

City of Huntington Beach

Department of Community Development EV CHARGER CHECKLIST

2000 Main Street, Huntington Beach, CA 92648 Office: (714) 536 - 5241 Fax: (714) 374 - 1647

Purpose

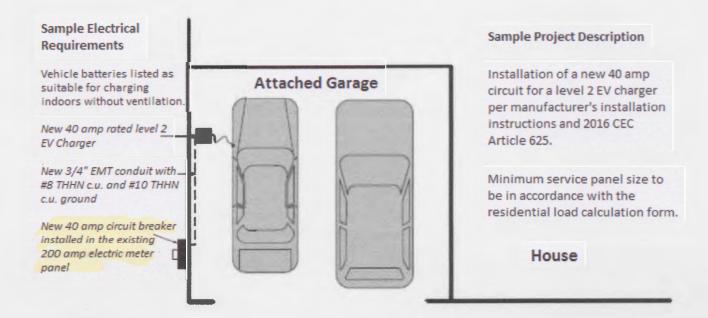
The purpose of this guideline is to assist permit applicants in streamlining the permitting and inspection process for Residential Single Family EV Chargers.

Site Plan Provide two copies of the job-specific site plan showing: ☐ The location of the building and street name ☐ All EV receptacle location(s), conduit type / size, wire type / size, conductors, equipment ground size, and existing or proposed electric meter location ☐ Zoning Code Compliance
Manufacturer's Specifications Provide two copies of the manufacturer's charger specifications. These specifications will show requirements and data for the EV charger being installed as well as a listing agency approval.

☐ Electrical Service Load Calculation Form

Provide two copies of our Electrical Service Calculation Form. Follow steps one thru nine to figure out the minimum amperage needed for your main electric meter.

Sample Site Plan



Electric Vehicle Power Transfer System

Charge power converter: The device used to convert energy from the power grid to a high-frequency output for wireless power transfer >>> 625.2 \limits.

Electric vehicle power export equipment (EVPE): The equipment, including the outlet on the vehicle, that is used to provide electrical power at voltages greater than or equal to 30 Vac or 60 Vdc to loads external to the vehicle, using the vehicle as the source of supply 39 625.2 (4). As stated in the informational note under this definition, electric vehicle power export equipment and electric vehicle supply equipment are sometimes contained in one piece of equipment, sometimes referred to as a bidirectional EVSE.

Output cable to the primary pad: A multi-conductor, shielded cable assembly consisting of conductors to carry the high-frequency energy and any status signals between the charger power converter and the primary pad >>> 625.2 \left(.)

Power-supply cord: An assembly consisting of an attachment plug and length of flexible cord that connects equipment to a receptacle >>> 625.2 \left(.)

Primary pad: A device external to the electric vehicle that transfers power via the contactless coupling as part of a wireless power transfer system >>> 625.2 <<.

Wireless power transfer (WPT) is the transfer of electrical energy from a power source to an electrical load via electric and magnetic fields or waves by a contactless inductive means between a primary and a secondary device >>> 625.2 <<.

Wireless power transfer equipment (WPTE) is equipment consisting of a charger power converter and a primary pad. The two devices are either separate units or contained within one enclosure **\int 625.2*((.)** Wireless power transfer equipment requirements are in Article 625, Part IV.

Overcurrent protection for feeders and branch circuits supplying EVSE, including bidirectional EVSE, and WPTE shall be sized for continuous duty and shall have a rating of not less than 125% of the maximum load of the equipment. Where noncontinuous loads are supplied from the same feeder, the overcurrent device shall have a rating of not less than the sum of the noncontinuous loads plus 125% of the continuous loads \$\infty\$ 625.41 (C.)

Mechanical ventilation shall not be required where electric vehicle storage batteries are used, or where the equipment is listed for charging electric vehicles indoors without ventilation >>> 625.52(A) <<.

A Unless specifically listed and marked for the location, the electric vehicle supply equipment's coupling means shall be stored or located at a height of not less than 18 in. (450 mm) above the floor level for indoor locations and 24 in. (600 mm) above the grade level for outdoor locations. This requirement does not apply to portable EVSE constructed in accordance with 625.44(A) 625.50 ...

Article 625 covers the electrical conductors and equipment connecting an electric vehicle to premises wiring for the purposes of charging, power export, or bidirectional current flow 625.1 ...

G Electric vehicle: An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are electric vehicles having a second source of motive power. Off-road, self-propelled electric mobile equipment, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not considered electric vehicles.

