

PURPOSE

This is a guide to assist in the plan review, permit, and inspection process for the installation of electrical vehicle (EV) charging stations. Each of the three types of EV charging stations has its own set of requirements.

EV1 charging stations are small installations typically installed in residences and EV2 charging stations are installed in both residential and commercial locations. EV3 charging stations are large installations for quick charges which often are placed at fueling stations. Listed below are the required components to be included in drawings to obtain permits, and the items that the City Inspectors will be verifying in the field during the inspection process.

PLANS

Residential (EV1 and EV2) – None Required.

Commercial (EV1, EV2, and EV3) – A single EV1 or EV2 charging station at an existing location will not require electrical plans unless there are structural plans required for the installation. For all EV3 installations, and in new construction, or when multiple charging stations are to be installed, plans will be required including the one-line diagram, load analysis, panel schedule and disconnect means, with the connected load, wire size, and over-current protection.

Structural plans must be designed and sealed by a Texas Professional Engineer for securing the stations to existing structures, or to a new foundation or structure with following wind resistance:

- Residential ➔ Minimum of **110** mph 3-second gust wind speed design
- Commercial – Risk Category I ➔ Ultimate design wind speed V_{ult} **130** mph
- Commercial – Risk Category II ➔ Ultimate design wind speed V_{ult} **139** mph
- Commercial – Risk Category III & IV ➔ Ultimate design wind speed V_{ult} **150** mph

Electrical vehicle charging stations shall comply with the current NEC, including Article 645, and the equipment shall be listed and labeled.

At minimum, the following shall be indicated on the electrical plans (including a site plan) to be confirmed during inspection:

Drawing Package Contents	
<input type="checkbox"/> Equipment Layout	<input type="checkbox"/> Conductor Size, Insulation & Type
<input type="checkbox"/> Mounting Structure & Anchors	<input type="checkbox"/> Over Current Protection
<input type="checkbox"/> Foundation or Pad	<input type="checkbox"/> Disconnect Size & Type
<input type="checkbox"/> Service Size	<input type="checkbox"/> Equipment Size & Type
<input type="checkbox"/> Grounding Points	<input type="checkbox"/> One-Line Diagram/Load Analysis

PERMITS

Electrical Building Permit

An electrical building permit obtained by a licensed electrical contractor registered with the City of Houston is required for the installation. The EV type (EV1, EV2, EV3) must be noted on the application. For new buildings or for service that is to be upgraded significantly, the Meter Loop Service (MLS) and Temporary Cut-In (TCI) need to be included with the electrical building permit.

ELECTRIC VEHICLE CHARGING STATION PERMITS

A Meter Loop Service - (**MLS permit**) is required when an existing service is upgraded for an increase in capacity to a larger service to handle the additional load imposed by the charging station.

A Temporary-Cut-In - (**TCI permit**) is sold along with a Meter Loop Service to allow the existing permanent service to be reconnected for the purpose of a scheduled “outage”.

When the service connection has been in existence before the disruption, it is an “outage” involving the existing service. Any coordinated “outage” for a service upgrade will require the account holder to contact both the Utility Distribution Provider (in most instances-Centerpoint), along with their respective retail distribution provider (the entity that performs customer billing).

Building Permit

If the installation involves a new concrete slab or modification to an existing concrete slab, a building permit is also required. The building permit may be obtained by any person who is responsible for the construction.

As part of a residential permit application process, the owner will be required to sign a Deed Restriction Unsworn Declaration.

INSPECTIONS

The manufacturer’s installation manual and the permit drawings must remain on the jobsite at all times during the inspection process.

The inspection requirements for electric vehicle charging stations will be based on the approved plans, the manufacturer’s installation manual, and the Houston Construction Code, whichever is more restrictive. Applicants shall provide access for inspectors to review the installation at all locations of the work.

Residential Inspections – The electrical inspection will be performed the same day for all **Level 1** Electric Vehicle Service Equipment where an electrical contractor has purchased the required permit for the installation and requests an inspection prior to 12:00 pm.

Commercial Electrical Inspections – Some installations require only one (1) inspection, but a second inspection is required for ditch cover prior to a concrete pour or repair of pavement.

Structural Inspections –Typically two (2) inspections are involved. The first must be requested prior to pouring concrete and the second will be for the final inspection.

In lieu of the structural inspection required for pouring concrete, the structural engineer may provide a special inspection letter certifying that the installation conforms to his/her design. This limits the inspections to electrical only. The letter may be submitted to the Structural Inspection Office at 1002 Washington.

CONTACT INFORMATION

Structural Inspections	(832) 394-8840
Electrical Inspections	(832) 394-8860
Plan Review Questions	(832) 394-8810