



BARKER · MARTIN

# Carbon Monoxide Law Update

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# Carbon Monoxide Alarms

## IRC

## IBC

### NEW Construction

#### REQUIRED NOW:

Outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units and on each level of the dwelling and in accordance with the manufacturer's recommendations

### Existing Construction

Single-family residence occupied prior to July 26, 2009.

#### ARE EXEMPT UNTIL:

Prior to sale of home or when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created  
**EXCEPT:** Certain repairs will not trigger requirement to install alarms.

Single-family residence occupied after to July 26, 2009.

#### REQUIRED NOW

Multi-family Residential

#### REQUIRED NOW\*

Issue: Are townhomes or row homes single-family residences or multi-family residences for purposes of this requirement?

REQUIRED in all Type R with limited exceptions:

Limited Exceptions:  
-Type R1 and Type R2 college dorms, hotels, and certain DSHS homes and facilities IF they meet certain requirements.



# IBC

- The Building Code applies to all construction except “detached one- and two- family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress” which are covered under the International Residential Code.



# IRC

The Residential Code applies to “detached one and two- family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress”



# IBC

- WAC 51-50-908.7: Group R occupancies shall be provided with carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions.



# IBC

- EXCEPTION: Sleeping units or dwelling units in R-1 occupancies and R-2 college dormitories, hotel, and DSHS licensed boarding home and residential treatment facility occupancies which do not themselves contain a fuel-burning appliance, or a fuel-burning fireplace, or have an attached garage, but which are located in a building with a fuel-burning appliance, or a fuel-burning fireplace, or an attached garage, need not be provided with carbon monoxide alarms provided that:
  - **The sleeping unit or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and**
  - **The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or to an attached garage; and**
  - **The building is provided with a common area carbon monoxide alarm system.**
  - **An open parking garage, as defined in the *International Building Code*, or enclosed parking garage ventilated in accordance with Section 404 of the *International Mechanical Code* shall not be deemed to be an attached garage.**



# IRC

- WAC 51-51-0315.1: Carbon Monoxide Alarms. For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units and on each level of the dwelling and in accordance with the manufacturer's recommendations.
- WAC 51-51-315.2: Existing Dwellings. Existing dwellings shall be equipped with carbon monoxide alarms when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created. *EXCEPTIONS:*
  - **Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or electrical permits, are exempt from the requirements of this section.**
  - **Installation, alteration or repairs of noncombustion plumbing or mechanical systems are exempt from the requirements of this section.**

# NFPA 720

- **9.4.1.1\*** Carbon monoxide alarms or detectors shall be installed as follows:
  - (1) Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedrooms
  - (2) On every occupiable level of a dwelling unit, including basements, excluding attics and crawl spaces
  - (3) Other locations where required by applicable laws, codes, or standards.



- **A.9.4.1 Hazardous concentrations of carbon monoxide can** accumulate in a residence, generally from improperly operating heating appliances, insufficient make-up air into the residence or space, or blocked chimneys or vents. However, there are many other potential sources of carbon monoxide within a home, including, but not limited to, the following:
  - (1) Malfunctioning fossil fuel–burning appliances
  - (2) Wood stoves
  - (3) Fireplaces
  - (4) Idling automobiles in attached garages
  - (5) Portable equipment such as gasoline-powered lawn and garden equipment and electric power generators
  - (6) Barbecues

Carbon monoxide is odorless, tasteless, and colorless; therefore, its presence is undetectable by smell, taste, or sight. Carbon monoxide can be mixed and migrate throughout a residence through the HVAC system. Carbon monoxide alarms meeting the requirements of ANSI/UL 2034, *Standard for Single and Multiple Station Carbon Monoxide Alarms, and installed in accordance* with this standard should provide a significant level of protection against fatal carbon monoxide exposure. The installation of additional carbon monoxide alarms could result in a higher degree of protection. Adding alarms to rooms where fuel-burning appliances are located could provide earlier warning of carbon monoxide hazards caused by those sources. Additional alarms located in rooms normally closed off from the required alarms could increase the escape time, since the carbon monoxide concentration needed to force the carbon monoxide out of the closed rooms to the alarms would not be necessary. As a consequence, the installation of additional carbon monoxide alarms should be considered. Carbon monoxide alarms or detectors are not substitutes for proper maintenance, inspection, and testing of fuel-burning equipment. Fuel-burning equipment and appliances should be used, maintained, tested, and inspected according to the manufacturers' instructions.

# NFPA 720

**A.9.4.1.1 Where sleeping areas are separated and the audibility** of the alarm or detector to occupants within each sleeping area could be seriously impaired, more than one unit could be needed. At times, depending on conditions, the audibility of notification appliances could be seriously impaired when occupants are in the bedroom area. For instance, there might be a noisy window air conditioner or room humidifier generating an ambient noise level of 55 dBA or higher. The detection device alarms need to penetrate through the closed doors and be heard over the bedroom's noise levels with sufficient intensity to awaken sleeping occupants. Test data indicate that alarms with ratings of 85 dBA at 3 m (10 ft) that are installed outside the bedrooms can produce about 15 dBA over ambient noise levels of 55 dBA in the bedrooms. This sound pressure is likely to be sufficient to awaken the average sleeping person. Alarms or detectors located remote from the bedroom area might not be loud enough to awaken the average person. In such cases, it is recommended that units be interconnected in such a way that the operation of the remotely located detector or alarm causes an alarm of sufficient intensity to penetrate the bedrooms. The interconnection can be accomplished by the following:

- (1) Installation of a system
- (2) Wiring together of multiple-station alarms
- (3) Use of line carrier or radio frequency transmitters/receivers
- (4) Adding supplemental notification appliances

**A.9.4.1.2 The location for effective performance is not generally** dependent on mounting height. The density of carbon monoxide is similar to that of air at room temperature and carbon monoxide generally mixes readily with air.