

EV Charging Infrastructure Requirements for New Residential Buildings Guidance

There are two ways to meet the requirements:

1. Dedicated circuits

Projects can meet the requirement by providing a dedicated circuit capable of providing Level 2 charging to an outlet at each parking stall.

2. EV Energy Management Systems (EVEMS)

EVEMS can be used to connect multiple EV charging stations to one circuit, with communications capabilities to control their collective load to avoid exceeding the capacity of the circuit.

In order to ensure vehicles receive adequate overnight recharging based on average daily driving distances in Metro Vancouver, projects using EVEMS must meet the following minimum performance standard:

The system must be capable of supplying a minimum performance level of 12kWh average per EVSE, over an 8-hour period, assuming that all parking spaces are in use by a charging EV.

The bylaw does not require installation of EVSE (only an energized outlet), however installation of EVSE at energized parking spaces is encouraged.

Additional Requirements

Communications Technology: Projects implementing EVEMS must provide the communications technology necessary for the function of the systems (e.g. cellular repeaters, wireless access points, or cabled infrastructure).

EVSE Certification: Electrical configurations must be designed and certified to C22.2 NO. 280-16 – Electric Vehicle Supply Equipment (tri-national standard, with UL 2594 and NMX-J-677-ANCE-2016) by certification agencies such as CSA, Intertek (cETL), or UL (cUL). Products solely certified to UL 2594 can typically also be certified to CSA due to harmonized CSA and UL standards.

Metering: In buildings with shared parking areas, EV electrical infrastructure should be metered separately from the common areas, so that stratas, buildings owners, and BC Hydro can distinguish between common area electrical usage and EV charging electrical usage.

Definitions

Level 2 Charging: Level 2 charging is defined by SAE International's J1772 standard:

Charge Method	Nominal Supply Voltage (V)	Max Current (Amps-continuous)
AC Level 2	208V to 240V AC, 1 phase	≤80A

The amperage rating for EV circuits required by most Level 2 EVSE is 40A, although this may differ depending on the particular system design.

Electric Vehicle: A vehicle that uses electricity for propulsion, and that can use an external source of electricity to charge the vehicle's batteries. This includes EVs that rely exclusively on a battery, and plug-in hybrid EVs. It excludes hybrid vehicles that recharge on-board and do not have the ability to plug-in to recharge.

Electric Vehicle Supply Equipment (EVSE): The piece of equipment to deliver charging and means the complete assembly consisting of conductors, connectors, devices, apparatus, and fittings installed specifically for the purpose of power transfer and information exchange between a branch electric circuit and an electric vehicle.

Energized Outlet: A connection point in an electrical wiring installation at which current is taken and a source of voltage is connected to supply utilization equipment. An energized outlet may be either a junction box for permanent connection or a receptacle.

Electric Vehicle Energy Management System (EVEMS): Also sometimes called "smart charging", "power sharing", or "load sharing", EVEMS refers to a variety of technologies and services that control the rate and timing of EV charging. An EVEMS distributes the electricity, allowing multiple charging points to safely use a single circuit simultaneously.

Resources

Developed by the City of Richmond with funding support from BC Hydro, a guide to assist developers, designers and property managers implement EV charging in multi-family buildings and other building types: [Electric Vehicle Charging Infrastructure in Shared Parking Areas](#)