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Carbon Monoxide (CO) Detectors - Residential

This is to provide guidance for the requirements and maintenance of carbon monoxide detectors in residential dwelling units in compliance with the International Residential Code, International Fire Code and the NYS Code Supplement.

Purpose

You can't see or smell carbon monoxide (CO), but at high levels it can kill a person in minutes. Carbon monoxide (CO) is produced whenever any fuel such as gas, oil, kerosene, wood, or charcoal is burned. If appliances are not working properly or are used incorrectly, dangerous levels of CO can result.

References

2015 International Residential Code; 2015 International Fire Code; 2017 NYS Uniform Code Supplement

Definitions

Carbon monoxide alarm. A single or multiple-station device that has (1) a sensor capable of detecting the presence of carbon monoxide and (2) an alarm that sounds when carbon monoxide is detected.

Carbon monoxide detector. A device that (1) has a sensor capable of detecting the presence of carbon monoxide and (2) is connected to an alarm control unit that sounds an alarm when carbon monoxide is detected.

Carbon monoxide source. Any appliance, equipment, device or system that may emit carbon monoxide (including, but not limited to, fuel fired furnaces; fuel fired boilers; space heaters with pilot lights or open flames; kerosene heaters; wood stoves; fireplaces; and stoves, ovens, dryers, water heaters and refrigerators that use gas or liquid fuel), garages, and other motor vehicle related occupancies.

Required Locations

1. General

- a. Carbon monoxide alarms (or, where permitted, carbon monoxide detectors) shall be provided in all new and existing buildings and structures without regard to the date of construction of the building or structure and without regard to whether such building or structure shall or shall not have been offered for sale.

2. One Family Dwellings

- a. Buildings constructed on or after January 1, 2008
 - i. A carbon monoxide alarm shall be provided on each story containing a sleeping area, within 15 feet of the sleeping area. More than one carbon monoxide alarm shall be provided where necessary to assure that no sleeping area on such story is more than 15 feet away from a carbon monoxide alarm.
 - ii. A carbon monoxide alarm shall be provided on each story that contains a carbon monoxide source.
- b. Buildings constructed prior to January 1, 2008
 - i. A carbon monoxide alarm shall be provided on the lowest story containing a sleeping area, within 15 feet of the sleeping area. More than one carbon monoxide alarm shall be provided where necessary to assure that no sleeping area on such story is more than 15 feet away from a carbon monoxide alarm.

3. Two-family dwellings, multiple single-family dwellings (townhouses), and buildings owned as condominiums or cooperatives and containing dwelling units.

- a. Buildings constructed on or after January 1, 2008. Within each dwelling unit:

- i. A carbon monoxide alarm shall be provided on every story containing a sleeping area, within 15 feet of the sleeping area. More than one carbon monoxide alarm shall be provided where necessary to assure that no sleeping area on such story is more than 15 feet away from a carbon monoxide alarm.
 - ii. A carbon monoxide alarm shall be provided on every story that contains a carbon monoxide source.
- b. Buildings constructed prior to January 1, 2008.
 - i. Within each dwelling unit, a carbon monoxide alarm shall be provided on the lowest story containing a sleeping area, within 15 feet of the sleeping area. More than one carbon monoxide alarm shall be provided where necessary to assure that no sleeping area on such story is more than 15 feet away from a carbon monoxide alarm.
4. **Bed and breakfast dwellings and buildings and structures which: (1) contain one or more sleeping areas; (2) are classified in one or more of the following occupancy Groups: E, I-1, I-2 (except hospitals), I-4, R-1, R-2, R-3 or R-4; and, (3) are not covered by Section 915.2.3.1 or Section 915.2.3.2.**
 - a. **CALL Fire Safety Division at (716) 631-7140**

