Carbon Monoxide

Carbon Monoxide (CO) is colorless, odorless and *poisonous.*

CO is the by-product of the incomplete combustion of a fuel source like natural or liquefied gas, oil, wood, or coal. A basic understanding of the nature and hazards associated with CO is important to us as industry professionals.

PHYSIOLOGICAL EFFECTS OF CARBON MONOXIDE

Oxygen in the air normally binds with blood hemoglobin in the human body. When CO is inhaled it displaces that oxygen, effectively beginning the suffocation process. CO can poison slowly, sometimes over a period of hours, even in very low concentrations.

Sensitive human organs like the brain, heart, and lungs suffer the most when oxygen is displaced, depleted or restricted.

QUICK FACT

Scientific studies have shown that very high concentrations of CO can kill a human being in a period of less than 5 minutes. The US EPA has also determined that exposure to low concentrations (as low as 9 parts per million – PPM) of CO over an extended period of time (more than 8 hours) can also have long-term health effects.

POTENTIAL CARBON MONOXIDE SOURCES IN THE HOME OR WORKPLACE

Any fuel-burning appliances or heat source can be a hazardous source of CO if it is malfunctioning or improperly installed. Some examples are:

- Gas or coal furnaces
- Gas stoves and ovens
- Gas water heaters
- Gas dryers
- Portable room and space heaters
- Wood burining stoves and fireplaces

- Charcoal or gas grills
- Automobiles
- Chimney flues that are restricted
- Pool Heaters

STATS AND FIGURES

- In a two year period (2001-2003) 480 U.S. residents died between 2001 and 2003 from non-fire related carbon monoxide poisoning.
- Most CO exposures occur during the winter months, especially in December and January. The peak time of day for CO exposure is between 6 PM and 10 PM.
- Because the symptoms of CO poisoning mimic a wide range of common health ailments, many experts believe that CO poisoning statistics understate the problem. It is likely that a large number of mild to mid-level exposures are never identified, diagnosed, or accounted for in any carbon monoxide statistics.
- 89% (almost 9 out of 10) of all reported non-fire related carbon monoxide incidents occur in a home.

CO DETECTOR TYPES AND PROPER PLACEMENT

There are three types of CO detectors in use today. Each type of detector uses a different sensing mechanism that generates an alarm when the concentration of gas reaches a default setting specific to the type of detector.

Metal Oxide

- This type was the original CO detector. When CO comes into contact with a tin oxide element, the alarm is triggered.

Biomimetic

- With this type of detector, CO clings to a special gel which causes the gel to darken in color. When enough gas is present to darken the gel to a preset value, the alarm is triggered.

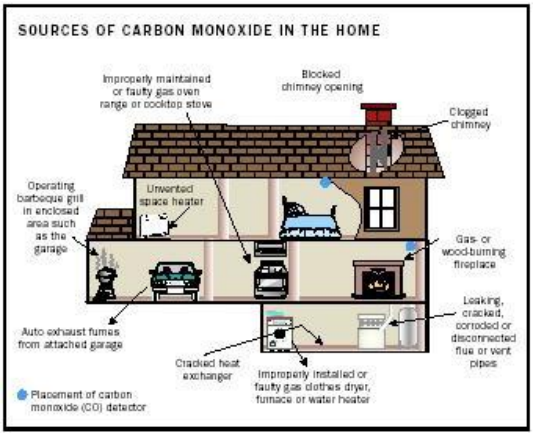
Electrochemical

- In this type of detector, a sufficiently high concentration of CO gas completes a circuit between two highly sensitive sensor elements mounted within the detector, triggering the alarm. This is the most common of CO detector in use today.

DO *NOT* PLACE CO DETECTORS:

- Directly above fuel burning appliances.
- Within 15 feet of *any* type of heating or cooking appliance.
- In or near areas that are exposed to high humidity like bathrooms and un-insulated attics.
- In areas exposed to direct sunlight or any other area subject to extreme temperature variations.
- In areas where turbulent air is present, like near ceiling fans, HVAC registers and returns, or windows that are frequently left open. The blowing air can prevent dangerous levels of CO from reaching the detector sensors.

DO PLACE CO DETECTORS:



- Within 10 feet of every bedroom or separate office workspace within a building or home.
- The US Consumer Product Safety Commission (CPSC) and Underwriters Laboratories (UL) recommend that every home have at least one carbon monoxide detector for each floor of the home, and within hearing range of each sleeping area.
- In or near rooms that house any combustion-type appliances, such as furnaces, water heaters, and fireplaces. Remember *not* to install *directly above* any of these units.
- On the ceiling of each room having a permanently-installed fuel burning appliance, centrally located on each habitable level of a dwelling or building.
- Refer to the National Fire Protection Association (NFPA) website for specific location and installation guidelines, as well as for other valuable information regarding Carbon Monoxide. www.nfpa.org
- The Home Safety Council (www.homesafetycouncil.org) website also contains valuable information regarding Carbon Monoxide safety.

CO POISONING PREVENTION TIPS

- Install CO detectors that have labels reflecting compliance with UL standard 2034 or Comprehensive Safety Analysis 6.19 Safety Standards.
- Ensure all installed appliance in the home or office are installed according to the manufacturer's instructions as well as local building code(s).
- Never operate a portable generator or any other gasoline engine-powered tool in or around a confined or enclosed space, such as a garage, house or other building. Even with open doors and windows, these spaces can trap CO and allow it to quickly build to lethal levels.
- Never burn charcoal inside a home, garage, vehicle or tent.
- Never leave a car running in an attached garage, even with the garage door open.
- Never use gas appliances, such as ranges, ovens or clothes dryers to heat your home.
- Never operate un-vented fuel-burning appliances in any room where people are sleeping.
- During and after any home or building renovations, ensure that all appliance vents and chimneys are not blocked by tarps or construction debris.
- Check vents. Regularly inspect external vents to ensure they are not obscured by dirt, lint, or other debris

Carbon Monoxide is a dangerous and potentially lethal poison that can be created by everyday items in a home or building.

Detection and prevention are important and can potentially save your life or the life of a loved one. Familiarity with the basics of CO safety is also helpful for Industry Professionals when providing advice to clients during the sale, purchase, or insurance policy underwriting of a home or building.