



CITY OF COLTON
DEVELOPMENT SERVICES DEPARTMENT
BUILDING AND SAFETY DIVISION
659 NORTH LA CADENA DRIVE
COLTON, CALIFORNIA 92324
(909) 370-5079
7:30 a.m. to 5:00p.m. Monday – Thursday

ELECTRICAL VEHICLE CHARGING SYSTEMS in Single Family Residence **PLAN REVIEW AND PERMITTING REQUIREMENTS**

The City of Colton has developed this EV Charger Installation Guideline in order to streamline the permit and installation process. In most cases, you or your contractor merely needs to fill-in the blanks on this document, attach the manufacturer's installation instructions and charger specifications and submit it to the Building and Safety Division for an over-the-counter review and permit issuance. There are two levels of Electric Vehicle (EV) charging system for single family residence (one- and two- family dwellings) installations: Level 1 (120 VAC, 15/20 A) and Level 2 (240 VAC, 40A). An electrical permit is required for all EV charging systems installed in a single family residence (SFR). Permits may be obtained over-the-counter for EV charging system installations.

If all of the information is provided and the proposal complies with the applicable codes, the review and approval process will only take a few minutes. Once the permit is issued, the installation may begin. When the installation is complete an inspection of the work will be scheduled with the Building Inspector upon request. Inspections are typically performed on the work day following your request for inspection. Keep in mind that someone will need to be present during the inspection so that the Building Inspector can access the location of the EV Charger (typically in the garage).

Electrical Permit:

Electrical plans **are not** required to be submitted to the Building Department; that is, an electrical permit will be issued without an electrical plan review.

Please note that an **electrical load calculation sheet and manufacturer's installation guidelines** (See attached hand-out on pages 3 & 4), will be reviewed by the City's Public Permit Counter staff prior to permit issuance. Electrical panel upgrades and electrical wiring shall be in conformance with the current edition of the California Electrical Code (CEC) and be approved prior to building permit issuance.

The following information is required to be shown on the plans and be submitted for review:

1. Specify the type of EV charging system: Level 1 or Level 2. Provide the UL listing number, or the listing number of another approved nationally recognized testing laboratory, in compliance with UL2202: "Standard for Electric Vehicle Charging System Equipment".
2. Specify the panel rating of the existing electrical service (e.g. 200 amp services) at the residence. Indicate the EV charging system load and circuit size.
3. Specify the proposed location of the EV charging system. EV charging system equipment shall be installed in accordance with manufacturer's written guidelines and shall be suitable for its intended location (indoor/outdoor).



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ELECTRICAL VEHICLE CHARGING SYSTEM INSTALLED IN SINGLE FAMILY RESIDENCE

PLAN REVIEW and PERMITTING REQUIREMENTS
 (NO DEVELOPMENT APPLICATION PROCESS (DAP) REQUIRED BY PLANNING DEPARTMENT)

THIS SECTION TO BE COMPLETED AT THE PERMIT COUNTER BY THE INSTALLING CONTRACTOR

Equipment & Project information

Site Address: _____
 Permit Number: _____
 Manufacture's Name: _____
 Unit Serial Number: _____
 Unit Model Number: _____
 Installation Contractor: _____
 Contractor's Contact Information: _____
 Site plan with location of EV unit: _____ yes no
 Manufacturer installation guide is attached to site/floor plan yes no

Electrical Requirements:

Size of Existing Service? _____ AMPS
 New Service Req yes no
 Dedicated Electrical Circuit? yes no
 Minimum Circuit Ampacity Rating? _____ AMPS
 Outlet installed within 12" of the unit? yes no

Installation Requirements:

Location of Unit Indoors Outdoors
 Setback from Property Line _____ ft
 Unit is protected from rain yes no
 Vehicle Protection Req'd yes no
 How is protection accomplished? _____

THIS SECTION TO BE COMPLETED IN THE FIELD BY THE INSTALLING CONTRACTOR AND GIVEN TO THE BUILDING INSPECTOR FOR FINAL INSPECTION

NOTE: Before leaving the site, installer must instruct the user in the proper operation of PEV unit.

