



STATE OF WASHINGTON  
**STATE BUILDING CODE COUNCIL**

May 2018  
Log No. \_\_\_\_\_

**1. State Building Code to be Amended:**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> International Building Code | <input type="checkbox"/> International Mechanical Code        |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code     | <input type="checkbox"/> International Fuel Gas Code          |
| <input type="checkbox"/> International Existing Building Code   | <input type="checkbox"/> NFPA 54 National Fuel Gas Code       |
| <input type="checkbox"/> International Residential Code         | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code |
| <input type="checkbox"/> International Fire Code                | <input type="checkbox"/> Wildland Urban Interface Code        |
| <input type="checkbox"/> Uniform Plumbing Code                  |   |

For the Washington State Energy Code, please see specialized [energy code forms](#)

**Section(s):**

427, Chapter 2: Definitions

**Title:**

Electric Vehicle Charging Infrastructure

**2. Proponent Name (Specific local government, organization or individual):**

**Proponent:** Kathleen Petrie

**Title:** Program Manager, Green Building Communitywide

**Date:** Updated September 16, 2021

**3. Designated Contact Person:**

**Proponent:** Kathleen Petrie

**Title:** Program Manager, Green Building Communitywide

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**4. Proposed Code Amendment.** Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code additional pages may be attached. (Examples on the SBCC [website](#))

**Code(s)** International Building Code      **Section(s)** 427, Chapter 2: Definitions

Enforceable code language must be used; see an example [by clicking here](#).  
Amend section to read as follows:

**New Definitions:**

**AFFORDABLE HOUSING.** Residential housing that is rented by a person or *household* whose monthly housing costs, including utilities other than telephone, do not exceed thirty percent of the *household's* monthly income. For the purposes of housing intended for owner occupancy, "affordable housing" means residential housing that is within the means of *low-income* or *moderate-income households*.

**ELECTRIC VEHICLE (EV) READY PARKING SPACE.** A parking space provided with *EV chargers*, receptacle outlets or other charging equipment allowing charging of electric vehicle.

**ELECTRIC VEHICLE (EV) CHARGER.** Off-board charging equipment used to charge electric vehicles.

**ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) SPACE.** An electric vehicle supply equipment (EVSE) space is served by conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, personnel protection system, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and an electric vehicle.

**HOUSEHOLD.** A single person, family, or unrelated persons living together.

**LOW-INCOME HOUSEHOLD.** A single person, family, or unrelated persons living together whose adjusted income is at or below eighty percent of the median family income adjusted for family size, for the county, city, or metropolitan statistical area, where the project is located, as reported by the United States department of housing and urban development.

**MODERATE-INCOME HOUSEHOLD.** A single person, family, or unrelated persons living together whose adjusted income is more than eighty percent but is at or below one hundred fifteen percent of the median family income adjusted for family size, for the county, city, or metropolitan statistical area, where the project is located, as reported by the United States department of housing and urban development.

**427.1 Scope.** The provisions of this section shall apply to the construction of new buildings, paved surface parking lots, and parking garages.

**Exception:**

1. Occupancies classified as Group R-3 or Group U.

~~((2. Group A, Group E, or Group M occupancies, except where employee parking spaces are designated. The provisions of Section 427 shall apply only to those designated employee parking spaces.))~~

**427.2 Required electric vehicle charging infrastructure.** Electric vehicle charging infrastructure for off-street parking spaces shall be provided according to Table 427.2.1. For developments that have mixed residential and nonresidential uses, parking associated with residential uses shall meet the requirements of Table 427.2.1, and parking associated with nonresidential uses shall meet the requirements of Table 427.2.2~~((Where parking is provided, ten percent of parking spaces shall be provided with electric vehicle charging infrastructure in compliance with Sections 427.3, 427.4 and 427.5.))~~ When the calculation of percent served results in a fractional parking space, the applicant shall round up to the next whole number.

