

Electric Vehicle Charging

Infrastructure Requirements in New Westminster

This document provides information on meeting electric vehicle (EV) charging infrastructure requirements in the City of New Westminster.



Background

Electric vehicles (EVs) provide a more sustainable alternative to fossil fuel powered vehicles and are increasingly popular. The use of EVs instead of conventional internal combustion engine vehicles helps improve air quality, combat climate change, reduce noise, and foster green economic development, among other benefits. The City's upcoming Electric Mobility Strategy and updated Community Energy and Emissions Plan (CEEP) support policies to encourage the uptake of electric vehicles.

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. New homes can be equipped with EV charging with relatively modest cost. Energy management systems, which allows multiple charging points to safely use a single circuit simultaneously, also makes it more feasible to install EV charging in multi-family residential buildings.

New Westminster's EV-Ready Infrastructure Requirements

For new buildings that contain at least one dwelling unit, all residential parking spaces and spaces for co-operative vehicles, shall feature an energized Level 2 outlet or higher to the parking space (with Level 2 defined by SAE International's 11772 standard). Energized Level 2 outlets will not be required for visitor parking spaces. These requirements can be found in Section of the [Zoning Bylaw 8040](#).

Note: *The addition of a new secondary suite within an existing single detached home does not require the addition of an energized outlet.*

Electric vehicle energy management systems (EVEMS), also known as load management or power sharing, may be used as long as the performance requirements and technical matters outlined in this document are met.

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

Meeting the Requirements

When it comes to installing EV charging-infrastructure, **dedicated Circuits** or **EV Energy Management Systems (EVEMS)** may be used to meet the requirements in the Canadian Electrical Code (CEC).

- 1. Dedicated Circuit:** A dedicated circuit means an electrical circuit intended to power only one energized outlet.
- 2. Electric Vehicle Energy Management System (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. Further information on EVEM systems is provided in the following sections.

Electric Vehicle Energy Management System (EVEMS) Minimum Performance Standard

Electric vehicle energy management systems (EVEMS) are also referred to as “load sharing.” When multiple electric vehicle supply equipment (EVSE) are supplied from a single branch circuit or panel, demand is controlled to ensure circuit rating is not exceeded. **EVEMS systems can therefore be used to effectively manage loads and provide access to multiple EV charging outlets in multi-unit residential buildings and/or stratas.**

Minimum Performance Standard for EV Charging where an EVEMS is implemented

In an EVEM system, the electrical supply is shared. This means it can take longer to charge vehicles when compared to a dedicated circuit. A minimum standard ensures that there is enough electricity to charge an electric vehicle relatively fast. The following minimum performance standard is recommended for EVEM systems implemented in the City of New Westminster:

- An EVEMS system must be capable of supplying a **minimum performance level of 12kWh average per electric vehicle supply equipment (EVSE) over an 8-hour overnight period.** This number is based on all parking spaces in use by a charging electric vehicle.

This standard helps to ensure that sufficient electricity is available to EVSE users to ensure a reasonable rate of overnight charging. It also helps to ensure that each EV charging stall in MURBs and/or stratas is not required to be 100% dedicated, but that there is a required minimum service level.

Energized Outlets & Labelling Requirements for EV Charging

All new residential parking spaces (excluding visitor parking spaces) should require a Level 2 (208 to 240 volt) energized outlet capable of providing charging ([Bylaw No. 8040, 2018](#)).

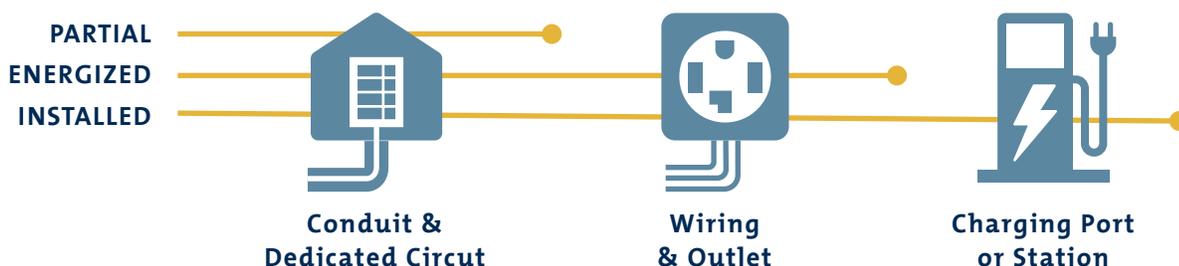
An energized outlet is defined as: A connected point in an electrical wiring installation at which current is taken to supply utilization equipment. An energized outlet may be either a junction box for permanent connection or a receptacle.

Note: “energized outlet” is not specifically defined in the Canadian Electrical Code ([Residential Electric Vehicle Charging](#)). An energized outlet can take the form of an electric receptacle (further details provided below).

WHAT ARE THE LABELLING REQUIREMENTS?

