STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

May 2018

Log No. _____

1. State Building Code to be Amended:

- ☒ International Building Code
- ☐ ICC ANSI A117.1 Accessibility Code
- ☐ International Existing Building Code
- ☐ International Residential Code
- ☒ International Fire Code
- ☐ Uniform Plumbing Code
- ☐ International Mechanical Code
- ☐ International Fuel Gas Code
- ☐ NFPA 54 National Fuel Gas Code
- ☐ NFPA 58 Liquefied Petroleum Gas Code
- ☐ Wildland Urban Interface Code

For the Washington State Energy Code, please see specialized energy code forms

Section(s): IFC 202, 915, 1103.9 & IBC 915

Title: General Definitions, Carbon Monoxide (CO) Detection, Carbon monoxide detection

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

Proponent: Ken Brouillette
Title: Technical Code Coordinator
Date: 9/11/2024

3. Designated Contact Person:

Name: Ken Brouillette
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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.

   Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

   Code(s) _2024 IFC& IBC_ **Section(s)** IFC 202, 915,1103.9 & IBC Definitions, 915_

   Enforceable code language must be used.
   Amend section to read as follows:

2024 IFC

~~**CARBON MONOXIDE SOURCE.** A piece of commonly used equipment or permanently installed appliance, fireplace or process that produces or emits carbon monoxide gas.~~

CARBON MONOXIDE SOURCE. A combustion process that has the potential to produce carbon monoxide as a product of combustion under normal or abnormal conditions. Carbon monoxide sources include, but are not limited to solid-, liquid-, or gas-fueled appliances, equipment, devices, or systems, such as fireplaces, furnaces, heaters, boilers, cooking equipment, and vehicles with internal combustion engines.

Carbon Monoxide Source, Direct. A permanently installed carbon monoxide source that is located in an interior space.

Carbon Monoxide Source, Forced-indirect. A carbon monoxide source connected to an interior space by a forced air supply duct.

WAC 51-54A-0915 & WAC 51-50-0915

~~**Carbon monoxide detection.**~~

~~**915.1.1 Where required**. Carbon monoxide detection shall be provided in Group I and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.~~
~~EXCEPTIONS:~~
~~1. R-2 occupancies, with the exception of R-2 college dormitories, are required to install carbon monoxide detectors without exception.~~

~~2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and assisted living facilities and residential treatment facilities licensed by the state of Washington, which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that they comply with the exceptions of Section 915.1.4.~~

~~**915.2.1 Dwelling units.** Carbon monoxide detection shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each level of the dwelling. Where a fuel-burning appliance or a~~

fuel-burning fireplace is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.3 Group E occupancies. When required by Section 915.1 in new buildings, or by Chapter 11 of the International Fire Code, carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.
EXCEPTIONS:
1. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 50 or less.

2. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies where an exception contained in Section 915.1 applies, or in Group E occupancies where signals are transmitted to an off-site service monitored by a third party, such as a service that monitors fire protection systems in the building.

915.5.1 General. Carbon monoxide detection systems shall comply with NFPA 72. Carbon monoxide detectors shall be listed in accordance with UL 2075.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 72.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

2024 IFC
SECTION 915
CARBON MONOXIDE (CO) DETECTION

915.1 General. Carbon monoxide (CO) detection shall be installed in new buildings in accordance with Section 915.1.1. Carbon monoxide detection shall be installed in existing buildings in accordance with Section 1103.9.
Exception: Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.

915.1.1 Where required. Carbon monoxide detection shall be installed in the locations specified in Section 915.2 where any of the following conditions exist.
1. In buildings that contain a CO source.
2. In buildings that contain or are supplied by a CO-producing forced-air furnace.
3. In buildings with attached private garages.
4. In buildings that have a CO-producing vehicle that is used within the building.

915.2 Locations. Carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a CO source is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.2 Sleeping units. Carbon monoxide detection shall be installed in sleeping units. Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate

vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a CO source and is not served by a CO-producing forced-air furnace.

915.2.3 Group E occupancies. A carbon monoxide system that uses carbon monoxide detectors shall be installed in Group E occupancies. Alarm signals from carbon monoxide detectors shall be automatically transmitted to an on-site location that is staffed by school personnel. Exception: Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 30 or less.

