

# Bulletin: Electric Vehicle Ready Requirements

New Residential Buildings – Effective April 1, 2024



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*This bulletin is for informational purposes only. Please be sure to consult the relevant City of Kelowna bylaw.*

*If any contradiction between this guide and the relevant Municipal Bylaws and/or applicable codes is found, such bylaw and/or codes shall be the legal authority.*

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## Purpose

This document provides guidance for meeting the **Electric Vehicle (EV) Ready Requirements** for new residential developments, pursuant to [Kelowna Zoning Bylaw No. 12375, Section 8.2.18](#).

## Background

Effective April 1, 2024, Kelowna Zoning Bylaw No. 12375 requires EV Ready charging infrastructure in all new all new Part 9 and Part 3 residential developments.

“EV Ready” (or “EV Readiness”) means that a parking space features an **energized outlet** capable of **level 2 charging** of an EV. **Electric vehicle supply equipment** is not required at the time of development. See terminology section below for full definitions.

EV Ready requirements apply only to new residential developments, not to renovations, additions, or a change of use to an existing building.

## Requirements in Kelowna

Effective April 1, 2024, new residential buildings must be designed and constructed in compliance with the requirements in the table below (Table 8.2.18 in Zoning Bylaw No. 12375).

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, 2024.

| Minimum Electric Vehicle Parking and Charging Requirements  |  |  |   |   |                             |
|---|--|--|---|---|-----------------------------|
| Land Use / Type of Development  | Minimum amount of electric vehicle <b>energized outlets</b> per parking space capable of providing <b>level 2 charging</b> <sup>.8</sup> |  |   |   | Effective Date              |
|   | Urban Centre Zones   | MF1 Zone, Village Centre Zones, and Zones fronting a Transit Supportive Corridor | All other zones within the Core Area                    | All other zones outside the Core Area <sup>.6</sup>     |                             |
| Apartment Housing, <sup>.1, .2, .3, &amp; .4</sup><br>Stacked Townhouses, <sup>.1, .2, .3, &amp; .4</sup> &<br>Townhouses <sup>.1, .2, .3, &amp; .4</sup> | Min 0.8 energized spaces <sup>.6</sup> per bachelor dwelling unit  | Min 0.9 energized spaces <sup>.6</sup> per bachelor dwelling unit                | Min 1.0 energized space <sup>.6</sup> per dwelling unit | Min 1.0 energized space <sup>.6</sup> per dwelling unit | April 1, 2024 <sup>.7</sup> |
|   | Min 0.9 energized spaces <sup>.6</sup> per 1 bedroom dwelling unit   | Min 1.0 energized space <sup>.6</sup> per 1 or more bedroom dwelling unit        |   |   |                             |
|   | Min 1.0 energized space <sup>.6</sup> per 2 or more bedroom dwelling unit  |  |   |   |                             |

|  |   |   |   |   |  |
|--|---|---|---|---|--|
| Congregate Housing <sup>.1, .2, .3, &amp; .4</sup> & Supportive Housing <sup>.1, .2, .3, &amp; .4</sup>  | Min 0.35 energized spaces per sleeping unit | Min 0.35 energized spaces per sleeping unit | Min 0.35 energized spaces per sleeping unit | Min 0.35 energized spaces per sleeping unit |  |
| Duplex Housing <sup>.1, .2 &amp; .5</sup><br>Semi-Detached Housing <sup>.1, .2, &amp; .5</sup> &<br>Single Detached Housing <sup>.1, .2 &amp; .5</sup> | Min 1.0 energized space per dwelling unit   | Min 1.0 energized space per dwelling unit   | Min 1.0 energized space per dwelling unit   | Min 1.0 energized space per dwelling unit   |  |

**FOOTNOTES (Section 8.2.18)**

- .1 The minimum **energized outlets** do not apply to the visitor parking.
- .2 **Energized outlets** must be labelled for their intended use for electric vehicle charging only.
- .3 **Energized outlets** must be assigned to an individual vehicle parking space and must be located no further than 1.0 metre from that parking space.
- .4 No more than one **energized outlet** may be assigned to an individual vehicle parking space.
- .5 The minimum energized EV **energized outlets** do not apply to secondary suites or carriage houses.
- .6 The minimum amount of electric vehicle **energized outlets** per parking space capable of providing **level 2 charging** can be reduced by 75% if the lot is zoned with a “r – rental only” sub-zone that restricts the dwelling units to a rental only tenure and prohibits any building stratification or bareland stratification.
- .7 This is the date these regulations will come into effect.
- .8 Where base parking requires a minimum of less than 1.0 space per dwelling unit, all parking spaces that require an **energized outlet** capable of providing **level 2 charging** shall be provided. For example: each dwelling unit should be assigned an energized parking space prior to a dwelling unit being assigned two or more energized parking spaces.

