



**City of San Ramon
Building and Safety Services**

7000 Bollinger Canyon Rd, San Ramon, CA 94583
Office: (925) 973-2580 Fax (925) 838-2821

E-mail: Building@sanramon.ca.gov

Website: www.sanramon.ca.gov

Updated: May 2021

Electric Vehicle Charging Devices For Single-Family Homes

Permits are required for electric vehicle charging systems installed in a home. All work shall be in conformance with **Article 625 of the 2019 California Electric Code**. The City of San Ramon recommends that the homeowner hire a licensed electrical contractor* to provide a preliminary consultation and perform the installation. Before the permit is applied for, it is necessary to evaluate the home's electrical service to verify if it will be adequate for the new demands of the charging device. This is confirmed by completing the "load calculation" form attached. In some situations, the electric service panel will need to be upgraded to accommodate the new charger. An upgraded electric service panel will require an additional permit.

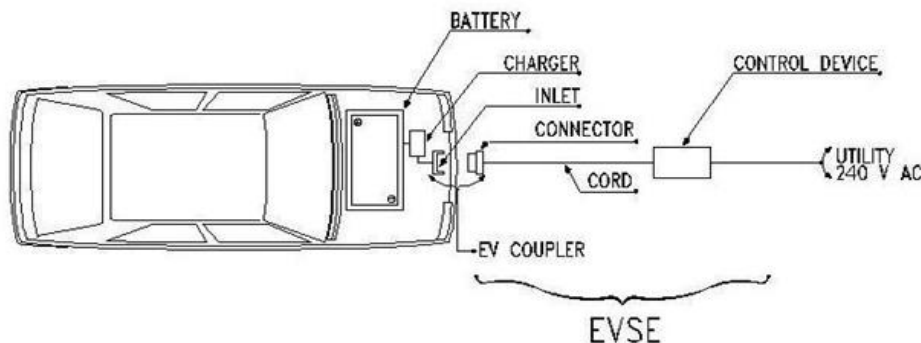
**Electrical contractors have a State of California contractor's license with the designation "C-10", as opposed to general contractors that have a "B" license. General contractors cannot pull permits for work that is primarily electrical unless there are unrelated trades in the project with carpentry as the primary trade.*

STEP 1: Determine the type of charging system to install. Either a **Level 1** charger that is 120 volts alternating current or a **Level 2** charger that is 240 volts alternating current.

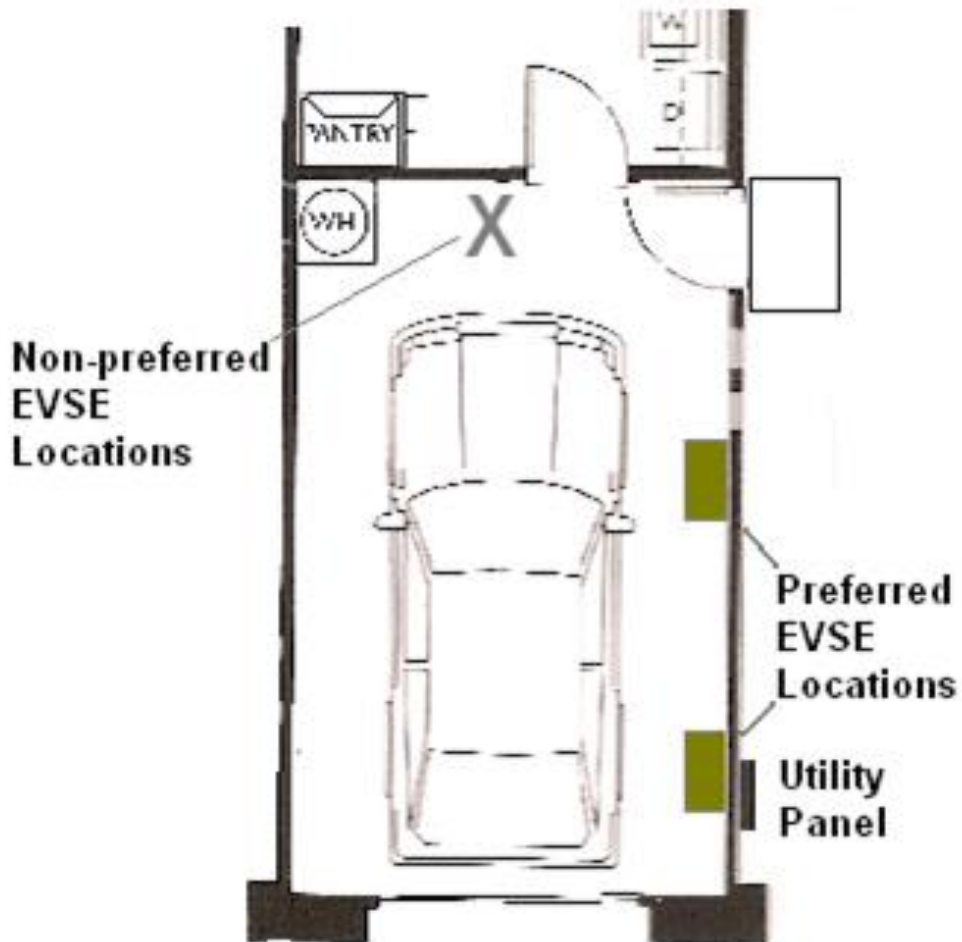
STEP 2: Visit the Permit Center to obtain your permit. An electrical permit is required for an EV charging system to be installed. The following information is required for a permit:

- A site or floor plan identifying the location of the installation of the Electric Vehicle Supply Equipment (EVSE) and installation instructions from the manufacture.
- EV charging system information: Level 1 or 2 EVSE system with UL listed number or other approved nationally recognized testing laboratory, in compliance with UL2202.
- Completed load calculations worksheet per California Electrical Code Article 220, if the electric service panel is not adequate for the installation of the EVSE, additional permits will be required for an electrical service panel upgrade.
- Panel upgrade and electrical wiring shall be in conformance with 2019 California Electrical Code.
- Identify if a second electrical meter is required to be installed because of electric utility rate for EV charging.

EV Sample Charging System:



- STEP 3: Schedule an inspection and have the following on site for review:**
 - Inspectors Copy of Permit, Approved Plans, Installation Instructions and Electrical Load Calculations Worksheet** completed.
 - No work shall be concealed before it is inspected.**
 - All electrical conduit or wiring shall be installed and inspected** prior to concealing.
 - Electric disconnect for the EVSE shall be within sight** of charger or lockout tag installed on the breaker.
 - Contractor shall be present** at time of inspection with appropriate **torque wrench** to verify proper torque of all electrical connections and breakers.
 - Label EVSE Breaker** on Electrical Service Panel.





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Electrical Load Calculations
Single Family Dwelling

Job Address: _____

Buss _____
Main _____
Load _____

Quantity	Load	Min. Rating	Column 1	Column 2	Column 3
	Dwelling Square Footing	3 Watts / sq.ft.			
	Appliance Circuit (2 Min.)	1500 watts ea.			
	Electric Cook Top	5100			
	Electric Oven	8000			
	Dishwasher	1200			
	Disposal	800			
	Microwave	1600			
	Compactor	1000			
	Instant Hot Water	1500			
	Electric Dryer	5000			
	Washer (laundry)	1500			
	Forced Air Unit	1000			
	Air Conditioner				
	Pool Equipment / Spa				
	EV Charger				
	TOTALS				

First 10,000 watts at 100% _____ **10,000**

(Column 1 minus 10,000) x 40% _____

Column 2 at 100% _____

Column 3 at 125% _____

Total Watts: _____

Total Amps: _____

Based on Section 220 of National Electric Code

Divide watts by 240 volts for amp rating of service



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Updated: December 2019

Electrical Load Calculations Single Family Dwelling

Job Address: 123 Main Street

Buss	200
Main	200
Load	166

Quantity	Load	Min. Rating	Column 1	Column 2	Column 3
1 100	Dwelling Square Footing	3 Watts / sq.ft.	12300 12300		
2	Appliance Circuit (2 Min.)	1500 watts ea.	3000		
1	Electric Cook Top	5100	5100		
1	Electric Oven	8000	8000		
1	Dishwasher	1200	2000		
1	Disposal	800	1000		
1	Microwave	1600	1600		
	Compactor	1000			
	Instant Hot Water	1500			
1	Electric Dryer	5000	5000		
1	Washer (laundry)	1500	1500		
	Forced Air Unit	1000			
1	Air Conditioner			6000	
	Pool Equipment / Spa				
1	EV Charger				9600
	TOTALS				

First 10,000 watts at 100%	10,000
(Column 1 minus 10,000) x 40%	11800
Column-2 at 100%	6000
Column 3 at 125%	12000
Total Watts:	39800
Total Amps:	166

Based on Section 220 of National Electric Code

Divide watts by 240 volts for amp rating of service