915.2.4 CO-producing forced-air furnace. Carbon monoxide detection complying with Item 2 of Section 915.1.1 shall be installed in all enclosed rooms and spaces served by a fuel-burning, forced-air furnace.
Exceptions: 1. Where a carbon monoxide detector is provided in the first room or space served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.
2. Dwelling units that comply with Section 915.2.1.

915.2.5 Private garages. Carbon monoxide detection complying with Item 3 of Section 915.1.1 shall be installed within enclosed occupiable rooms or spaces that are contiguous to the attached private garage.
Exceptions: 1. In buildings without communicating openings between the private garage and the building.
2. In rooms or spaces located more than one story above or below a private garage.
3. Where the private garage connects to the building through an open-ended corridor.
4. An open parking garage complying with Section 406.5 of the International Building Code or an enclosed parking garage complying with Section 406.6 of the International Building Code shall not be considered a private garage.
5. Dwelling units that comply with Section 915.2.1.

915.2.6 All other occupancies. For locations other than those specified in Sections 915.2.1 through 915.2.5, carbon monoxide detectors shall be installed on the ceiling of enclosed rooms or spaces containing CO-producing devices or served by a CO source forced-air furnace.
Exception: Where environmental conditions prohibit the installation of carbon monoxide detector in an enclosed room or space, carbon monoxide detectors shall be installed in an approved enclosed location contiguous with the room or space that contains a CO source.

915.3 Carbon monoxide detection. Carbon monoxide detection required by Sections 915.1 through 915.2.3 shall be provided by carbon monoxide alarms complying with Section 915.4 or carbon monoxide detection systems complying with Section 915.5.

915.3.1 Alarm limitations. Carbon monoxide alarms shall only be installed in dwelling units and in sleeping units. They shall not be installed in locations where the code requires carbon monoxide detectors to be used.

915.3.2 Fire alarm system required. New buildings that are required by Section 907.2 to have a fire alarm system and by Section 915.2 to have carbon monoxide detectors shall be connected to the fire alarm system in accordance with NFPA 72.

915.3.3 Fire alarm systems not required. In new buildings that are not required by Section 907.2 to have a fire alarm system, carbon monoxide detection shall be provided by one of the following:
1. Carbon monoxide detectors connected to an approved carbon monoxide detection system in accordance with NFPA 72.
2. Carbon monoxide detectors connected to an approved combination system in accordance with NFPA 72.
3. Carbon monoxide detectors connected to an approved fire alarm system in accordance with NFPA 72.
4. Where approved by the fire code official, carbon monoxide alarms maintained in accordance with the manufacturer's instructions.

915.3.4 Installation. Carbon monoxide detection shall be installed in accordance with NFPA 72 and the manufacturer's instructions.

915.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.4.

915.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.
Exception: Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.

915.4.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034.

915.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 217 and UL 2034.
915.4.4 Interconnection. Where more than one carbon monoxide alarm is required to be installed, carbon monoxide alarms shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

915.5 Carbon monoxide detection systems. Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.

915.5.1 General. Carbon monoxide detectors shall be listed in accordance with UL 2075.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 72.

915.5.3 Combination detectors. Combination carbon monoxide/smoke detectors shall be an acceptable alternative to carbon monoxide detectors, provided that they are listed in accordance with UL 268 and UL 2075.

915.5.4 Occupant notification. Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.
Exception: Occupant notification is permitted to be limited to the area where the carbon monoxide alarm signal originated and other signaling zones in accordance with the fire safety plan, provided that the alarm signal from an activated carbon monoxide detector is automatically transmitted to an approved on-site location or off-premises location.

915.5.5 Duct detection. Carbon monoxide detectors placed in environmental air ducts or plenums shall not be used as a substitute for the required protection in Section 915.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

915.6.1 Enclosed parking garages. Carbon monoxide and nitrogen dioxide detectors installed in enclosed parking garages in accordance with Section 404.1 of the International Mechanical Code shall be maintained in

~~accordance with the manufacturer's instructions and their listing. Detectors that become inoperable or begin producing end-of-life signals shall be replaced.~~

915.1 General. New and existing buildings shall be provided with carbon monoxide (CO) detection in accordance with Sections 915.2 through 915.5.