Energized outlets shall be labelled for the use of electric vehicle charging. Labelling the outlet for EV charging is important to deter other non-EV uses and increase the visibility of EV charging. It also ensures that the appropriate outlet is installed according to the Canadian Electrical Code (Section 86-306): **“Each receptacle for the purpose of electric vehicle charging shall be labelled in a conspicuous, legible, and permanent manner, identifying it as an electric vehicle supply equipment receptacle”.**

Below is a diagram showing various readiness options for electric vehicle supply equipment requirements, showing the electrical equipment visible to electric vehicle users.



Management of EV Charging Infrastructure

INDIVIDUAL PARKING (SINGLE-FAMILY AND SOME TOWNHOUSES)

Residences such as detached homes, semi-detached (duplex) homes, and some townhouse units have parking spaces in private garages, carports or surface parking areas that are individually serviced with electrical infrastructure directly from the adjacent private residence.

To meet the City's requirements, each required parking space for a new dwelling unit, excluding those for secondary suites and visitor parking, must feature an energized outlet of 208-240V AC and minimum 40A circuit breaker. Any of the three following strategies may be used to meet the requirement:

- **Provide a dedicated circuit and energized outlet** to each required parking stall.
- **Load Switching:** In residences with private parking spaces such as single detached homes and townhouses that feature parking spaces exclusive to a dwelling unit, the CEC (and Technical Safety BC) allows EVSE to be supplied from a branch circuit that supplies another load(s), such as a dryer or stove. This enables an EV charger outlet to be situated be on the same load/ circuit without requiring changes to electrical drawings and reapproving applications (for single-family dwellings). Control equipment such as a load miser (watt miser) may be used to prevent simultaneous operation of the EVSE with other circuit loads so the calculated demand of the circuit is not exceeded (see CSA CEC 22.1-15 Rule 86-300).
- **Utilize load sharing (EVEMS)** with a minimum 208-240V 40A circuit breaker to achieve the minimum performance requirements, or greater.

EV charging beyond the minimum requirements of the Bylaw may be provided, including:

- **Additional parking space(s):** As long as all relevant electrical code requirements are addressed, and one energized outlet capable of providing Level 2 charging is installed, additional outlets for EV charging may be provided, or an EVEMS may be installed, in order to service more than one parking space.
- **Secondary suites:** Although not required by the Bylaw, EV charging may be provided to a secondary suite utilizing one of the options above. If a dedicated or load switched circuit is used, it should be supplied from the suite's electrical panel.
- **EVSE:** The Bylaw does not require installation of EVSE (only an energized outlet), however installation of EVSE at energized parking spaces is encouraged.

Please refer to the [Building Division website](#) for permit application requirements.

SHARED PARKING (MULTI-UNIT RESIDENTIAL AND SOME TOWNHOUSES)

Parking spaces for multi-unit residential buildings and some townhouses are provided in underground garages that are serviced by shared infrastructure.

To meet the City's requirements, each residential parking stall, excluding those for visitor parking, must feature an energized outlet of 208-240V AC and minimum 40A circuit breaker. Either of the following two strategies may be used to meet the requirement:

1. Provide a dedicated circuit and energized outlet to each required parking stall.
2. Utilize an EV Energy Management System (EVEMS) that meets the minimum performance standard set by the City and defined in this Bulletin to ensure a reasonable rate of electric vehicle charging. The EVEMS must be installed (online and/or as hardware) as part of the EV electrical infrastructure.

EV charging beyond the minimum requirements of the Bylaw may be provided, including:

- **Visitor parking spaces:** Although not required by the Zoning Bylaw, EV charging may be provided to visitor parking stalls, either with dedicated circuits or with EVEMS.
- **DC Fast Charging (DCFC):** Although not required by the Zoning Bylaw, one or more DCFC may be installed. If so, the DCFC should include multi-standard connectors meeting both CHAdeMO and CCS standards, and be rated for at least 50 kW, in order to provide effective charging for the majority of EVs currently on the market.
- **EVSE:** The Bylaw does not require installation of EVSE (only an energized outlet), however installation of EVSE at energized parking spaces is encouraged.

Please refer to the [Building Division website](#) for permit application requirements.

Terminology

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 plugin hybrid EVs. It excludes hybrid vehicles that recharge on-board and do not have the ability to plugin to recharge.

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.

More Information

- City EV Policy, background and resources: www.newwestcity.ca/transportation/getting-around/electric-vehicles
- Inquiries: climateaction@newwestcity.ca
- General information about EVs including technology, vehicles and incentives: pluginbc.ca

Other Resources

- [City of Richmond Electric Vehicle Charging Infrastructure in Shared Parking Areas \(richmond.ca\)](#)
- [City of Richmond Guide on Residential Electric Vehicle Charging \(richmond.ca\)](#)
- [Metro Vancouver Electric Vehicle Charging in Condos, Apartments and Townhomes \(metrovancouver.org\)](#)



Additional questions about EV Charging in New Westminister?

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