

Electric Vehicle Supply Equipment-(EVSE) Design and Install Considerations

The intention of this document is to help guide the process of siting, design and installation of EVSE at Vermont municipal sites.

1. The First step in the process is to evaluate the need for a historical review by VT Division of Historic Preservation(VDHP). *Is the building on the Historic Registry or more than 50 years in age?* If YES, Projects require submitting a 2 page application for review. Some projects will be exempt from historical review per existing MOA which can be found on the MERP [Implementation Grant | Buildings and General Services](#) website.
2. *Is there any major ground disturbance for conduit, pedestal or signage?* In design phase town records should be referenced to ensure there are no septic, well or utilities in the area. Before installation ensure Dig Safe reviews the excavation area for safety. (811 or 888-344-7233). Flagging and measuring the run will ensure an accurate excavation, will inform the historical review and help contractor in accuracy of material.
3. *How is the EVSE intended to be used? Is this for public use? For employees and fleet only?* Hybrid of employees and public will fall under rules of The Weights & Measures Section of the Vermont Agency of Agriculture Food & Markets (VAAF) [Electric Vehicle Charging Stations | Agency of Agriculture Food and Markets](#). *Will the unit be placed on a public registry through ChargePoint, PlugShare, ChargeFinder or Drive Electric Vermont?* The decision to sell electricity to the public for consumption in vehicles will inform equipment choice. Areas of heavy tourist traffic that are easily accessible are more inclined to have public charge stations both level 2 and 3. If the EVSE is only for the town usage, then location can be behind fences, gates or in less accessible locations.



Level 2 Charging a Vehicle



Level 2 EVSE Unit



Level 3 Unit in Montpelier

4. *What type of EVSE is going to be used? Level 1, 2 or 3.*
Level 1- Has advantage of only needing a standard 120 volt outlet. Slow charge, 2-5 miles of range per hour but low upfront investment.
Level 2- Charging utilizes a 240-volt electrical outlet and requires the installation of a dedicated charging station or wall-mounted unit. Level 2 chargers work faster with 10-60 miles of range per hour.
Level 3- Charging is DC fast charging. Level 3 is the fastest form of EV charging available and is designed for quick charging on the go. Level 3 chargers use direct current (DC) power and can charge an EV battery from 0-80% in as little as 30 minutes, providing up to 150 miles of range in that time.
5. *Can the existing electrical system effectively supply the EVSE units? Will there be any need to increase service, panel or circuits?* It is common for electrical service improvements to be made before installing EVSE units. While Level 1 chargers only require a standard 120 V outlet, Level 2 and 3 use more energy. Level 2 chargers, depending on model used, often require installation of an increased service or larger panel capable of feeding a 30 to 80 amp breaker. Level 3 Chargers need 3 phase power and potentially a dedicated service. May require utility engineer review for increase to service size, or transformers needed. If Increase in electrical service affects ground or structure, it might require Historical Review.

6. *Is there a location to install the EVSE in an existing parking area that is accessible from the existing electric service panel? Is there an area that will minimize aesthetic impact?* Major alteration of the electrical service or Historical aesthetic will require historical review.

7. *Are there any special considerations for flooding, security, vandalism?* There are EVSE manufacturers that have a variety of solutions depending on location. Most units are pedestal mounted, but there are offerings of ceiling mount and elevated pole mount. Elevated Pole mounts are being implemented in areas that have experienced or are in danger of flooding. Consult the [Vermont Flood Ready Atlas | Flood Ready](#) site for flood maps and information.



Pole Mount EVSE

8. *How do you plan to connect the smart charger to communications? Is there a good cellular network available?* Many EVSE units require strong cellular connections for a reliable and secure data communication. If connecting through the internet, plan to have communications connections, extra conduit for low voltage communication wires. Clarify approach in design as the choice might necessitate ordering a specific model.

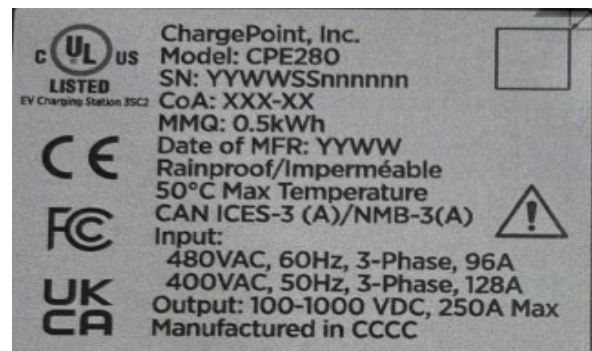
9. All EVSEs used commercially and available to the public must be “Legal for Trade” and comply with all the requirements in [NIST Handbook 44](#).

	N. America	Japan	EU and the rest of markets	China	All Markets except EU
AC					
	J1772 (Type 1)	J1772 (Type 1)	Mennekes (Type 2)	GB/T	
DC					
	CCS1	CHAdeMO	CCS2	GB/T	Tesla

10. As of July 1, 2024, all new commercial weighing and measuring devices placed into service in Vermont must have a National Type Evaluation Program (NTEP) Certificate of Conformance (CC), this includes all new EVSE equipment. This is a maturing of the EVSE sector, increasing consumer protections in sale of electricity for vehicle charging. The [NTEP Certificates of Conformance Database Search | NCWM](#) shows what equipment is NTEP compliant

These devices will have a nomenclature plate containing the following information:

- Make and Model
- Serial Number
- Voltage and Type of Current
- Maximum Current Deliverable
- Temperature Limits
- Minimum Measured Quantity
- NTEP CC Number



For additional Information follow links to our partners resources.

[Contractors, Builders & Retailers Near Me | Efficiency Vermont](#)

[EV Charger Installation Guide for Businesses and Municipalities - Drive Electric Vermont](#)