

Electric Vehicle (EV) Charging System

*This handout is for informational purposes only.
The provisions of the City's adopted codes prevail.
Installation of or changes to any EV charger requires a permit.
Work without a permit may be subject to enforcement action
per the Warrenville City Code.*



Document Submittal List

- Online permit application.
- Copy of electrician's license.
- Copy of Installer's Illinois Commerce Commission (ICC) registration
- A copy of a signed contract for work including proposed materials.
- Site plan and or Plat of Survey (see example Figure 1) drawn to scale showing if not installed in an existing building:
 - a. Property lines, adjacent streets, lot dimensions and the north arrow,
 - b. Primary use of the space or area where the EVCS will be installed,
 - c. Location of the proposed EVCS equipment on the property,
 - d. Number of proposed EVCS chargers.
 - e. Any site changes such as curbing, bollards or other protective/safety equipment
- Electrical line diagram (see Figure 2) with:
 - a. EVCS configuration,
 - b. EVCS specifications (manufacturer, maximum kW rating, voltage and ampacity, cable management system, if applicable),
 - c. Mounting details (e.g., wall, pedestal with footing details),
 - d. NEMA enclosure type,
 - e. Conduit types and sizes, and numbers of conductors per branch run
 - f. Wire types, number of wires, and wire size
 - g. Branch run (approximate) distances
 - h. Number of conductors per branch run
 - i. Equipment grounding
 - j. Manufacturer and size of new and existing electrical panel(s) and disconnects in the EV charging circuits
 - k. Sub-metering, if applicable
 - l. Description of any power sharing, if applicable
- Load calculation for EVCS and 240V outlets installations
- EVCS specification sheets and installation manuals
- Photographs of existing panels or specifications for new EV charging infrastructure equipment including new panels (V, A, Phase), circuit breakers (V, A), and other new electrical equipment.
- NEMA outlet specifications, if applicable
- Utility service upgrade applications between facility and utility, if applicable. [ComEd Residential New Service Contact Information](#).

Failure to provide any of the above documents may result in processing delays.

Applicable Codes

- 2020 National Electric Code
- 2021 International Building Code
- 2021 International Residential Code
- [Illinois Vehicle Code Charging Act \(Public Act 103-0053\)](#)
- [City of Warrenville Code of Ordinances](#)

General Information and Fees

- All electric vehicle charging system contractors must be registered with the ICC as a [ICC Certified EV Charging Station Installer](#). A current copy of an installer's ICC certification must be on file at the City or submitted prior to permit issuance.
- A permit is required to install, add, or alter, any electrical system or equipment other than changing lamps, receptacles, switches, or similar apparatus.
- All work is to be done in accordance with the 2020 National Electrical Code and the amendments adopted by the City of Warrenville.
- All non-EV contracted electrical work shall be performed by a licensed electrician. The electrical license must be one which was acquired by passing a written electrical examination offered by an approved municipality or a national contractor/trades association with a journeyman or higher electrician certification.
- The application review period averages two weeks. Applicants are contacted via email when the permit is ready for payment and issuance.
- If work commences prior to permit issuance, the permit fee shall be doubled.
 - A list of required inspections is provided on the reverse side of the permit. Inspections must be scheduled at least one day prior to the desired inspection date by calling the Warrenville Community Development Department (630-393-9050). Call for a rough-in inspection when all the raceways and boxes are installed with wires pulled in raceways. Do not cover any work with insulation, receptacles, or wall switches until the inspector has approved it.
 - Be sure that panel boxes are covered, and circuits are labeled in the correct spaces on the box.
 - All equipment, fixtures, switches, and appliances must be installed, and energized for the final inspection.
- A permit may become invalid if work does not begin within 180 days of issuance, or if construction has been halted and not resumed for a period of 180 consecutive days.
- Homeowners Association (HOA) approval may be required before commencing work. The issuance of a permit does not exempt HOA rules and regulations.
- It is the homeowner/contractor's responsibility to have underground utilities located no less than 48 hours prior to digging by calling J.U.L.I.E (811).
- Residential EV charger permit fee is \$75.00. Commercial fees vary based on the scope of work and are outlined in the fee schedule available on the City's website.
- Approved construction documents shall always be available on site.
- Alterations to the approved plans must be resubmitted to the Chief Code Official in writing for review and approval prior to construction.