Marticle 100

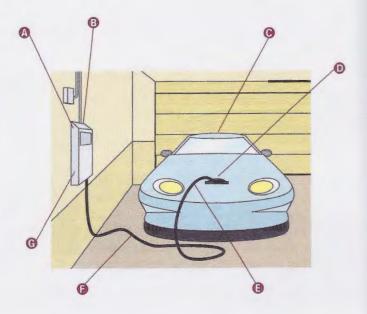
D Electric vehicle connector: A device that, when electrically coupled (conductive or inductive) to an electric vehicle inlet, establishes an electrical connection to the electric vehicle for the purpose of power transfer and information exchange.

201625.2 (C.)

Output cable to the electric vehicle: An assembly consisting of a length of flexible EV cable and an electric vehicle connector (supplying power to the electric vehicle) 625.2 ...

The overall usable length of the cable shall not exceed 25 ft (7.5 m) unless equipped with a cable management system that is part of the listed electric vehicle supply equipment 625.17(C).

Electric vehicle supply equipment (EVSE): Includes the conductors (ungrounded, grounded, and equipment grounding conductors), electric vehicle connectors, attachment plugs, personnel protection equipment, and all other fittings, devices, power outlets, or apparatus purposely installed to transfer energy between the premises wiring and the electric vehicle >>> 625.2 ((...)





2000 Main Street 3rd Floor Huntington Beach, Ca 92648 714/536-5241

Optional Method Service Load Calculation for a Single Dwelling Unit (CEC 220.82)

	1.	General Lighting and Receptacle Loads					1	
	Do not include open porches, garages, or unused or unfinished spaces not adaptable for future use.			(sq ft using outside dimensions)				
	2.				3			
		At least two small-appliance branch circuits must be included. 210.11(C)(2)				=	2	
					(minimum of two)			
	3.							
			aundry branch circuit must be included.			=	3	
		210.11(C)(2).			(minimum of one)			
				NOTE: 1500 VA shall be included for each				
					laundry branch circuit.			
	4.	Appliances 220.82(B)(3) and (4)	Do not include			It-amperes		
		Use nameplate rating of all or air-condition appliances (fastened in place, permanently connected, or connected to a specific circuit), water heater/			his section. LISTED BELOW			
				this sectio				
				,				
		ranges, ovens, cooktops, motors, and		dishwasher /				
		clothes dryers. Convert any nameplat rating given in amperes to volt-amper		clothes dryer/ disposal / range /				
		by multiplying the amperes by the	es <u>nishosai</u>			1		
		rated voltage.	EV	1		1		
		rated voltage.	<u> </u>				-	
	5.	Apply 220.82(B) demand factor to the t	otal of lines 1 thro	ough 4.				
			demand factor to the total of lines 1 through 4.				5	
		- 10.000 =	x 40% = + 10,000 =					
		(total of line 1 through 4)						
	6.							a heat pumps
		Use the nameplate ratings in volt-amperes for all without any supplemental electric hea					3	
		applicable systems in lines 'a' through '						
					x 100% =			
B)		ctric thermal storage and other heating systems where the C)						
	usual load is expected to be continuous at full nameplate value. Systems qualifying under this section shall not be				systems. Include the heat-pump compressor(s) at 100%. If the			
					heat-pump compressor is prevented from operating with the supplement heat, omit the compressor.			
	rigu	figured under any other selection in 220.82(C). supplement heat, om					r.	
					. 050/			
		- 4000/ - D		-	x 65% =			
		x 100% = B						
	7.	Total Volt-Ampere					1	
	7. Total voit-Ampere Demand Load:							
	+					=	7	
		(largest VA rating from line 6a throug	(line 5)					
	8.	Minimum Amperes			1	9. Minimum Size		
	-	Divide the total				Service or		
		Volt-amperes ÷	= 8			Feeder	9	
		by the voltage. (line 7)	(voltage)	(minir	num	240.6(A)		(minimum is
				ampe	res)			100 amperes)
	10.	Size the Service of Feeder Conductors.						
		Use 310.15(B)(6) to find the service cor						
		Ratings in excess of 400 amperes shall comply with Table 310.16. 310.15(B)(6) also applies to feeder conductors serving as the main power feeder.				10		
	11.							
	Use line 10 to find the grounding electrode conductor in Ta				66.			
		Size the Equipment Grounding Conduct		400	Minimum Size			
	Use line 9 to find the equipment grounding conductor in Ta				122.	Conductors		
		Equipment grounding conductor types are listed in 250.118.						