915.2 Where required. Carbon monoxide detection shall be provided in interior spaces, other than dwelling units or sleeping units, that are exposed to a carbon monoxide source in accordance with Sections 915.2.1 through 915.2.3. Carbon monoxide detection for dwelling units or sleeping units that are exposed to a carbon monoxide source shall be in accordance with Section 915.2.4.

915.2.1 Interior spaces with direct carbon monoxide sources. In all occupancies, interior spaces with a direct carbon monoxide source shall be provided with carbon monoxide detection located in close proximity to the direct carbon monoxide source and in accordance with Section 915.3.
Exception: Where environmental conditions in an enclosed space are incompatible with carbon monoxide detection devices, carbon monoxide detection shall be provided in an approved adjacent location.

915.2.2 Interior spaces adjacent to a space containing a carbon monoxide source. In Groups A, B, E, I, M and R Occupancies, interior spaces that are separated from and adjacent to an enclosed parking garage or an interior space that contains a direct carbon monoxide source shall be provided with carbon monoxide detection if there are communicating openings between the spaces. Detection devices shall be located in close proximity to communicating openings on the side that is furthest from the carbon monoxide source and in accordance with Section 915.3
Exceptions:
1. Where communicating openings between the space containing a direct carbon monoxide source and the adjacent space are permanently sealed airtight, carbon monoxide detection is not required for the adjacent space.
2. Where the fire code official determines that the volume or configuration of the adjacent interior space is such that dilution or geometry would diminish the effectiveness of carbon monoxide detection devices located in such spaces, detection devices additional to those required by Section 915.2.1 shall be located on the side of communicating openings that is closest to the carbon monoxide source.

915.2.3 Interior spaces with forced-indirect carbon monoxide sources. In all occupancies, interior spaces with a forced-indirect carbon monoxide source shall be provided with carbon monoxide detection in accordance with either of the following:
1. Detection in each space with a forced-indirect carbon monoxide source, located in accordance with Section 915.3.
2. Detection only in the first space served by the main duct leaving the forced-indirect carbon monoxide source, located in accordance with Section 915.3, with an audible and visual alarm signal provided at an approved location.

915.2.4 Dwelling units and sleeping units. Carbon monoxide detection for dwelling units and sleeping units shall comply with Sections 915.2.4.1 and 915.2.4.2.

915.2.4.1 Direct carbon monoxide sources. Where a direct carbon monoxide source is located in a bedroom or sleeping room, or a bathroom attached to either, carbon monoxide detection shall be installed in the bedroom or sleeping room.
Where carbon monoxide detection is not installed in bedrooms or sleeping rooms, carbon monoxide detection shall be installed outside of each separate sleeping area in close proximity to bedrooms or sleeping rooms for either of the following conditions:

1. The dwelling unit or sleeping unit has a communicating opening to an attached, enclosed garage.

2. A direct carbon monoxide source is located in the dwelling unit or sleeping unit outside of bedrooms or sleeping rooms.

915.2.4.2 Forced-indirect carbon monoxide sources. Bedrooms or sleeping rooms in dwelling units or sleeping units that are exposed to a forced-indirect carbon monoxide source shall be provided with carbon monoxide detection in accordance with Section 915.2.4.1 or Section 915.2.3.

915.3 Location of detection devices. Carbon monoxide detection devices shall be installed in accordance with manufacturer's instructions in a location that avoids dead air spaces, turbulent air spaces, fresh air returns, open windows, and obstructions that would inhibit accumulation of carbon monoxide at the detection location. Carbon monoxide detection in air ducts or plenums shall not be permitted as an alternative to required detection locations.

915.4 Permissible detection devices. Carbon monoxide detection shall be provided by a carbon monoxide detection system complying with Section 915.4.2 unless carbon monoxide alarms are permitted by Sections 915.4.1.

