



Electric Vehicle Charging Infrastructure Requirements

Planning Division

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WHAT IS LEVEL 2 CHARGING?

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

Charge Method: AC Level 2

Nominal Supply Voltage (V): 208V to 240V AC, single phase

Max Current (Amps-continuous): ≤ 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.



Do you need more information?

Contact Planning and Development at the City of Port Moody.

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Background

Electric vehicles (EVs) provide a more sustainable alternative to fossil fuel powered vehicles, and are increasingly popular. EVs help to improve air quality, combat climate change, reduce noise, and foster green economic development, among other benefits. The availability of EV charging infrastructure at home and on the go is one of the most important factors in an individual's decision to purchase an EV. **Over 80% of EV charging occurs at home**, which is typically the most convenient as well as the lowest cost for owners. New homes and commercial spaces can be equipped with EV charging with relatively modest cost.

Zoning Bylaw Requirements

The City of Port Moody's Zoning Bylaw, No. 2937 (section 6.11) includes the following requirements for EV charging infrastructure:

- 100% of required parking spaces for new dwelling units (excluding visitor parking spaces, secondary suite parking spaces, and new parking spaces servicing existing dwelling units) must include an energized outlet capable of providing **Level 2 charging** for an electric vehicle;
- a minimum of 20% of commercial parking spaces (excluding visitor and new parking spaces servicing existing units) must include an energized outlet capable of providing **Level 2 charging** for an electric vehicle;
- each energized outlet must be labelled for its intended use;
- plans submitted for development permit applications and building permit applications must indicate an energized outlet at all applicable spaces; and
- the City requires a Level 2 energized outlet of 208-240V AC and minimum 32A (40A branch breaker).

There are two ways to comply with these requirements:

1. Provide a dedicated circuit and energized outlet to each required EV parking space; or
2. Utilize an EV Energy Management System (EVEMS) that meets the minimum performance standard defined on page 2 of this Bulletin. The EVEMS must be installed (online and/or as hardware) as part of the EV electrical infrastructure.

These requirements do not apply to development projects that have applied for a building permit, or have an authorized development permit, prior to March 1, 2019.

TERMS AND DEFINITIONS

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.

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 Supply

Equipment (EVSE): Equipment to deliver charging could consist 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.

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.

Electric Vehicle Energy Management System (EVEMS) Minimum Performance Standard

In an electric vehicle energy management system (EVEMS), the electrical supply is shared, meaning it can take longer to charge vehicles compared to dedicated circuits. Having a minimum performance standard ensures that there is sufficient electricity to ensure a reasonable rate of charging, based on daily driving distances applicable for Metro Vancouver. It is intended that vehicles plugged in to the EVEMS will have a charge equivalent to approximately 65km of driving distance; however, specific performance can vary depending on factors such as vehicle type, local weather, topography, and driving habits.

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

Additional Measures

Communications Technology: Projects implementing an electric vehicle energy management system must provide the necessary communications technology for the system to function (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 separately metered from the common areas, so that stratas, building owners, and BC Hydro can distinguish between common area electrical usage and EV charging electrical usage.

Strata Management: Stratas are encouraged to file strata bylaws detailing the management of EV charging, including establishing rules and service contracts.

Resources

City of Richmond

Electric Vehicle
Charging Infrastructure
in Shared Parking Areas
richmond.ca

PlugIn BC

Strata Bylaw Templates
for EV Charging
pluginbc.ca

Metro Vancouver

Electric Vehicle
Charging in Condos,
Apartments and
Townhomes
metrovancouver.org