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## ***Carbon Monoxide (CO) Alarms - Residential***

*This is to provide guidance for the requirements and maintenance of carbon monoxide alarms in residential dwelling units in compliance with the Residential Code of New York State and the Fire Code of New York State.*

### **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**

2020 Residential Code of New York State; 2020 Fire Code of New York State

### **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. All carbon monoxide detectors shall be installed in locations that avoid dead air spaces, turbulent air spaces, fresh air returns, open windows, HVAC ducts, closed doors, and other such obstructions that could prevent carbon monoxide from reaching the detector. Where there is a conflict between the location requirements specified by this code and the location requirements specified by the manufacturer of the carbon

#### **2. Residential buildings that contain a fuel-burning appliance**

- a. Carbon monoxide detection shall be installed in residential buildings and commercial buildings in all rooms, occupiable space, dwelling units, sleeping areas, and sleeping units that contain a fuel-burning appliance.

#### **Exceptions:**

1. In sleeping areas and sleeping units where a fuel burning appliance is located in an attached bathroom, utility room, closet, or space, a carbon monoxide detector shall be installed in a central or otherwise approved location in the sleeping area or sleeping unit.
  2. In dwelling units and sleeping units where a fuel burning appliance is located in a kitchen or kitchenette, a carbon monoxide detector shall be installed outside of the sleeping areas and within 10 feet (3048 mm) of the entrance to the sleeping areas.
- b. Carbon monoxide detection shall be installed in a central or otherwise approved location in occupiable space, sleeping areas, and sleeping units that have a direct communicating opening to a room that contains a fuel-burning appliance.
  - c. Carbon monoxide detection shall be installed outside of sleeping areas and within 10 feet (3048 mm) of the entrance to the sleeping areas in dwelling units and sleeping units that contain a fuel-burning appliance.

- d. Carbon monoxide detection shall be installed in a central or otherwise approved location within 10 feet of the entrance to sleeping areas and sleeping units in residential buildings that:
  1. Have a communicating opening with an attached motor vehicle related occupancy,
  2. Share one or more common walls with an attached motor vehicle related occupancy, or
  3. Are located one story above or below a motor vehicle related occupancy.

**Exceptions:** Carbon monoxide detection shall not be required:

1. Where a motor vehicle related occupancy connects to a building through an open-ended corridor, or
2. Where a carbon monoxide detector is provided in an approved location between a room and the motor vehicle related occupancy and the carbon monoxide alarm signals are automatically transmitted to an approved location that provides occupant notification.

## Source

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1. Carbon monoxide alarms, 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.

**Exceptions:**

1. Carbon monoxide alarms powered by a 10-year battery shall be an acceptable alternative in residential buildings and commercial buildings without commercial power, and
  - 1.1. Existing residential buildings and commercial buildings unless otherwise required by the *Uniform Code*.
2. Carbon monoxide alarms installed in accordance with an earlier version of the *Uniform Code* may be cord-type or direct plug when permitted by such code.

## Placement

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- 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 Alarms & Detectors

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

***NOT ALLOWED PER THE CURRENT CODE:*** (allowed if installed in accordance with an earlier version of the *Uniform Code*)

- a. Battery operated – The alarms are powered by alkaline batteries.
- b. Plug-in AC operated - Easily plug into standard household outlets. Most models include battery backup.

**\* *NOTE:*** *Carbon Monoxide Alarms shall be listed and labeled as complying with UL 2034 or CAN/CSA 6.19. Combination Alarms shall be listed and labeled as complying with UL 2034 and UL 217.*

## CO Poisoning

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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

