



## ELECTRICAL VEHICLE (EV) CHARGER REQUIREMENTS

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City of Pleasant Hill • Building Division • 100 Gregory Lane • Pleasant Hill, CA 94523  
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**Be aware that there are different types of Electric Vehicle (EV) Chargers.** There are 2 basic types of EV chargers for home use (Level 1 and Level 2). Level 1 Chargers are smaller units that plug directly into a standard 120 volt receptacle outlet. These types of chargers typically require a longer period of time to recharge the vehicle. As long as the receptacle outlet being used to plug-in the Level 1 Charger is existing, there is no requirement to secure a permit from the Department of Building and Safety. On the other hand, if you will be installing a new 120 volt receptacle outlet for the charger, you will need to obtain a permit but you will not need to provide any plans or electrical load calculations as would be required for the more powerful Level 2 type charging systems.

A Level 2 EV charging system requires a 240 volt electrical circuit and charges the vehicle battery much faster than a Level 1 charger. Level 2 charger installations typically require an electrical permit and inspections of the installation. In order to obtain the permit you will need to provide some basic information to show that your existing electrical service can handle the added load.

**What information do I need to provide in order to obtain the permit?** The Residential EV Charger Permit Checklist [Expedited EV Permit Checklist](#) has been developed to streamline the permit, installation and inspection process. In most cases, you or your contractor merely need to fill-in the blanks on this document, attach the manufacturer's installation instructions and charger specifications and submit it to the Building Department for review and permit issuance. If all of the information is provided and the proposal complies with the applicable codes, the review and approval process may be performed within a 1-3 days depending upon workloads and staffing levels at the time of submittal. Once the permit is issued, the installation may begin. When the installation is complete, an inspection of the work must be scheduled with the Building Inspector (925) 671-5200. Inspections are 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 electrical meter and EV charger (typically in the garage).

**Installing a Level 2 EV Charging system** often requires changes to building's electrical wiring. Before installing the EV charging equipment and the associated wiring, talk to your EV manufacturer about the electrical requirements for the charger unit to be installed at your home.

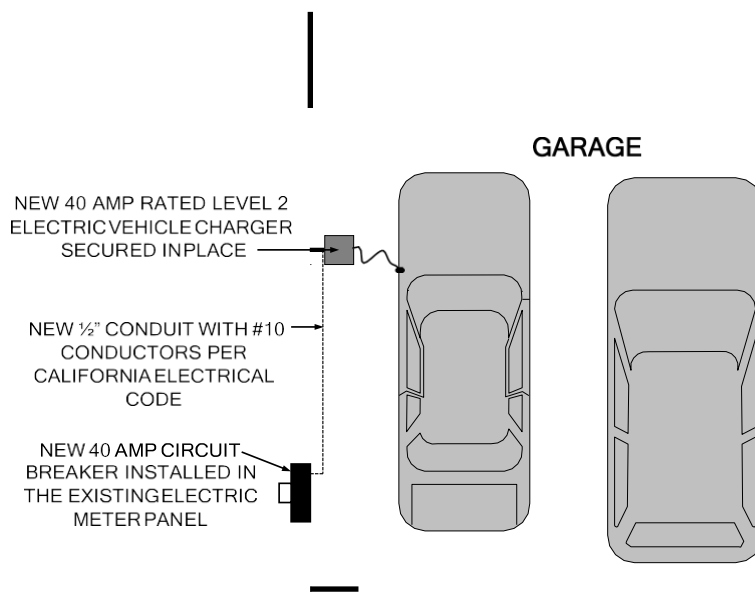
**When installing your EV charger,** be sure to use a licensed Electrical contractor whose state contractor's license and insurance are current. The contractor should follow the installation instructions of the EV charger manufacturer and the requirements of California Electrical Code.

**Why is the Electric Utility concerned about your EV charger installation?** Though an individual Level 2 EV charger may have a negligible impact on the utility electric system, the combined effect of several chargers in the same neighborhood could result in overloads on utility secondary wires and transformers. It is important that the Electrical Utility provider be notified of any Level 2 charger installations to ensure that utility electrical system components are adequately sized to maintain high levels of service reliability.

## **GENERAL INSTALLATION GUIDELINES FOR LEVEL 2 RESIDENTIAL EVCHARGERS**

1. **GENERAL REQUIREMENTS** - All Electrical Vehicle Charging Systems shall comply with the applicable sections of the California Electrical Code, including Article 625.
2. **EQUIPMENT HEIGHT** - The coupling means of the Electric Vehicle Supply Equipment shall be stored at a height of 18 – 48 inches above the finished floor. (CEC Art 625.29(B)).
3. **LISTED EQUIPMENT** - All Electric Vehicle Supply Equipment shall be listed by a nationally recognized testing laboratory.
4. **FASTENED IN PLACE** - Level 2 Electric Vehicle Supply Equipment must be permanently connected and fastened in place in accordance with the manufacturer's installation instructions (CEC Art. 625.13).
5. **PROTECTION FROM PHYSICAL DAMAGE** - Electrical Vehicle Supply Equipment shall be protected against vehicle impact damage when located in the path of a vehicle. In order to avoid the installation of a substantial pipe bollard as an equipment guard, locate the Electrical Vehicle Supply Equipment on a garage side wall, out of vehicular path. (see sample drawing below) (CEC Art. 110.27(B))
6. **IF MORE THAN 60 AMPS-** When EV charging equipment is rated at more than 60 amps, the disconnect means shall be provided and installed in a readily accessible location and shall be capable of being locked on the open position. (CEC Art. 625.23)

### ***SAMPLE ELECTRICAL PLAN FOR LEVEL 2 ELECTRIC VEHICLE CHARGER CIRCUIT INSTALLATION***



#### **SAMPLE PROJECT DESCRIPTION:**

INSTALLATION OF A NEW 40 AMP CIRCUIT FOR A LEVEL 2 ELECTRIC VEHICLE CHARGER PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CALIFORNIA ELECTRICAL CODE.

VEHICLE BATTERIES LISTED AS SUITABLE FOR CHARGING INDOORS WITHOUT VENTILATION.

MINIMUM SERVICE PANEL SIZE TO BE IN ACCORDANCE WITH THE RESIDENTIAL EV CHARGER GUIDELINES

HOUSE