Adopted Amendments to the 2020 NEC

- EMT is required in remodeling or new residential construction with access to wall or ceiling cavities, conductors shall be installed completely in EMT. Short lengths of flexible metal conduit may be permitted by the Code Official.
- Exterior disconnects for residential services are not required.
- The service disconnecting means shall be installed in a readily accessible location at the utility meter or at a point not more than five feet from the utility meter. All conductors for wiring must be copper.
- All commercial work requires conductors to be a minimum size #12 AWG.
- All exterior low voltage wiring for commercial HVAC equipment shall be installed in an approved *raceway*.
- 15-amp devices shall be supplied with number 14 AWG conductors and 20-amp devices with 12 AWG conductors.
- Conductors cannot be dependent device connections such as lamp-holders, receptacles, and so forth, where removal would interrupt the continuity. Conductor shall be looped or have a pigtail wiring connection to the device.
- Conductors terminated at receptacles or switches are allowed only under the screw of the device per the manufacturer's directions.
- PVC shall not be permitted to emerge from concrete, earth, or other solid surfaces. Any portion of the raceway emerging from concrete or earth shall be installed in ridged metal conduit to a point not less than 18 inches above and below the emergence.
- EMT is not permitted in concrete, direct contact with earth, or used for exterior installations.
- Metal-Clad Cable Type MC cable is only to be used with lay-in type fixtures and recessed lighting fixtures in lengths not to exceed 6 feet of the total raceway.
- All unused wiring, including low voltage, is required to be removed back to the source of power or last utilized electrical device on the circuit.
- Service entrance conductors are to be installed in rigid metal conduit or intermediate metal conduit. PVC is allowed for underground use only and must be protected from any physical damage.
- Raceways installed in or under a slab or underground, except for service entrance raceways, require a separate equipment grounding conductor.
- The following materials and methods are not permitted:

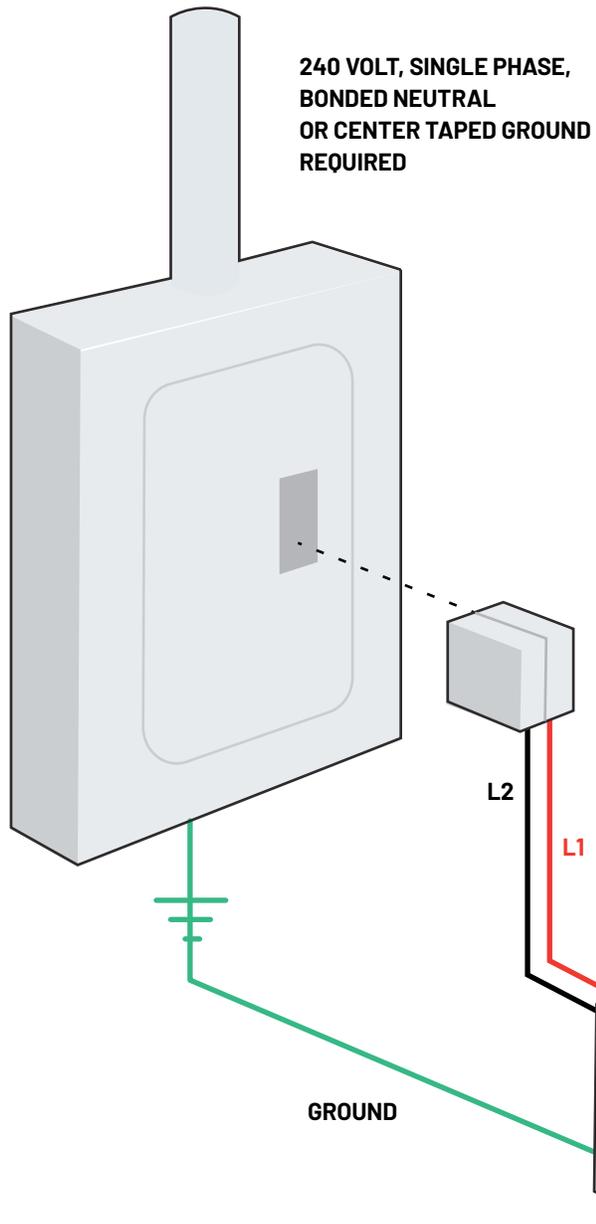
*Armored Cable Type AC.
Flat Cable Assemblies Type FC.
Flat Conductor Cable Type FCC.
Integrated Gas Spacer Cable Type IGS.
Medium Voltage Cable Type MV.
Nonmetallic Sheathed Cable.
Service Entrance Cable Types SE and
USE.
Manufactured wiring systems in any concealed or outdoor locations.*

*Liquid Tight Flexible Nonmetallic Conduit.
Concealed Knob and Tubing Wiring.
Messenger Supported Wiring.
Open Wiring on Insulators.
Surface Nonmetallic Raceways.
Nonmetallic Extensions.
Electrical nonmetallic tubing.
Flexible Metal Conduit outdoors*

Inspection Requirements

- When the work is completed, an on-site inspection is required and must be passed before you can use the electric vehicle charging station. In some cases, multiple inspections may be required, and this will be determined during the permit review process. Inspections are typically completed within 2 days of being requested.

- The types of inspections that may be required include:
 - Rough and final electrical service connection inspections
 - Rough and final building inspections



**FIGURE 2:
EXAMPLE
ELECTRICAL
DIAGRAM**

(Source: SemaConnect)

FIGURE 1: EXAMPLE SITE PLAN