915.4.1 Carbon monoxide alarms. Carbon monoxide alarms complying with Sections 915.4.1.1 through 915.4.1.3 shall be permitted in lieu of a carbon monoxide detection system in both of the following:
1. Dwelling units and sleeping units.
2. Locations other than dwelling units or sleeping units, where approved, provided that the manufacturer's instructions do not prohibit installation in locations other than dwelling units or sleeping units and that the alarm signal for any carbon monoxide alarm installed in a normally unoccupied location is annunciated by an audible and visual signal in an approved location.

915.4.1.1 Power source. In buildings with a wired power source, carbon monoxide alarms shall receive their primary power from a permanent connection to building wiring, with no disconnecting means other than for overcurrent protection, and shall be provided with a battery backup. In buildings without a wired power source, carbon monoxide alarms shall be battery powered.
Exception: For existing buildings not previously required to have carbon monoxide alarms permanently connected to a wired power source, existing battery-powered and plug-in with battery backup carbon monoxide alarms shall be permitted to remain in service. When replaced, replacement with battery-powered and plug-in with battery backup carbon monoxide alarms shall be permitted.

915.4.1.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034. Combination carbon monoxide/smoke alarms shall also be listed in accordance with UL 217.

915.4.1.3 Interconnection. Where more than one carbon monoxide alarm is installed, actuation of any alarm shall cause all of the alarms to signal an alarm condition.

915.4.2 Carbon monoxide detection systems. Carbon monoxide detection systems shall be installed in accordance with NFPA 72.

915.4.2.1 Fire alarm system integration. Where a building fire alarm system or combination fire alarm system, as defined in NFPA 72, is installed, carbon monoxide detection shall be provided by connecting carbon monoxide detectors to the fire alarm system. Where a building fire alarm system or a combination fire alarm system is not installed, carbon monoxide detection shall be provided by connecting carbon monoxide detectors to a carbon monoxide detection system complying with NFPA 72.

915.4.2.2 Listings. Carbon monoxide detectors shall be listed in accordance with UL 2075. Combination carbon monoxide/smoke detectors shall be listed in accordance with UL 268 and UL 2075.

915.4.2.3 Alarm notification. For other than Group E Occupancies, activation of a carbon monoxide detector shall initiate alarm notification in accordance with any of the following:

1. An audible and visible alarm notification throughout the building and at the control unit.
2. Where specified in an approved fire safety plan, an audible and visible alarm in the signaling zone where the carbon monoxide has been detected and other signaling zones specified in the fire safety plan, and at the control unit.
3. Where a sounder base is provided for each detector, an audible alarm at the activated carbon monoxide detector and an audible and visible alarm at the control unit.

For Group E Occupancies having an occupant load of ~~30~~ 50 or ~~less~~ more, alarm notification shall be provided in an on-site location staffed by school personnel or in accordance with the notification requirements for other occupancies. For Group E occupancies having an occupant load of more than ~~30~~ 50, an audible and visible alarm shall be provided in an on-site location staffed by school personnel.

915.5 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72 and the manufacturer's instructions. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

1103.9 Carbon monoxide detection. ~~Carbon monoxide detection shall be installed in existing buildings where any of the conditions identified in Section 915.1.1 exist. Carbon monoxide alarms shall be installed in the locations specified in Section 915.2 and the installation shall be in accordance with Section 915.4.~~

~~**Exceptions:**~~

~~1. Carbon monoxide alarms are permitted to be solely battery operated where the code that was in effect at the time of construction did not require carbon monoxide detectors to be provided.~~

~~2. Carbon monoxide alarms are permitted to be solely battery operated in dwelling units that are not served from a commercial power source.~~

~~3. A carbon monoxide detection system in accordance with Section 915.5 shall be an acceptable alternative to carbon monoxide alarms.~~ Carbon monoxide detection shall be installed in existing buildings in accordance with Section 915.

2024 International Building Code

~~**[F]CARBON MONOXIDE SOURCE.** A piece of commonly used equipment or permanently installed appliance, fireplace or process that produces or emits carbon monoxide gas.~~

[F]CARBON MONOXIDE SOURCE. A combustion process that has the potential to produce carbon monoxide as a product of combustion under normal or abnormal conditions. Carbon monoxide sources include, but are not limited to solid-, liquid-, or gas-fueled appliances, equipment, devices, or systems, such as fireplaces, furnaces, heaters, boilers, cooking equipment, and vehicles with internal combustion engines.

