

Stay Safe from Carbon Monoxide this Winter



Each year in the U.S. alone, an average of 170 people die from carbon monoxide poisoning. Many more are exposed to this colorless, odorless gas and experience symptoms which can leave permanent damage. Carbon Monoxide, or CO is a by-product of combustion- or the burning of a fuel source such as natural gas, propane and heating oil. Carbon monoxide poisoning robs the body's ability to absorb oxygen in the blood.

Carbon monoxide poisoning is 100% preventable. Awareness of how this gas is formed requires a basic knowledge of how fuel burning appliances work. For simplicity, this article will use the example of a natural gas forced air furnace which is common in many houses. But the same principles apply to water heaters and gas logs and to other fuels like propane and heating oil.

How it Works

Air is drawn in to a furnace and mixed with the gas at the burners. The mixture is then ignited at the heat exchanger- an important component of a furnace. This combustion creates a tremendous amount of heat in the heat exchanger. The furnace blower circulates air from the home across the heat exchanger which warms the air. The air is distributed to each room through the air ducts.

This air is kept completely separate from the combustion gases inside the heat exchanger because they contain carbon monoxide, sulfur dioxide, acidic water vapor and other harmful gases. These gases are vented outside by means of natural drafting or a draft inducing fan in the furnace. As long as all components of this system function correctly, there is no chance for carbon monoxide poisoning.

However, if the heat exchanger has a leak in it, carbon monoxide can mix with the air circulated through the house. Or if the vent pipe is blocked, damaged or improperly installed, carbon monoxide can leak back into the home. If the furnace is in need of repair, it may be producing more CO than normal, which could collect in the home. Also, if the home is under extreme de-pressurization, such as an attic fan running, this could overpower the draft and cause carbon monoxide to collect.

Carbon Monoxide Levels and Detectors

Carbon Monoxide is measured in Parts Per Million, or PPM. The standard exposure limit is 8 hours 35ppm. However lower levels have been known to cause damage. Carbon Monoxide detectors are required to sound an alarm when CO is detected at 400ppm for 15 minutes. But many tests have shown that cheaper and older models fail to meet that requirement. Over time, the sensor can degrade making the detector less likely to work. It is recommended to invest in good quality CO detectors with a display screen and replace them every 5 years. Some are available that will alarm at much lower levels and are safer.

It is a common misconception that the "Test" button on a CO detector ensures it is working properly. That button simply tells you if the battery is working but not that the sensor is working. There are test sprays available that contain small levels of CO that can accurately test a detector.

Tips to Stay Safe

First, make sure all appliances are professionally installed, permitted and inspected. Second, change and test the batteries in your carbon monoxide detectors every year. All homes should have CO detectors near every bedroom. If your CO detector goes off or displays a level above 35 parts per million (ppm), move outside and call 911. Never operate vent-less gas logs for long periods of time or while you sleep. Always open a window when using them. If you have an attached garage, never idle your car with the garage door closed.

Finally, your heating systems (even heat pumps) should be properly serviced and inspected by a NATE certified technician every fall. A proper heating inspection tests for gas leaks and includes using combustion analysis instrumentation to determine how well the unit runs. Internal unit safety shutdowns are verified as well.

Carbon Monoxide hazards should be taken seriously. If precautions are taken and appliances are properly installed and serviced, your family can stay warm and safe this winter.

For more information, go to: <http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/Carbon-Monoxide-Questions-and-Answers/>

<http://youtu.be/F8AThLwpByA>