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**COLORADO DIVISION OF HOUSING ADVANCES**

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## Indoor Hazards

With the start of cold weather, local news media broadcast warnings and advisories reminding people to have safety checks for their furnaces. Yet most homeowners and landlords lack information on carbon monoxide (CO) in general and how to locate professionals trained in detecting, diagnosing, and repairing heating systems that can cause illness or even death.

More people die each year from carbon monoxide than from any other poison. Carbon monoxide is a tasteless, odorless gas caused by the incomplete combustion of heating fuels. The most common cause of incomplete combustion is dirt and dust collecting on burners. Furnaces, water heaters, or other combustible appliances in laundry rooms, attics, or crawlspaces are prone to dusty conditions. Also, a crack in a furnace's heat exchanger could leak carbon monoxide into a home.

According to the Colorado Department of Health, 14% of all carbon monoxide deaths and 47% of poisonings are caused by faulty combustion appliances. Yet most homeowners and landlords lack information on carbon monoxide poisoning, how to detect it, what to do to prevent it, and who to hire to test and repair heating systems.

These combustion appliances can potentially produce carbon monoxide: furnaces, space heaters, gas stove, gas water heaters, boilers, gas clothes dryers. Carbon monoxide produced by these appliances is vented outside your home. It is only when there is a faulty appliance or poor ventilation that carbon monoxide can escape into your home.

The symptoms of carbon monoxide poisoning are similar to a long term bout with the flu and include: headaches, dizziness, nausea, tiredness, and shortness of breath. Most instances of carbon monoxide poisoning are not fatal. However, the poisoning can be fatal if there is long term exposure.

Carbon monoxide can be detected by having your home inspected by a local heating contractor. The Yellow Pages are the best source of heating contractors. However, not all heating contractors have the right equipment to detect, diagnose and repair faulty combustion appliances.

**Before hiring a contractor you should ask the following questions:**

**Does the Contractor's testing equipment give results in parts per million (ppm)?**

The only way to know if carbon monoxide is a problem is to measure the gas in parts per million. Not all gas detection equipment measure carbon monoxide. Some brands that measure in ppm are: Bacharach Monoxor II, Macurco CM-11 and CM-12, MSA MiniCO, Lynn C300 Analyzer. The Division of Housing does not endorse a particular brand or product, but offers these as some of the more common carbon monoxide testers in use.

### **At what levels of carbon monoxide do contractors recommend corrective action?**

With appliances running and the gas burning continuously for five minutes, carbon monoxide gas should not exceed 100 ppm in the exhaust gas and 200 ppm in flue. For people suffering cardiovascular abnormalities test the air in your home. It should not exceed 35 ppm. Space heaters that are not vented, heavy cigarette smoking, or warming-up cars in attached garages can elevate carbon monoxide levels.

### **What steps should be taken to repair carbon monoxide problems?**

Repair or replace appliances if carbon monoxide exceeds the above levels. If a furnace is producing CO, it can be repaired unless there is a crack in the furnaces "heat exchanger". Written documentation of parts and prices should be requested for all recommended repairs or replacements.

For continuous protection you can purchase a carbon monoxide detector. They look and sound like smoke detectors. There are several different models ranging in price between \$50 to \$80. Detectors can be battery operated or plug into an electric outlet. *Consumer Reports* has tested and rated carbon monoxide detectors. You may refer to *Consumer Reports* to compare the features and prices of various models. Detectors are sold in your local hardware store

Contact the Governor's Office of Energy Management and Conservation (303) 894-2383 if you have any question regarding carbon monoxide poisoning or testing.

Testing services are available from the Governor's Office of Energy Conservation for persons with lower incomes. Eight local offices serve the entire state. If you think you may be eligible for this no cost service contact the Governor's Office of Energy to find out who to call in your area.

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