[F]Carbon Monoxide Source, Direct. A permanently installed carbon monoxide source that is located in an interior space.

[F]Carbon Monoxide Source, Forced-indirect. A carbon monoxide source connected to an interior space by a forced air supply duct.

SECTION 915
CARBON MONOXIDE (CO) DETECTION

[F]915.1 General. Carbon monoxide (CO) detection shall be installed in new buildings in accordance with Section 915.1.1. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the International Fire Code
Exception: Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.

[F]915.1.1 Where required. Carbon monoxide detection shall be installed in the locations specified in Section 915.2 where any of the following conditions exist.
1. In buildings that contain a CO source.
2. In buildings that contain or are supplied by a CO-producing forced-air furnace.
3. In buildings with attached private garages.
4. In buildings that have a CO-producing vehicle that is used within the building.

]F]915.2 Locations. Carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.3.

[F]915.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a CO source is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

[F]915.2.2 Sleeping units. Carbon monoxide detection shall be installed in sleeping units. Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a CO source and is not served by a CO-producing forced-air furnace.

[F]915.2.3 Group E occupancies. A carbon monoxide system that uses carbon monoxide detectors shall be installed in Group E occupancies. Alarm signals from carbon monoxide detectors shall be automatically transmitted to an on-site location that is staffed by school personnel. Exception: Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 30 or less.

[F]915.2.4 CO-producing forced-air furnace. Carbon monoxide detection complying with Item 2 of Section 915.1.1 shall be installed in all enclosed rooms and spaces served by a fuel-burning, forced-air furnace.
Exceptions: 1. Where a carbon monoxide detector is provided in the first room or space served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.
2. Dwelling units that comply with Section 915.2.1.

[F]915.2.5 Private garages. Carbon monoxide detection complying with Item 3 of Section 915.1.1 shall be installed within enclosed occupiable rooms or spaces that are contiguous to the attached private garage.
Exceptions: 1. In buildings without communicating openings between the private garage and the building.
2. In rooms or spaces located more than one story above or below a private garage.
3. Where the private garage connects to the building through an open-ended corridor.
4. An open parking garage complying with Section 406.5 of the International Building Code or an enclosed parking garage complying with Section 406.6 of the International Building Code shall not be considered a private garage.

5. Dwelling units that comply with Section 915.2.1.

[F]915.2.6 All other occupancies. For locations other than those specified in Sections 915.2.1 through 915.2.5, carbon monoxide detectors shall be installed on the ceiling of enclosed rooms or spaces containing CO-producing devices or served by a CO source forced-air furnace.
Exception: Where environmental conditions prohibit the installation of carbon monoxide detector in an enclosed room or space, carbon monoxide detectors shall be installed in an approved enclosed location contiguous with the room or space that contains a CO source.

[F]915.3 Carbon monoxide detection. Carbon monoxide detection required by Sections 915.1 through 915.2.3 shall be provided by carbon monoxide alarms complying with Section 915.4 or carbon monoxide detection systems complying with Section 915.5.

[F]915.3.1 Alarm limitations. Carbon monoxide alarms shall only be installed in dwelling units and in sleeping units. They shall not be installed in locations where the code requires carbon monoxide detectors to be used.

[F]915.3.2 Fire alarm system required. New buildings that are required by Section 907.2 to have a fire alarm system and by Section 915.2 to have carbon monoxide detectors shall be connected to the fire alarm system in accordance with NFPA 72.

[F]915.3.3 Fire alarm systems not required. In new buildings that are not required by Section 907.2 to have a fire alarm system, carbon monoxide detection shall be provided by one of the following:
1. Carbon monoxide detectors connected to an approved carbon monoxide detection system in accordance with NFPA 72.
2. Carbon monoxide detectors connected to an approved combination system in accordance with NFPA 72.
3. Carbon monoxide detectors connected to an approved fire alarm system in accordance with NFPA 72.
4. Where approved by the fire code official, carbon monoxide alarms maintained in accordance with the manufacturer's instructions.

