

**GENERAL:**

The scope of this document is to provide general guidance for the physical location, electrical service requirements, and operating characteristics for Level 1, Level 2, and Level 3 Electric Vehicle Charging equipment (re. charging stations).

**DESIGN GUIDELINES:**

1. Allowable physical locations for electric vehicle charging station installations:
  - 1.1.1. Electric vehicle charging stations (for cars, trucks, buses, ebikes, etc.) shall not be located in University parking garages, or within any building or residence hall. Installations are approved for surface parking lots as described below.

(Note: exceptions may apply for use of Level 1 or Level 2 chargers for University owned electric service vehicles and Executive staff residences- discuss with code inspector or the UM AHJ)

- 1.2. Charging stations shall not be located within 50 feet as measured horizontally from any exit door of a building, nor closer than 30 feet as measured horizontally from any exterior wall of a building.
- 1.3. For instances where electric vehicle charging stations are currently installed in parking garages: when the equipment is due for replacement or upgrade, the equipment shall be removed and relocated to a surface parking lot as described above.

Replacing or upgrading of equipment in garages will not be grandfathered.

2. Electrical service equipment (general requirements):
  - 2.1.1. All specified equipment shall be UL listed or equivalent and comply with UL 2331-1 and UL 2594.
  - 2.2 Installations shall be permanent. Temporary wiring shall not be used.
  - 2.3 Charging stations shall be pedestal, bollard or post style. Provide barrier protection at charging station locations, as required.
  - 2.4 A review of the existing electrical system equipment ratings and available capacity shall be performed. Design for new installations shall not cause electrical systems switchgear or transformers to become overloaded. Necessary electrical service equipment modifications shall be included in the charging equipment design.

- 2.5 Ensure voltage drop assumptions are provided for feeder wire supplies.
  - 2.6 Where dual port chargers are provided, ensure each charger port has full amperage capacity.
  - 2.7 Level 2 charging stations will typically be specified. Input power: 40A-90A, 208/240v.
  - 2.8 Minimum charger station cable length: 18 feet.
  - 2.9 Charging station operating temperature: -40 to 122 degrees F.
  - 2.10 Charging Station enclosure: Type 3R.
  - 2.11 Access to the charging station(s) shall be ADA and ICC A117.1 compliant.
  - 2.12 Charging station controls and charge cable holder heights shall be ADA and ICC A117.1 compliant.
3. Charging station and networking requirements for metering/billing/invoicing:
- 3.1 Equipment shall have networking capabilities to support cloud-based management of billing, invoicing and data collection, as required by the campus Parking and Transportation Office.
  - 3.2 (For MU campus) Equipment Basis of Design: Charge Point Level 2 equipment with software integration for cloud-based management and monitoring. Acceptable charging stations: Model CT4000, CPF50, or CP6000 (model selection and single or dual port capability as determined by MU Parking and Transportation).
  - 3.3 (For MU campus) Electric metering: Depending on the application, charging stations may be required to be separately metered using standard electrical revenue metering.
  - 3.4 (For UMKC campus) Equipment and electric metering; Equipment may be University owned or hybrid owner model – confirm requirements with campus Parking and Transportation Office. Charging stations shall be separately metered.