**TABLE 427.2.1**  
**ELECTRIC VEHICLE CHARGING INFRASTRUCTURE<sup>c</sup>**

<u>Occupancy</u>	<u>Number of EVSE Spaces with installed EV charger</u>	<u>Number of EV-Ready Parking Spaces</u>
<u>Group A, B, E, F, H, I, M, and S occupancies</u>	<u>10% of total parking spaces</u>	<u>10% of total parking spaces</u>
<u>Group R occupancies that do not qualify as affordable housing</u>	<u>10% of total parking spaces</u>	<u>25% of total parking spaces</u>
<u>Group R-2 occupancies that qualify as affordable housing</u>	<u>5% of total parking spaces</u>	<u>25% of total parking spaces</u>

a. An EVSE parking space does not count as an EV-ready parking space for the purposes of meeting the requirements of this section.

~~((427.3 Electrical room(s). Electrical room(s) serving buildings with on-site parking spaces must be sized to accommodate the potential for electrical equipment and distribution required to serve a minimum of 20 percent of the total parking spaces with 208/240 V 40-amp, circuit or equivalent electric vehicle charging infrastructure.))~~

**427.3((4)) Electric vehicle charging infrastructure.** ~~((Electric vehicle charging infrastructure shall meet the following requirements:~~

- ~~1. A minimum number of 208/240 V 40-amp circuit or equivalent electric vehicle charging stations required to serve the parking spaces specified in Section 427.2. The electric vehicle charging stations shall be located to serve spaces designated for parking and charging electric vehicles.~~
- ~~2. Additional service capacity, space for future meters, panel capacity or space for additional panels, and raceways for future installation of electric vehicle charging stations. The service capacity and raceway size shall be designed to accommodate the future installation of the number of 208/240 V 40-amp circuit or equivalent, electric vehicle charging stations specified in section 427.2. The raceway shall terminate at spaces designated for parking and charging electric vehicles in the future.))~~

Where designated electric vehicle charging locations serve exterior on-grade parking spaces that are located more than 4 feet from a building, raceways shall be extended below grade to a pull box in the vicinity of the designated future electric vehicle charging locations or stub above grade in the vicinity of the designated future electric vehicle charging locations, protected from vehicles by a curb or other device.

**Exception:** In lieu of surface-mounted raceway between the electrical panel and the designated electric vehicle charging locations, it is permitted to provide permanent markings indicating the pathway for future raceway, and one inch diameter capped sleeves through each wall and floor assembly that are penetrated along that route. This pathway and the locations of capped sleeves shall also be indicated on the electrical plans. Raceway shall be installed for any portion of the pathway located below slabs, below grade, or within floor, wall or roof assemblies.

Load management infrastructure may be used to adjust the size and capacity of the required building electric service equipment and circuits on the customer facilities, as well as electric utility owned infrastructure, as allowed by applicable local and national electrical code.

**427.4((5)) Electric vehicle charging infrastructure for accessible parking spaces.** When electric vehicle charging infrastructure is required, ten percent of accessible parking space, rounded to the next whole number, shall be provided with electric vehicle charging infrastructure. The electric vehicle charging infrastructure may also serve adjacent parking spaces not designated as accessible parking. A maximum of ten percent, rounded to the next whole number, of the accessible parking spaces are allowed to be included in the total number of EV parking spaces required under Section 427.2.

**427.5. Identification requirements.** For electric vehicle--ready parking spaces, the branch circuit shall be identified as "Electric Vehicle Ready" in the service panel or subpanel directory, and the termination location shall be marked as "Electric Vehicle Ready".

- 5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.** Specifically note any impacts or benefits to business, and specify construction types, industries and services that would be affected. Finally, please note any potential impact on enforcement such as special reporting requirements or additional inspections required.

*Explanation for modifications made in the proposed amendment text following feedback from the September 1<sup>st</sup> IBC TAG:*