[F]915.3.4 Installation. Carbon monoxide detection shall be installed in accordance with NFPA 72 and the manufacturer's instructions.

[F]915.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.4.

[F]915.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.
Exception: Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.

[F]915.4.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034.

[F]915.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 217 and UL 2034.
[F]915.4.4 Interconnection. Where more than one carbon monoxide alarm is required to be installed, carbon monoxide alarms shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

~~**[F]915.5 Carbon monoxide detection systems.** Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.~~

~~**[F]915.5.1 General.** Carbon monoxide detectors shall be listed in accordance with UL 2075.~~

~~**[F]915.5.2 Locations.** Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 72.~~

~~**[F]915.5.3 Combination detectors.** Combination carbon monoxide/smoke detectors shall be an acceptable alternative to carbon monoxide detectors, provided that they are listed in accordance with UL 268 and UL 2075.~~

~~**[F]915.5.4 Occupant notification.** Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.~~
~~**Exception:** Occupant notification is permitted to be limited to the area where the carbon monoxide alarm signal originated and other signaling zones in accordance with the fire safety plan, provided that the alarm signal from an activated carbon monoxide detector is automatically transmitted to an approved on-site location or off-premises location.~~

~~**[F]915.5.5 Duct detection.** Carbon monoxide detectors placed in environmental air ducts or plenums shall not be used as a substitute for the required protection in Section 915.~~

~~**[F]915.6 Maintenance.** Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.~~

~~**[F]915.6.1 Enclosed parking garages.** Carbon monoxide and nitrogen dioxide detectors installed in enclosed parking garages in accordance with Section 404.1 of the International Mechanical Code shall be maintained in accordance with the manufacturer's instructions and their listing. Detectors that become inoperable or begin producing end-of-life signals shall be replaced.~~

[F]915.1 General. New and existing buildings shall be provided with carbon monoxide (CO) detection in accordance with Sections 915.2 through 915.5.

[F]915.2 Where required. Carbon monoxide detection shall be provided in interior spaces, other than dwelling units or sleeping units, that are exposed to a carbon monoxide source in accordance with Sections 915.2.1 through 915.2.3. Carbon monoxide detection for dwelling units or sleeping units that are exposed to a carbon monoxide source shall be in accordance with Section 915.2.4.

[F]915.2.1 Interior spaces with direct carbon monoxide sources. In all occupancies, interior spaces with a direct carbon monoxide source shall be provided with carbon monoxide detection located in close proximity to the direct carbon monoxide source and in accordance with Section 915.3.
Exception: Where environmental conditions in an enclosed space are incompatible with carbon monoxide detection devices, carbon monoxide detection shall be provided in an approved adjacent location.

[F]915.2.2 Interior spaces adjacent to a space containing a carbon monoxide source. In Groups A, B, E, I, M and R Occupancies, interior spaces that are separated from and adjacent to an enclosed parking garage or an interior space that contains a direct carbon monoxide source shall be provided with carbon monoxide detection if there are communicating openings between the spaces. Detection devices shall be located in close proximity to communicating openings on the side that is furthest from the carbon monoxide source and in accordance with Section 915.3
Exceptions:

1. Where communicating openings between the space containing a direct carbon monoxide source and the adjacent space are permanently sealed airtight, carbon monoxide detection is not required for the adjacent space.
2. Where the fire code official determines that the volume or configuration of the adjacent interior space is such that dilution or geometry would diminish the effectiveness of carbon monoxide detection devices located in such spaces, detection devices additional to those required by Section 915.2.1 shall be located on the side of communicating openings that is closest to the carbon monoxide source.

[F]915.2.3 Interior spaces with forced-indirect carbon monoxide sources. In all occupancies, interior spaces with a forced-indirect carbon monoxide source shall be provided with carbon monoxide detection in accordance with either of the following:
1. Detection in each space with a forced-indirect carbon monoxide source, located in accordance with Section 915.3.
2. Detection only in the first space served by the main duct leaving the forced-indirect carbon monoxide source, located in accordance with Section 915.3, with an audible and visual alarm signal provided at an approved location.