## Meeting the Requirements

EV ready infrastructure must be installed using either dedicated circuits or **electric vehicle energy management systems (EVEMS)**, to comply with Kelowna Zoning Bylaw No. 12375 (see Figure 1).

- Option 1 - Dedicated Circuit(s): Provide a dedicated circuit and **energized outlets** of 208-240V AC 1-phase, minimum 32 amp circuit (on 40 amp branch breaker), to each required EV ready parking space.
  - a. Dedicated circuits are typically installed in developments with private parking stalls containing individually serviced electrical infrastructure (e.g., single detached, semi-detached, duplex, and some townhouses), but are permitted in all residential development types.
  - b. Load Switching: In cases where an additional circuit for EV charging equipment exceeds an electrical panel’s calculated load, load switching equipment (a “load-miser” or “watt-miser”) can be installed to prevent simultaneous operation of the charging equipment with other circuit loads so the calculated demand of the circuit is not exceeded.
- Option 2 – Electric Vehicle Energy Management System (EVEMS): These technologies and services control the rate and timing of EV charging to allow multiple energized outlets to safely use a single branch circuit simultaneously.
  - a. **EVEMS** are typically installed in multi-unit developments with shared parking areas containing shared electrical infrastructure (e.g. apartments and some townhouses).

- b. Load sharing through an **EVEMS** must be installed (online and/or as hardware) as part of the EV electrical infrastructure. Where an **EVEMS** is installed, the allowable maximum number of electric vehicles per circuit breaker amperage is as follows:

| Circuit Breaker Amperage | Maximum Number of Energized Electric Vehicle Outlets |
|--------------------------|--|
| 40                       | 1-4  |
| 50                       | 5  |
| 60                       | 6  |
| 70                       | 8  |
| 80                       | 10   |
| 100                      | 12   |
| 125                      | 15   |

Note: Greater allowable levels of sharing are permitted beyond 125A, given the greater diversity of electrical loads possible at these higher amperages

- c. Projects implementing **EVEMS** must provide for communications technology necessary for the function of the chosen **EVEMS** (e.g. cellular repeaters, wireless access points, or cabled infrastructure).

Metering

In buildings with shared parking and electrical infrastructure, EV electrical infrastructure must be separately metered from the common areas so that stratas, building owners, and utility providers can distinguish between common area electrical usage and EV charging electrical usage.

Installation Requirements

All equipment must be installed in accordance with Canadian Electrical Code and approved for use by Technical Safety BC. Energized outlets shall be labelled for the use of EV charging to deter non-EV uses and to be consistent with the requirements of the Canadian Electrical Code: "Each receptacle for electric vehicle charging be labelled in a conspicuous, legible, and permanent manner, identifying it as an electric vehicle supply equipment receptacle."

