



# Austin Energy Electric Vehicle Service Equipment (EVSE) Installation Checklist

## General EVSE Installation

- All electrical materials, devices, fittings, and associated equipment should be listed
- All electrical components have voltage and current ratings necessary for application and installed per manufactured specifications.
- All equipment is electrically certified by OSHA such as UL, CSA, ETL listed
- Label and ID as stand-alone or interactive power supply
- All EVSE equipment should be marked with "FOR USE WITH ELECTRIC VEHICLES"
- Ensure the EVSE is securely fastened to the structure
- Equipment is protected from physical damage
- Dissimilar metals that have galvanic action are isolated
- Has an appropriate NEMA rated enclosure (NEC 110.28) based on environmental factors and possible deterioration through water or elements.
- Ensure sufficient space exists around electrical equipment for safe operation and maintenance (NEC 110.26)
- Building penetrations are sealed and fire resistance is maintained.
- Cable management apparatus is used to control and organize cable
- Electric vehicle coupler is polarized (unless part of listed EVSE), noninterchangeable, guarded, and prevents unintentional disconnection
- Grounding pole in EV coupler is first and last to break connection
- Cord length should be less than 25' in length (NEC 625.17) does not have excessive slack
- Height of outlet should have easily accessible disconnect meeting ADA standards section 4.2.5/4.2.6 (48in.)
- EV power outlet terminated in a normal NEMA-type receptacle

- Bubble cover to prevent contact on outlet
- Make sure the outlet is installed with ground pin on top
- Circuit over 60A requires lockable safety switch next to EVSE
- Ensure that no back feeding is possible through the EV and the EVSE unless permitted by 625.48 (interactive systems)
- Interlock is not required for portable cord-and-plug connected EVSE or 125 volt, single phase, 15 and 20 amps rated
- Ensure that during strain or possible cable rupture or cable separation from live parts, there is a mechanism in place to automatic de-energization per NEC 625.19

### **Load Calculation**

- Load calculations must be done to prevent INSUFFICIENT LOAD SUPPLY
- Record the wattage of load calculation
- Check if circuit breaker is compatible with existing panel and make upgrades as necessary
- Power supply has an ampacity for 8 AWG and larger

### **Protection**

- Interconnection at panel requires OCPD sized main panel busbars according to articles 690 and 705
- Overcurrent protection for feeders and branch circuits supply EVSE shall be sized for continuous duty and have a rating of higher than 125% of maximum load of the EVSE.
- A listed system of protection against personal electric shock is present
- Circuit breakers for (a) level 1 requires a single pole breaker or (b) level 2 requires two pole breaker with dedicated circuitry

## **Conductors**

- Conductor is sized to 125% of the rated value
- Grounding conductor is 6 AWG or sized according to code and continuous or irreversibly spliced
- Color code all conductors
- Check electrical connection of circuit conductors and equipment grounding conductors
- Neutral should be full-size per AE Design Criteria Manual
- EVSE should de-energize the cable conductors and electric vehicle connector upon exposure to strain that may lead to cable rupture or exposure of live parts. Not required for portable cord-and-plug connected EVSE for 125V, single-phase, 15 and 20A

## **Raceways**

- Individual branch circuit for EVSE should be installed
- Branch and feeder should be sized to 125% of rated current
- Check all conduit is properly connected (wrench tight), no loose fittings, no cross threadings
- Check fished and surface wiring
- Size bonding jumpers meets NEC 250.102(C) and 250.66
- Securely fasten the conduit at least every 10' and within 3' of each outlet box, junction box, device box, cabinet, conduit body or other termination

## **Service & Disconnects**

- Check service grounding and bonding
- Manual disconnect switch should be mounted in proximity to the metering equipment, as well as other switches per NEC article 690 and connected per NEC article 404.6
- Check the service disconnects as appropriate for system

**Workmanship**

- Referred to AE Design Criteria, Interconnect Guide, COA Electrical Code, & NFPA 70 2017 for install
- All work was done in a neat and workmanlike manner
- All electrical work done by a licensed electrician
- System works as intended