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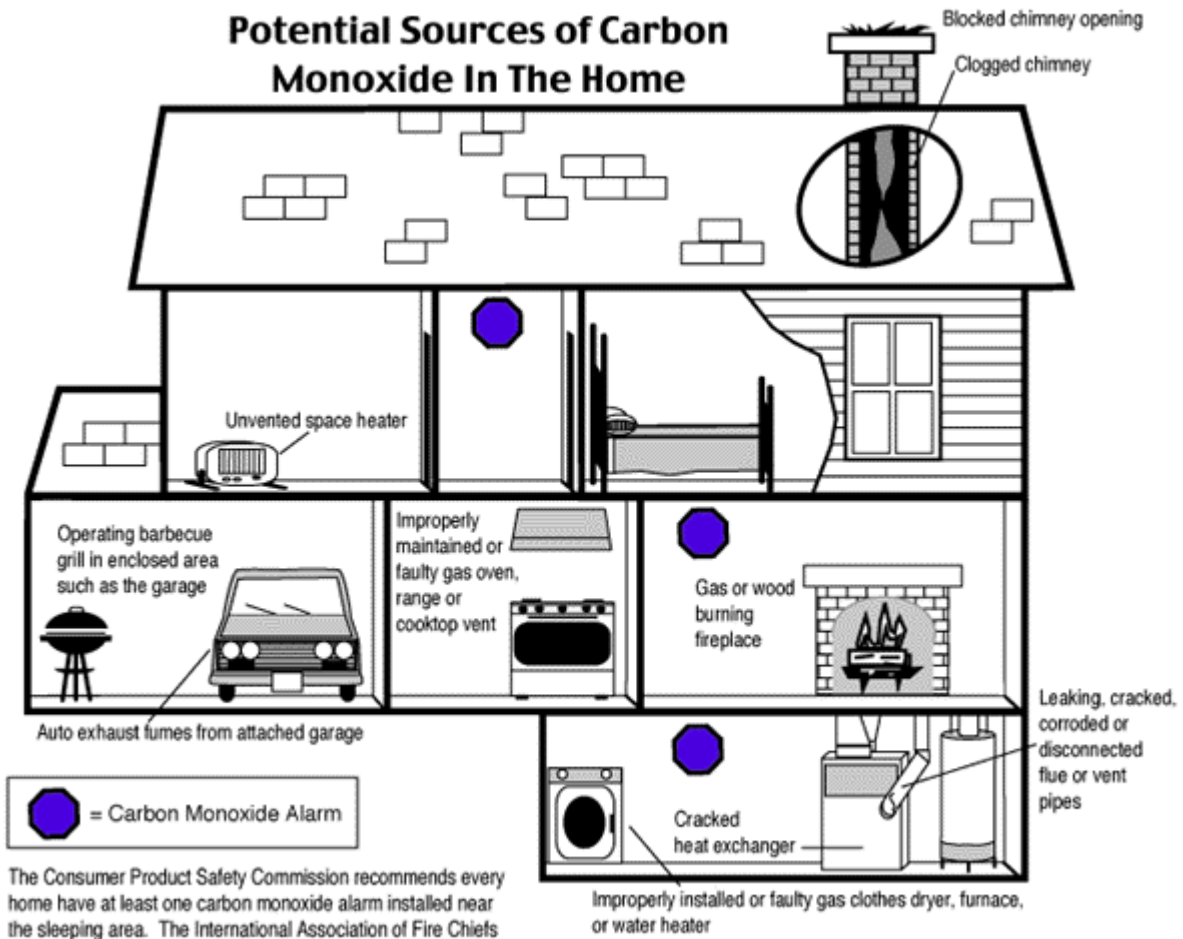
- DO have your fuel-burning appliances -- including oil and gas furnaces, gas water heaters, gas ranges and ovens, gas dryers, gas or kerosene space heaters, fireplaces, and wood stoves - inspected by a trained professional at the beginning of every heating season. Make certain that the flues and chimneys 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

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- Only a functioning carbon monoxide alarm can protect you.
- Never disable an alarm 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 alarms 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 alarms using a vacuum cleaner without removing the detectors cover.
- Never paint a carbon monoxide alarm.
- Carbon monoxide alarms do not last forever. Replace per the manufacturer's instructions.

# Potential Sources of Carbon Monoxide In The Home



Information provided by **First Alert**