INSTALLATION OF ELECTRIC VEHICLE CHARGING STATIONS IN LYCA UNITS

Ownership of Electric Vehicles (EV) and Hybrid Electric Vehicles (HEV) is becoming more common. To support use of those vehicles, home recharging stations are being installed in individual garages. It is the intention of Landmark Yorktown Community Association (Association) to ensure that if EV/HEV charging facilities are installed within units of the Association, they are done so with proper Architectural Review, are installed safely and in full compliance with the Uniform Building Code, manufacturers' specifications, and all other applicable regulations. LYCA Units that have installed charging stations prior to this rule shall submit an Architectural Application to the Board for approval.

All installations of EV/HEV charging facilities shall comply with the following requirements:

1. A LYCA Architectural Application (AA) must be submitted to the Architectural Committee, by the Owner of the Unit, for consideration prior to any work or modifications being made to a unit. If approved, a Notice of Completion shall be submitted to the Association within seven (7) day of completion. Review of the AA may take up to thirty (30) days.
2. An applicable City of Huntington Beach (City) Building Permit must be secured by the Owner of the Unit prior to any work being performed or modifications being made to a unit.
3. All electrical work shall be performed by an Electrical Contractor (C-10) licensed by the State of California. All work must be inspected, and the Building Permit signed off prior to operation of the charging facility. All permit requirements must be completed by the Owner. Copies of all permits and related documents shall be provided to the Association upon completion of the project.
4. If the Unit's electrical panel is required to be upgraded, it shall be upgraded as directed by the City Building Department, at the sole cost of the Owner, and shall meet current Building Code requirements.
5. Charging unit shall be UL listed and must be listed by the manufacturer as compatible with the make and model of car to be charged.
6. Installation, maintenance, repair, replacement, electricity and insurance costs are the responsibility of the Owner. Owner's insurance may not cover an accident involving the charging station. Additional coverage, listing the Association as additionally insured, may be required. The Association's insurance will not cover the charging unit or any damage to Association property that results from the installation or use of an EV/HEV charging unit. The unit is considered an appliance.
7. When the Unit is sold, the responsibility of #6 above shall be transferred to the new Owner, with written documentation provided to the Association at close of escrow. Failure to provide documentation may result in Association requiring removal of the charging system.
8. The greatest danger is from fire and heat generated from the batteries during charging. It is therefore advisable to recharge the car while in the driveway for safety.
9. Charging cable shall be maintained in good repair and replaced immediately should it become damaged or worn.
10. The charging unit and the surrounding area shall always be kept free and clear of obstructions and flammable material.

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

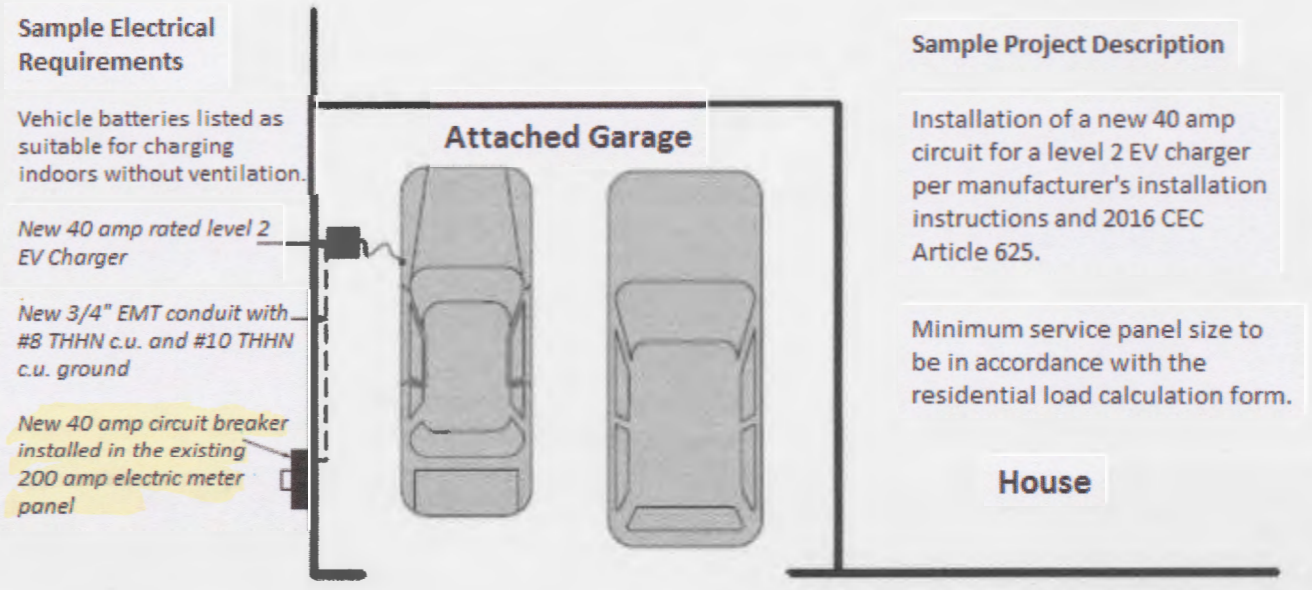
The purpose of this guideline is to assist permit applicants in streamlining the permitting and inspection process for Residential Single Family EV Chargers.

