VA or NPR		
12. Range		Each		12000 VA or NPR		
13. Dryer		Each		5000 VA min.		
14. Spa (Electrical)*		Each		25000 VA		
15. Pool		Each		4800 VA		
16. EV Charger		Each		_____ VA		
17. 25% of Largest Motor (Per CEC §430.24):						
Total Service Loads (Add Lines 7, 8, 9 – 17)						
First 8000 @ 100% (Per CEC §220.83(A)):					8000 VA	
Remainder @ 40%:						
				TOTAL VA:		
AC @ 100%				Name Plate Rating:		
Total VA ÷ 230 volts:						
				TOTAL LOAD:		**amps**

*If Spa has gas heater use load of 8000VA

NPR = Name Plate Rating, Loads are based on Averages and Minimums, if known load is available use NPR value

RESIDENTIAL EVCS EXPEDITED PERMITTING

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ONE- & TWO-FAMILY RESIDENCES: ELECTRIC VEHICLE CHARGING SYSTEM (EVCS) ELIGIBILITY CHECKLIST FOR EXPEDITED PERMITTING

The purpose of this checklist is to determine the eligibility for expedited EVCS permitting. All questions requiring code compliance must comply to qualify for expedited review. If EVCS permit is eligible for expedited review, please submit this completed checklist along with your permit submittal.

Per AB 1236 and AB 970, Expedited Permitting has been established and specified turnaround times are given for EVCS Permitting. For Residential EVCS Permits, this timeline is shown below:

- **Application Completeness Check:** up to 5 business days
- **Permit Issuance:** up to 20 business days

These timelines are based on the specific binding timelines required by AB 970, for the review period of EVCS based on the size of the project. If the project does not qualify for Expedited Permitting, the Building Department's Current Standard Turnaround Times will apply to review timelines.

Note that if submittals are deemed Incomplete, or do not meet the Chief Building Official's minimal requirements of health and safety, it is the responsibility of the applicant to resubmit promptly, and turnaround times will be extended based on applicant resubmittal time.

Please complete this Checklist when submitting your application to request eligibility for Expedited Permitting.

Address: _____

TYPE OF CHARGING STATION(S)	POWER LEVELS (PROPOSED CIRCUIT RATING)	SELECT ONE
Level 1	110/120 volt alternating current (VAC) at 15 or 20 amps	
Level 2 – 3.3 kW (low)	208/240 VAC at 20 or 30 amps	
Level 2 – 6.6 kW (medium)	208/240 VAC at 40 amps	
Level 2 – 9.6 kW (high)	208/240 VAC at 50 amps	
Level 2 – 19.2 kW (highest)	208/240 VAC at 100 amps	
Other (Provide Detail)	Provide Rating:	

PERMIT APPLICATION	YES	NO
A. Does the Application include EVCS Manufacturer's Specs and Installation Guidelines?		
B. Is the Application complete with the following information: Project Address, Applicant/ Owner/ Contractor Name, License #, Phone Number, Email, etc.?		

ELECTRIC LOAD CALCULATION WORKSHEET	YES	NO
C. Is an Electrical Load Calculation Worksheet included? (CEC 220)		
D. Based on the Load Calculation Worksheet, is a new electrical service panel upgrade required?		
1) If yes, do plans include the electrical service panel upgrade?		
E. Is the charging circuit appropriately sized for a continuous load of 125%? (CEC 210.20)		

RESIDENTIAL EVCS EXPEDITED PERMITTING

F. 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?		

SITE PLAN & SINGLE-LINE DIAGRAM	YES	NO
G. Is a Site Plan and Electrical Plan with a Single-Line Diagram included with the Application?		
1) If mechanical ventilation requirements are triggered for indoor venting requirements (CEC 625.52), is a Mechanical Plan included with the Application?		
H. Is the Site Plan fully dimensioned and drawn to scale?		
1) Showing location, size, and use of all structure		
2) Showing location of electrical panel to charging system		
3) Showing location of charging system and mounting		

COMPLIANCE WITH CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3)	YES	NO
I. Does the Plan include EVCS Manufacturer's Specs and Installation Guidelines?		
J. Does the Electrical Plan identify the amperage and location of existing electrical service panel?		
1) If yes, does the existing panel schedule show room for additional breakers?		
K. Is the charging unit rated more than 60 amps or more than 150V to ground?		
1) If yes, are disconnecting means provided in a readily accessible location in line of site and within 50' of EVCS? (CEC 625.43)		
L. Does the charging equipment have a Nationally Recognized Testing Laboratory (NRTL) Approved Listing Mark? (UL 2202/ UL 2200)		
M. If trenching is required, is the trenching detail called out?*		
Check N/A if no trenching, Do not fill out last two questions below if N/A:	N/A	
1) Is the trenching in compliance with electrical feeder requirements from structure to structure? (CEC 225)		
2) Is the trenching in compliance with minimum cover requirements for wiring methods or circuits? (18" for direct burial per CEC 300)		

I certify that the above information is true and correct to the best of my knowledge, and that if my permit submittal is deemed ineligible for Expedited Permitting, then Current Standard Turnaround Times will be expected for review.

Name: _____ Relationship to Project: ☐ Property Owner ☐ Contractor

Phone #: _____ Email: _____

Signature: _____ Date: _____

*Trenching requires Public Works Plan Review for Soil Disturbance