Source

1. Carbon monoxide alarms, carbon monoxide detectors, and the alarm control units to which carbon monoxide detectors are connected shall receive their primary power from the building wiring, and shall be equipped with a battery backup system that automatically provides power from one or more batteries when primary power is interrupted.
2. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.
3. Carbon monoxide alarms and carbon monoxide detectors installed in a building or structure without an electrical power source shall be battery operated.
4. Carbon monoxide alarms and carbon monoxide detectors installed in a building or structure constructed prior to January 1, 2008 may be battery operated, cord-type or direct plug.
5. In the case of a building or structure constructed on or after January 1, 2008, when a carbon monoxide alarm or carbon monoxide detector is provided at a location where coverage was not required by prior versions of the Uniform Code, but where coverage is required by this code, such carbon monoxide alarm or carbon monoxide detector may be battery operated, cord-type or direct plug.

Placement

- Required locations as listed above.
- At a minimum, industry experts recommend a CO alarm be installed on each level of the home--ideally on any level with fuel burning appliances and outside of sleeping areas.
- Additional CO alarms are recommended 5-20 feet from sources of CO such as a furnace, water heater or fireplace. Alarms can alert you to a problems only after smoke or carbon monoxide reach their sensors.
- Choose locations free of obstructions, where the alarm will stay clean and protected from adverse environmental conditions.
- Do not place the unit in dead air spaces or next to a window or door.

Type of Carbon Monoxide Detectors

1. Combination Smoke and Carbon Monoxide Alarms - Alarms offer protection from two deadly threats in one unit.
2. 10-year sealed battery - The alarms are powered by sealed, long-life lithium batteries for 10 years.
3. Battery operated – The alarms are powered by alkaline batteries.
4. Plug-in AC operated - Easily plug into standard household outlets. Most models include battery backup.

5. Hardwired AC operated – Hardwired into building circuit and alarms can be wired into an existing interconnected system.

CO Poisoning

If you experience symptoms that you think could be from CO Poisoning:

- Call 911 or your local emergency number.
- Prevent CO Poisoning. Open doors and windows, turn off combustion appliances and leave the house.
- Do not re-enter the premises until cleared by emergency personnel.
- Go to an emergency room, and tell the physician you suspect CO poisoning. If CO poisoning has occurred, it can often be diagnosed by a blood test done soon after exposure.

CO Prevention Do's and Do Not's

- DO have your fuel-burning appliances -- including oil and gas furnaces, gas water heaters, gas ranges and ovens, gas dryers, gas or kerosene space heaters, fireplaces, and wood stoves - inspected by a trained professional at the beginning of every heating season. Make certain that the flues and chimneys are connected, in good condition, and not blocked.
- DO choose appliances that vent their fumes to the outside whenever possible, have them properly installed, and maintain them according to manufacturers' instructions.
- DO read and follow all of the instructions that accompany any fuel-burning device. If you cannot avoid using an unvented gas or kerosene space heater, carefully follow the cautions that come with the device and keep doors to the rest of the house open. Crack a window to ensure enough air for ventilation and proper fuel-burning.
- DON'T idle the car in a garage -- even if the garage door to the outside is open. Fumes can build up very quickly in the garage and living area of your home.
- DON'T use a gas oven to heat your home, even for a short time.
- DON'T ever use a charcoal grill indoors -- even in a fireplace.
- DON'T sleep in any room with an unvented gas or kerosene space heater.
- DON'T use any gasoline-powered engines (mowers, weed trimmers, snow blowers, chain saws, small engines or generators) in enclosed spaces.
- DON'T ignore symptoms, particularly if more than one person is feeling them. You could lose consciousness and die if you do nothing.

Maintenance

- Only a functioning carbon monoxide detector can protect you.
- Never disable a detector by "borrowing" its battery for another use.
- Never remove a battery because the alarm is annoying.
- Following manufacturer's instructions, test all your carbon monoxide detectors monthly and install new batteries at least once a year. A good reminder is when you change your clocks in the spring or fall: change your clock, change your battery.
- Clean your carbon monoxide detectors using a vacuum cleaner without removing the detectors cover.
- Never paint a carbon monoxide detector.
- Carbon monoxide detectors don't last forever. Replace per the manufacturer's instructions.