# 2022 Checklist for Installing Residential Electric Vehicle Charging Station (EVCS) at Existing Facilities

| Check One | Type of Charging Station(s) Proposed | Power Levels (Proposed circuit rating) |
|---|---|---|
| ☐ | Level 1 | 110/120 volt AC (15 or 20 Amps) |
| ☐ | Level 2 – 3.3 kilowatt (low)* | 208/240 VAC (20 or 30 Amps) |
| ☐ | Level 2 – 6.6 kilowatt (medium)* | 208/240 VAC (40 Amps) |
| ☐ | Level 2 – 9.6 kilowatt (high)* | 208/240 VAC (50 Amps) |
| ☐ | Level 2 – 19.2 kilowatt (highest)* | 208/240 VAC (100 Amps) |
| ☐ | Other (provide detail) | |

***Plan check fee will be required**

**Section 1: PERMIT DESCRIPTION**

1. Submittal requirements:
    a. Checklist
    b. Electrical load calculation worksheet (Level 2 only)
    c. Electrical permit application
    d. Site plan
    e. Single-line diagram (Level 2 only)
    f. Manufacturer specifications
2. Does the scope of work on the plans match the electrical permit application description? ☐ Yes ☐ No

**Section 2: ELECTRICAL LOAD CALCULATION**

1. Electrical load calculation is required, is it included in submittal? (CEC[1] 220) ☐ Yes ☐ No
2. Based on the load calculation, is a new electrical service panel upgrade required[2]? ☐ Yes ☐ No
    a. If yes, do plans include the electrical service panel upgrade? ☐ Yes ☐ No
    b. If yes, has a separate permit been pulled for the panel upgrade? ☐ Yes ☐ No
3. Is the single family residence identified as a **condominium**? ☐ Yes ☐ No
4. Is the charging circuit appropriately sized for a continuous load (125%) (CEC 210.19(A)(1)(a))? ☐ Yes ☐ No
5. Is the charging equipment proposed a level 2 – 9.6kW station with a circuit rating of 50 amps or higher? ☐ Yes ☐ No ☐ Not Applicable
6. If yes, is a panel schedule with electrical calculations included with the single-line diagram? ☐ Yes ☐ No ☐ Not Applicable

[1] 2022California Electrical Code. Article 220 Branch-Circuit, Feeder, and Service Calculations.

[2] The size of the existing service MUST be equal to or larger than the Minimum Required Size of main service breaker. If the existing service panel is smaller than the minimum required size of existing electrical services, then a new upgraded electrical service panel must be installed.

**Section 3: SITE PLAN & SINGLE LINE DRAWING**

1. If yes to Section 2 Q2 and/or Q3, is the required single-line diagram submitted for the proposed project? ☐ Yes ☐ No
    a. Are mechanical ventilation requirements triggered for indoor venting requirements per CRC R338.3? ☐ Yes ☐ No
        a. If yes, is a mechanical plan included with the permit application? ☐ Yes ☐ No
2. Is the Site plan fully dimensioned and drawn to scale?
    a. Showing location, size and use of all structures? ☐ Yes ☐ No
    b. Showing location of electrical panel AND charging system? ☐ Yes ☐ No
    c. Showing type of charging system and mounting? ☐ Yes ☐ No
3. Is the type of mounting for charging system included if the charging system is not wall- mounted? ☐ Yes ☐ No ☐ Not Applicable

**Section 4: COMPLIANCE WITH 2022 CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3)**

1. Does the plan include EVCS manufacturer's specs and installation guidelines? ☐ Yes ☐ No
2. Does the site plan identify the amperage and location of existing electrical service panel? ☐ Yes ☐No
    a. If yes, does existing panelboard have room for additional breakers? ☐Yes ☐ No
    b. Are sizes for the conduit and conductor included? ☐ Yes ☐ No
    c. Is the charging unit rated more than 50 Amps or more than 150V to ground? ☐ Yes ☐ No
    d. Each individual EV charging breaker requires Ground-Fault Protection. Is the EV breaker protected? (CEC 625.54) ☐Yes ☐ No
3. Does the charging equipment have a Nationally Recognized Testing Laboratory (NRTL) approved listing mark? (UL 2202/UL 2200) ☐ Yes ☐ No
4. If trenching is required, is the trenching detail called out? ☐ Yes ☐ No
    a. Is the trenching in compliance with electrical feeder requirements from structure to structure? (CEC 225) ☐ Yes ☐ No
    b. Is the trenching in compliance of minimum cover requirements for wiring methods or circuits? (18" for direct burial per CEC 300.5) ☐ Yes ☐ No

CORRECTION(S) SUMMARY:

**Site Plan**: Please provide the following elements on the below site plan

- Draw street location with street name and Garage
- Mark location of main panel and location of proposed EV charger
- Mark location of front door and driveway