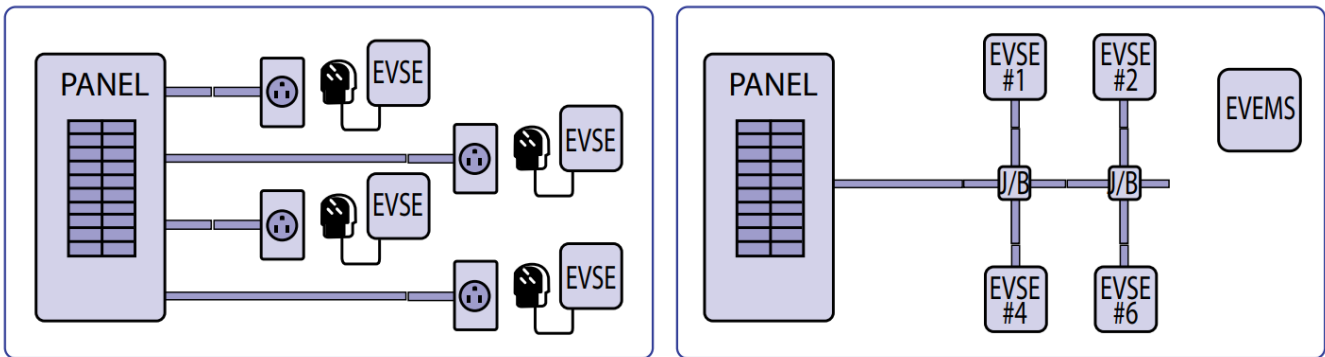


Figure 1: Dedicated circuits (left) compared to an electric vehicle energy management system (EVEMS) (right). Image courtesy of [Residential EV Charging: A Guide for Local Governments](#)

## Permit Submission Requirements

### Part 9 Buildings

All plans submitted for Building Permit applications must indicate EV Ready parking spaces in accordance with Table 8.2.18 in Zoning Bylaw No. 12375.

### Part 3 Buildings

At time of Development Permit, applicants shall:

- Indicate EV Ready parking spaces on building plans, including a schedule indicating the parking provided spaces per dwelling unit type, and the number of EV ready spaces provided per dwelling unit type, in accordance with Table 8.2.18 in Zoning Bylaw No. 12375.
- Submit a letter signed and sealed by the electrical engineer or coordinating professional confirming that the design of the EV charging infrastructure meets Zoning Bylaw requirements and minimum design requirements outlined in this Bulletin.

## System Management Guidelines and Best Practice

In buildings with shared parking and electrical infrastructure, provisions for management and maintenance are to be provided to the building owner, strata, and/or dwelling unit owner. The following are recommended to be included in the strata rules or bylaws, as a minimum:

- The party (Strata or dwelling unit owner) responsible for electric vehicle supply equipment purchase and installation is clearly delineated, and appropriate permissions and procedures outlined to ensure accessibility to energized outlets for the purposes of EV charging,
- **Electric vehicle supply equipment** ownership is defined, with additional consideration for parking space, electrical infrastructure, and supply equipment ownership and responsibilities,
- Billing rules and procedures are established,
- Where an **EVEMS** is implemented, the **electric vehicle supply equipment** must be compatible with that **EVEMS**.

## Terminology

**Electric Vehicle (EV)** means a vehicle that uses electricity for propulsion, and that can use an external source of electricity to charge the vehicle's batteries.

**Electric Vehicle Supply Equipment (EVSE)** means a 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.

**Electric Vehicle Energy Management System (EVEMS)** means a system to control electric vehicle supply equipment electrical loads comprised of monitor(s), communications equipment, controller(s), timer(s) and other applicable devices.

**Energized Outlet** means a connected point in an electrical wiring installation at which current is taken to supply electric vehicle supply equipment. An **energized outlet** can take the form of an outlet box with a cover, or an electrical receptacle of an appropriate configuration required for EVEMS or EVSE (see examples below).



Examples: Outlet box with cover; or electrical receptacle (commonly NEMA 14-50R receptacle, or NEMA 6-50R), as required by design. Energized outlets are to be labelled in a conspicuous, legible, and permanent manner, identifying it as an electric vehicle receptacle.

**Level 2 Charging** means a Level 2 **electric vehicle** charging level as defined by SAE International's J1772 standard, and may include variable rate charging that is controlled by an **EVEMS**. The standard currently defines it as a 208/240 volt circuit with a  $\leq 80$  amp rating. The amperage rating for EV circuits required by most **EVSE** is 40A, but may differ depending on the system design.

### Additional Information and Resources

- [Residential EV Charging: A Guide for Local Governments \(BC Hydro\)](#)
- [Electric Vehicle Charging Infrastructure in Shared Parking Areas \(BC Hydro\)](#)
- [Guide to EV Charging in Multi-Unit Residential Buildings \(NRCan\)](#)
- [EV Energy Management Systems Process – FAQ \(Technical Safety BC\)](#)
- [Managing EV charging infrastructure in residential strata buildings \(EVCondo\)](#)
- [Installing Electric Vehicle charging in your building \(PlugInBC\)](#)
- [Model Bylaws \(PlugInBC\)](#)
- [Go Electric \(Clean BC\)](#)