[F]915.2.4 Dwelling units and sleeping units. Carbon monoxide detection for dwelling units and sleeping units shall comply with Sections 915.2.4.1 and 915.2.4.2.

[F]915.2.4.1 Direct carbon monoxide sources. Where a direct carbon monoxide source is located in a bedroom or sleeping room, or a bathroom attached to either, carbon monoxide detection shall be installed in the bedroom or sleeping room.
Where carbon monoxide detection is not installed in bedrooms or sleeping rooms, carbon monoxide detection shall be installed outside of each separate sleeping area in close proximity to bedrooms or sleeping rooms for either of the following conditions:

1. The dwelling unit or sleeping unit has a communicating opening to an attached, enclosed garage.
2. A direct carbon monoxide source is located in the dwelling unit or sleeping unit outside of bedrooms or sleeping rooms.

[F]915.2.4.2 Forced-indirect carbon monoxide sources. Bedrooms or sleeping rooms in dwelling units or sleeping units that are exposed to a forced-indirect carbon monoxide source shall be provided with carbon monoxide detection in accordance with Section 915.2.4.1 or Section 915.2.3.

[F]915.3 Location of detection devices. Carbon monoxide detection devices shall be installed in accordance with manufacturer's instructions in a location that avoids dead air spaces, turbulent air spaces, fresh air returns, open windows, and obstructions that would inhibit accumulation of carbon monoxide at the detection location. Carbon monoxide detection in air ducts or plenums shall not be permitted as an alternative to required detection locations.

[F]915.4 Permissible detection devices. Carbon monoxide detection shall be provided by a carbon monoxide detection system complying with Section 915.4.2 unless carbon monoxide alarms are permitted by Sections 915.4.1.

[F]915.4.1 Carbon monoxide alarms. Carbon monoxide alarms complying with Sections 915.4.1.1 through 915.4.1.3 shall be permitted in lieu of a carbon monoxide detection system in both of the following:
1. Dwelling units and sleeping units.
2. Locations other than dwelling units or sleeping units, where approved, provided that the manufacturer's instructions do not prohibit installation in locations other than dwelling units or sleeping units and that the alarm signal for any carbon monoxide alarm installed in a normally unoccupied location is annunciated by an audible and visual signal in an approved location.

[F]915.4.1.1 Power source. In buildings with a wired power source, carbon monoxide alarms shall receive their primary power from a permanent connection to building wiring, with no disconnecting means other than for overcurrent protection, and shall be provided with a battery backup. In buildings without a wired power source, carbon monoxide alarms shall be battery powered.
Exception:. For existing buildings not previously required to have carbon monoxide alarms permanently connected to a wired power source, existing battery-powered and plug-in with battery backup carbon monoxide alarms shall be permitted to remain in service. When replaced, replacement with battery-powered and plug-in with battery backup carbon monoxide alarms shall be permitted.

[F]915.4.1.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034. Combination carbon monoxide/smoke alarms shall also be listed in accordance with UL 217.

[F]915.4.1.3 Interconnection. Where more than one carbon monoxide alarm is installed, actuation of any alarm shall cause all of the alarms to signal an alarm condition.

[F]915.4.2 Carbon monoxide detection systems. Carbon monoxide detection systems shall be installed in accordance with NFPA 72.

[F]915.4.2.1 Fire alarm system integration. Where a building fire alarm system or combination fire alarm system, as defined in NFPA 72, is installed, carbon monoxide detection shall be provided by connecting carbon monoxide detectors to the fire alarm system. Where a building fire alarm system or a combination fire alarm system is not installed, carbon monoxide detection shall be provided by connecting carbon monoxide detectors to a carbon monoxide detection system complying with NFPA 72.

[F]915.4.2.2 Listings. Carbon monoxide detectors shall be listed in accordance with UL 2075. Combination carbon monoxide/smoke detectors shall be listed in accordance with UL 268 and UL 2075.