**Main Panel rating**: _____Amps

**Main Breaker**: _____Amps

**EVCS Breaker**: _____Amps

**Existing**

**Single-Family Residence**

CITY of CALABASAS

# City of Calabasas
# Building and Safety Division
# Electrical Service Load Calculations
# For Existing Dwelling Units

| | |
|---|---|
| Address: | Sq. Footage of House: |
| Calculations Prepared By: | Date: |

| LOAD ITEM | QUANTITY | X | WATTS (VA) | TOTAL |
|---|---|---|---|---|
| **A. General Load Circuits (CEC 220.42 & 220.52):** | | | | |
| General Lighting Circuits | sq. ft. | X | 3 | VA |
| Small Appliance Circuits (2 min.) | | X | 1500 | VA |
| Laundry Circuits | | X | 1500 | VA |
| | Subtotal of General Loads: | | | VA |
| First 3,000 Watts at 100% | 3,000 @ 100%: | | | VA |
| Next 3,001 to 120,000 Watts at 35% | 3,001 to 120,000 @ 35%: | | | VA |
| **Total Watts A (General lighting Demand Load):** | | | | **VA** |
| **B. Appliance Loads (CEC 220.53):** | | | | |
| Fixed Appliance Circuits: | | | | |
| Refrigerator | | X | 1200 | VA |
| Microwave | | X | 1600 | VA |
| Dishwasher | | X | 1200 | VA |
| Garbage Disposal | | X | 1000 | VA |
| Freezer | | X | | VA |
| Electric Water Heater (3750VA min) | | X | | VA |
| Whole House Attic Fan | | X | | VA |
| Vent Fan | | X | | VA |
| Garage Door Opener | | X | | VA |
| Pool Light | | X | | VA |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| LOAD ITEM | QUANTITY | X | WATTS | TOTAL |
|---|---|---|---|---|
| | | | | |
| If there are less than 4 appliances, then use (**Total Appliance Loads X 100%) =** | | | | VA |
| If there are 4 or more appliances, then use **(Total Appliance Loads X 75%) =** | | | | VA |
| **Total Watts B (Appliance Loads) =** | | | | VA |
| **C. Full-Load Equipment Circuits (CEC 220.50, 220.51, 220.54, & 220.55)** | | | | |
| Mechanical Circuits: (Use only largest load) | | | | |
| Electric Heater or Heat Pump (7200VA min) | | X | | VA |
| Air Conditioner * | | X | | VA |
| Electric Clothes Dryer | | X | 5000 | VA |
| Electric Cooking Appliance*** | | X | 3500 X 0.8 | VA |
| Hydro-Massage Bathtub ** | | X | | VA |
| Pool Equipment: | | | | |
| Pump Motor (Filter) ** | | X | | VA |
| Pump Motor (Booster) ** | | X | | VA |
| Pump Motor (Other) ** | | X | | VA |
| Pool/Spa Aerator ** | | X | | VA |
| Pool Sweep ** | | X | | VA |
| Electric Vehicle Charger/Outlet | | X | | VA |
| | | X | | VA |
| **Total Watts C (Full-Load Equipment Circuits X 100%) =** | | | | |
| | | | | |
| **D. Electrical Load Calculations** | | | | |
| Total Watts (Section A + B + C) = | | | | VA |
| Total Amps (Total Watts divided by 240 Volts) | | | | A |
| Size of Electrical Service Equipment (Amps) | | | | A |
| Proposed Size of New Electrical Service (Amps) | | | | A |

* Air Conditioner (FLA X 240 Volts Watts) FLA = Full-Load Amps

** Pump Motor, Aerator and Pool Sweep (Amps x 240 Volts = Watts)

*** Electric Cooking appliances follow table CEC 220.55.

**Full-Load Currents in Amperes Single-Phase Alternating-Current Motors**

| HP | 115V | 230V |
|---|---|---|
| 1/6 | 4.4 | 2.2 |
| 1/4 | 5.8 | 2.9 |
| 1/3 | 7.2 | 3.6 |
| 1/2 | 9.8 | 4.9 |
| 1/4 | 13.8 | 6.9 |
| 1 | 16.0 | 8.0 |
| 1½ | 20.0 | 10.0 |
| 2 | 24.0 | 12.0 |

**NOTES:**

1) 240 Volts x Amps = **Watts** (VA) Watts ÷ 240 Volts = **Amps**

2) This schedule is based on the California Electrical Code and is intended as a guide for preparing electrical load calculations. However, due to various conditions that exist on individual projects, this format may not meet code requirements for your project. If you have any questions regarding the use of this form, or electrical load calculations, the Building Division can provide assistance upon request.