- ❑ **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* «.

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 » *625.2* «. 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* «.

Power-supply cord: An assembly consisting of an attachment plug and length of flexible cord that connects equipment to a receptacle » *625.2* «.

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 » *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 » *625.41* «.

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* «.

B 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* «.

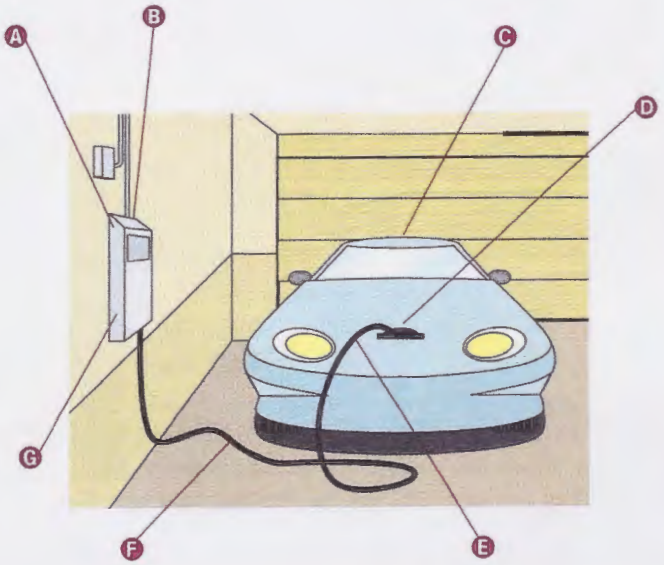
C **Electric vehicle:** An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic 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 » *Article 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. » *625.2* «.

E **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* «.

F 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)* «.

G **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 220.82(B)(1) Do not include open porches, garages, or unused or unfinished spaces not adaptable for future use.	3 x _____ = (sq ft using outside dimensions)	1	
2.	Small-Appliance Branch Circuits 20.82(b)(2) At least two small-appliance branch circuits must be included. 210.11(C)(2)	1500 x _____ = (minimum of two)	2	
3.	Laundry Brach Circuit(s) 220.82(B)(2) At least one laundry branch circuit must be included. 210.11(C)(2).	1500 x _____ = (minimum of one) NOTE: 1500 VA shall be included for each laundry branch circuit.	3	
4.	Appliances 220.82(B)(3) and (4) Use nameplate rating of all appliances (fastened in place, permanently connected, or connected to a specific circuit), ranges, ovens, cooktops, motors, and clothes dryers. Convert any nameplate rating given in amperes to volt-amperes by multiplying the amperes by the rated voltage.	Do not include any heating or air-conditioning equipment in this section. water heater/ _____ dishwasher / _____ clothes dryer/ _____ disposal / _____ range / _____ EV / _____	Total volt-amperes of all appliances. LISTED BELOW _____ / _____ _____ / _____ _____ / _____ _____ / _____ _____ / _____ _____ / _____	4
5.	Apply 220.82(B) demand factor to the total of lines 1 through 4. _____ - 10,000 = _____ x 40% = _____ + 10,000 = (total of line 1 through 4)			5
6.	Heating or Air-Condition System 220.82(C) Use the nameplate ratings in volt-amperes for all applicable systems in lines 'a' through 'c'.	A) Air-Conditioning and cooling systems, including heat pumps without any supplemental electric heating: _____ x 100% =	A	
B)	Electric thermal storage and other heating systems where the usual load is expected to be continuous at full nameplate value. Systems qualifying under this section shall not be figured under any other selection in 220.82(C). _____ x 100% =	B		
C)	Supplemental electric heating equipment for heat-pump 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. _____ x 65% =	C		
7.	Total Volt-Ampere Demand Load: _____ + _____ = (largest VA rating from line 6a through 6c) (line 5)		7	
8.	Minimum Amperes Divide the total Volt-amperes by the voltage. _____ ÷ _____ = _____ (line 7) (voltage) (minimum amperes)	8	9. Minimum Size Service or Feeder 240.6(A)	9 (minimum is 100 amperes)
10.	Size the Service of Feeder Conductors. Use 310.15(B)(6) to find the service conductors up to 400 amperes. 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.		Minimum Size Conductors	10
11.	Size the Grounding Electrode Conductors. Use line 10 to find the grounding electrode conductor in Table 250.66. Size the Equipment Grounding Conductor (for Feeder). 250.122. Use line 9 to find the equipment grounding conductor in Table 250.122. Equipment grounding conductor types are listed in 250.118.		Minimum Size Conductors	12