Is Unit installed per the manufacturer's installation instructions yes no
 If not, explain: _____
 Signature of installer: _____
 Print Name: _____
 License No.: _____



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LEVEL 2 ELECTRIC VEHICLE CHARGER – SERVICE LOAD CALCULATION

INSTRUCTIONS: Review the list of electrical loads in the table below and check all that exist in the home (don't forget to include the proposed Level 2 EV Charger). For each item checked fill-in the corresponding "Watts Used" (refer to the "Typical Usage" column for wattage information). Add up all of the numbers that are written in the "Watts Used" column. Write that number in the "Total Watts Used" box at the bottom of the table and proceed to the next page.

(Loads shown are rough estimates; actual loads may vary- for a more precise analysis, use the nameplate ratings for appliances and other loads and consult with a trained electrical professional.)

<input checked="" type="checkbox"/> Check All Applicable Loads	Description of Load	Typical Usage	Watts Used
GENERAL LIGHTING AND RECEPTACLE OUTLET CIRCUITS			
<input checked="" type="checkbox"/>	Multiply the Square Footage of the House X 3	3 watts/sq. ft.	
KITCHEN CIRCUITS			
<input checked="" type="checkbox"/>	Kitchen circuits	3,000 watts	3,000
	Electric oven	2,000 watts	
	Electric stove top	5,000 watts	
	Microwave	1,500 watts	
	Garbage disposal under kitchen sink	1,000 watts	
	Automatic dishwasher	3,500 watts	
	Garbage compactor	1,000 watts	
	Instantaneous hot water at sink	1,500 watts	
LAUNDRY CIRCUIT			
<input checked="" type="checkbox"/>	Laundry circuit	1,500 watts	1,500
	Electric clothes dryer	4,500 watts	
HEATING AND AIR CONDITIONING CIRCUITS			
	Central heating (gas) and air	6,000 watts	
	Window mounted A/C	1,000 watts	
	Whole-house or attic fan	500 watts	
	Evaporative cooler	500 watts	
OTHER ELECTRICAL LOADS			
	Electric water heater (storage)	4,000 watts	
	Electric tankless water heater	15,000 watts	
	Swimming pool or spa	3,500 watts	
	Other (describe):		
	Other:		
	Other:		
ELECTRIC VEHICLE CHARGER CIRCUIT			
	Level 2 Electric Vehicle Charger rating**		

(Add-up all of the watts for the loads you have checked!) TOTAL WATTS USED

****Use name plate rating of all the watts or calculate as: (Ampere rating of circuit X 240 volts = Watts)**



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INSTRUCTIONS: Apply the **Total Watts Used** number from the previous page to the Table below to identify if the Existing Electrical Service Panel is large enough to handle the added electrical load from the proposed Level 2 EV Charger. If your electrical service is NOT large enough, then you will need to install a new upgraded electrical service panel.

Table based on NEC 220.83 (A)

Check the appropriate line	Watts Used	Minimum Required Size of Existing 240 Volt Electrical Service Panel	Identify the Size of Your Existing Main Service Breaker
		(Main Service Breaker Size)	(Amps)**
	Up to 24, 000	60 amps	
	24,001 to 48,000	100 amps	
	48,001to 63,000	125 amps	
	63,001 to 78,000	150 amps	
	78,001 to 108,000	200 amps	
	108,001 to 123,000	225 amps	

**Please note that the size of your existing service MUST be equal to or larger than the Minimum Required Size identified in the Table above or a New Upgraded electrical service panel will need to be installed (separate permit required for new service).

CAUTION: This table is **NOT** to be used to determine the size of a **NEW UPGRADED** electrical service panel if your existing panel is too small or overloaded according the table above. In order to determine the size of a NEW or UPGRADED service panel, there is a completely different load calculation methodology that applies. Sizing of a NEW or UPGRADED electrical service panel should only be done by a qualified electrical contractor or electrical engineer.

STATEMENT OF COMPLIANCE

By my signature, I attest that the information provided is true and accurate.

Job Address: _____
 (Print job address)

Signature: _____
 (Signature of applicant) (Date)

In addition to this document, you will also need to provide a copy of the manufacturer's installation literature and specifications for the Level 2 charger you are installing.

Please note that this is a voluntary compliance alternative and you may wish to hire a qualified individual or company to perform a thorough evaluation of your electrical service capacity in lieu of this alternative methodology. Use of this electrical load calculation estimate methodology and forms is at the user's risk and carries no implied guarantee of accuracy. Users of this methodology and these forms are advised to seek professional assistance in determining the electrical capacity of a service panel.