[F]915.4.2.3 Alarm notification. For other than Group E Occupancies, activation of a carbon monoxide detector shall initiate alarm notification in accordance with any of the following:
1. An audible and visible alarm notification throughout the building and at the control unit.
2. Where specified in an approved fire safety plan, an audible and visible alarm in the signaling zone where the carbon monoxide has been detected and other signaling zones specified in the fire safety plan, and at the control unit.
3. Where a sounder base is provided for each detector, an audible alarm at the activated carbon monoxide detector and an audible and visible alarm at the control unit.

For Group E Occupancies having an occupant load of ~~30~~ more than 50 or ~~less~~ ~~more~~, alarm notification shall be provided in an on-site location staffed by school personnel or in accordance with the notification requirements for other occupancies. For Group E occupancies having an occupant load of more than ~~30~~ 50, an audible and visible alarm shall be provided in an on-site location staffed by school personnel.

[F]915.5 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with the International Fire Code.

5. **Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.**
The 2024 Code development cycle produced new language for Carbon Monoxide. Unfortunately, the code language developed was confusing and has caused many organizations to agree on proposed changes to the

2027 IFC. Those changes are shown in this code change. All of the language shown was approved at the CAH. I have also included a link to the video testimony here https://www.cdpaccess.com/videos/5917/

I have also included the proponents reasoning statement which is as follows: "The final version of the 2024 edition text for Section 915 that was approved at the public comment hearing last cycle fell short of clearly conveying requirements. When I was asked by interested parties this cycle to help develop text for a couple "simple" changes, it became evident to me that this section of the code, which has been in flux for multiple editions, was so difficult to follow that an entire re-write was needed. I initially attempted to do this in legislative format, but the result was nearly impossible to follow. Furthermore, the adopted code text seems to require a level of protection for some occupancies that is excessive and for other occupancies insufficient. This rewrite is intended to add clarity and was filtered by what I considered to be reasonable interpretation of the existing provisions, guided by New York state regulations, NFPA 72, and other sources of similar content. Beyond that, I modified content to address what I considered to be shortcomings or excessive provisions, or which were suggested by the task group that assisted with development of this proposal. For example:

1. The current code treats most buildings/occupancies in an equivalent fashion. It seems reasonable to provide a higher level of protection for occupancies with more occupant exposure (those other than F, H, S or U), so detection in adjacent spaces with communicating openings to a space with a CO source have been added.
2. The current code recognizes battery powered CO alarms in existing buildings but does not allow plug-in detectors in such cases. It seems reasonable to allow a plug-in detector if a battery-powered detector is allowed.
3. The allowance of expanded use of CO alarms in 915.4.1 was suggested by others.
4. The current code requires most detection to take place at the ceiling level. Clearly, that's not optimal for high ceiling, large volume spaces, especially if the CO source is small or if there is not a heat source to add buoyancy to a CO release. While the suggested text of locating "in close proximity" to a source isn't optimal or prescriptive, it allows for the designer to determine preferred locations.
5. Requiring CO detection for any occupancy that has a CO producing vehicle seems excessive. One LP forklift or a riding LP floor cleaner?
6. Detection device location guidance in 915.3 is derived from NY State regulations.
7. The allowance of detectors with sounder bases in lieu of alarm system notification was agreed to by the task group.
8. Exceptions that were in 1103.9 have been incorporated into 915 for simplification and to avoid conflict/overlap."

I deleted all of the WAC language in the building and fire code and I showed it as correlated although it is not, but in the Section for Group E occupancies, I went ahead and brought back the WAC occupant load numbers for discussion. Any other existing WAC language that may be needed should be discussed at the TAG level for this proposal for correct location.

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

   If no, state reason: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction.

If yes, provide economic impact, costs and benefits as noted below in items a – f.

a. ***Life Cycle Cost.*** Use the OFM Life Cycle Cost **Analysis tool** to estimate the life cycle cost of the proposal using one or more typical examples. Reference these **Instructions;** use these **Inputs.** Webinars on the tool can be found **Here** and **Here**). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.

b. ***Construction Cost.*** Provide your best estimate of the construction cost (or cost savings) of your code change proposal.

   $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

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

d. ***Small Business Impact.*** Describe economic impacts to small businesses:

e. ***Housing Affordability.*** Describe economic impacts on housing affordability:

f. ***Other.*** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

Please send your completed proposal to: sbcc@des.wa.gov

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