- The term “substantially improved” was not considered appropriate when being applied to EV charging, so the term has been removed and these requirements will now only apply to new buildings.*
- The proposed parameters for which R-occupancies were considered to be “affordable housing” have been modified to match those of RCW 84.14.010 (New and Rehabilitated Multiple-Unit Dwellings in Urban Centers). New proposed definitions for affordable housing, household, low-income household, and moderate-income household are identical with those in RCW 84.14.010.*
- The EVSE definition reflects the definition from the Electrical Code*
- Proposed Table 427.3 (Maximum Number of EVSE per Circuit Breaker) was considered unnecessary due to that the Electrical Code already manages this issue, so it has been removed.*
- As a first time EV charging infrastructure requirement in the Washington State IBC, it is imperative to require installed EV chargers in affordable housing projects, so residents have the option to purchase electric vehicles because they can charge at home. It is also important not to overburden the affordable housing developers due to that installed EV chargers and EV-ready infrastructure does increase costs and acquiring adequate project funding is already a challenge. Therefor the percentage of required EV chargers has been reduced from 10% to 5% from the requirements of Non-affordable R-2 occupancies and nonresidential buildings.*
- Although cost information was provided with the original amendment submittal, the “NO” box on the economic impact question was checked. This was an accidental oversight. New cost information has been added to the original proposal because more cost information has been acquired since the June 1 submittal date.*

Explanation provided for the original submittal:

This proposal uses the amended WSR 16-03-064 text, filed 1/19/16 by the SBCC. The proposed amendments reflect an EV Code that was developed by jurisdictions of the Regional Code Collaboration in 2020, and have been adopted (with some local modifications) by the City of Issaquah; King County is currently transmitting their EV Code to Council for approval.

The proposed amendments attempt to provide clarity to the current requirements in the following ways:

- The building code does not regulate employee parking, so the exception for Group A, E & M occupancies has been deleted.
- Washington is a zero-emission vehicle state (ZEV) which will require automakers derive up to 8% of sales of EV's by 2025. The addition of the EV-ready requirement will allow buildings to increase the amount of installed EV's as demand increases without heavy alteration infrastructure costs – just the cost of the actual charging unit.
- The proposal reduces the EV installed requirement by 50% for affordable housing projects, thereby reducing the cost burden for these projects.
- The requirements for existing Sections 427.3 & 427.4 have been incorporated into the new tables.
- At the 5/21/21 SBCC meeting, members were unable to find acceptable language to help ensure that vehicle load management systems work the way they are intended. Proposed Table 427.3 was developed by Engineers in Canada and has been used in the City of Saanich's EV Code (See page 4: [https://saanich.ca.granicus.com/MetaViewer.php?view\\_id=1&clip\\_id=312&meta\\_id=19499](https://saanich.ca.granicus.com/MetaViewer.php?view_id=1&clip_id=312&meta_id=19499)). By regulating the amount of parking stalls are attached to each size circuit, you mitigate the potential of under sourcing the energy to a group of spaces.
- New Section 427.5 requires labeling in the panel mimics the solar-ready requirements currently in the IBC and IRC.

**6. Specify what criteria this proposal meets.** You may select more than one.

- The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.
- The amendment is needed to address a specific state policy or statute.
- The amendment is needed for consistency with state or federal regulations.
- The amendment is needed to address a unique character of the state.
- The amendment corrects errors and omissions.

7. Is there an economic impact:  Yes  No

Explain:

This proposal adds costs, but cost impacts associated with multifamily and commercial development is not static due to variations in parking lot configuration, design, and development size.

The Plug-In Electric Vehicle Infrastructure Cost-Effectiveness Report for San Francisco states that EV-ready costs were estimated to be \$920 per parking space. Based on King County’s research when adopting their EV charging infrastructure ordinance, costs for a single-plug EV Charger in a multifamily structure ranged from \$2,400 – \$3,000; Costs for a single-plug charger in a commercial ranged from \$4,200 – \$4,750. EV readiness retrofit costs are up to eight times greater than new construction, adding between \$900 to over \$5,000 additional expense per space.

If there is an economic impact, use the tool below to estimate the costs and savings of the proposal on construction practices, users and/or the public, the enforcement community, and operation and maintenance. If preferred, you may submit an alternate cost benefit analysis.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost [Analysis tool](#) and [Instructions](#); use these [Inputs](#). **Webinars on the tool can be found [Here](#) and [Here](#)**)

\$Click here to enter text./square foot (For residential projects, also provide \$Click here to enter text./dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

No additional plan review or inspection effort required.

Please send your completed proposal to: [sbcc@des.wa.gov](mailto:sbcc@des.wa.gov)

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.