What to Know About Carbon Monoxide

Q: Where does carbon monoxide come from?

A: CO is present in the atmosphere. Any combustion equipment is capable of generating CO, including natural gas stoves, heaters, water heaters, cook stoves, gas and oil-fired furnaces and boilers. Also, gasoline from automobiles, oil used as a fuel, propane gas, kerosene and solid fuels like wood and coal all generate CO.

It is the increasingly tight construction and the use of unvented appliances that recently has led to increased awareness of the poisonous effects of carbon monoxide, but the CO has always been there. Most of the time, appliances are vented and the CO is vented into the atmosphere. Even when the appliance is not operating to its best ability, this is not usually a problem.

However, if the appliance is not burning efficiently and the venting system is blocked, these gases can spill into the home. When the air exchange in the home is low—if it's a tightly constructed house—there may not be enough air available for combustion. If the CO is not carried away it can become elevated within the structure. This is often a contributing factor in the sick building syndrome.

This is certainly one reason to be sure your appliance and venting system are operating properly. If you notice a feeling of nausea, lethargy, or even

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How to Choose a CO Detector

What kinds of detectors should a homeowner buy? Here are some recommendations from Iowa State's Agricultural and Biosystems Engineering Extension.

- CO detectors retail at prices ranging from about $30 to $80 a piece. Consumers should choose detectors listed with Underwriters Laboratory (UL).
- CO "detection cards" with a chemically treated dot that changes color when exposed to carbon monoxide are considerably cheaper, but since they have no alarm should not be used as the primary detector.
- AC-line powered detectors with battery backup are a great choice, while detectors wired together so they all sound when CO is detected by any detector in the home, offer even more protection.
- Closely examine the detector's other features, including the manufacturer's reliability, consumer evaluations of the product, yearly sensor and/or battery replacement cost. How sensitive is the detector? Does it have digital readout capability? What about reset and time features?
- Detectors should be placed near each sleeping area in the home so that residents can hear it go off at night. They should be placed at least 15 feet from a furnace, water heater, or cooking appliance. Don't put a detector in a garage, kitchen, or furnace room.

Detectors are designed to protect against acute, high levels of carbon monoxide. They are not required to warn of low levels of CO. The UL standard requires detectors to alarm within 90 minutes when exposed to 100 parts per million (PPM), 35 minutes when exposed to 200 ppm, and 15 minutes when exposed to 400 ppm.

Some detectors are more sensitive and will, when exposed for many hours, detect or alarm at lower levels. The detector will alarm before symptoms usually associated with CO poisoning—confusion, fatigue, etc.—occur. However, low levels of CO, which over time can cause chronic health problems, must be measured using professional instrument.

From the Iowa Cooperative Extension Service Bulletin AEN-168.

Carbon Monoxide (continued from front)

depression when your spend lots of time at home, this could be the cause. CO poisoning in low levels probably goes unnoticed most of the time and can be the cause of changes in one's personality. Confusion, rapid heartbeat, and drowsiness are all symptoms of low-level poisoning. Headaches, dizziness, and weakness in healthy people after exposure to CO is well documented.

Nearly 5,000 people are treated in hospital emergency rooms every year and between two and three hundred people die from this poisoning that is entirely preventable.

Q: Where should I locate my CO detector?

A: Do not put it near any combustion appliance because it may go off frequently. Gas appliances are allowed to spill for a short period of time until the draft is established. The gas spreads throughout the house readily, so I would recommend one on the wall outside your bedroom. The detector should meet the UL 2034 standard.

The best detectors will sound with both a high level and with long term, low-level exposure. This is important because of the detrimental effects of long term, low-level exposure, often misdiagnosed as chronic fatigue syndrome, viral, pulmonary, or gastrointestinal infections, and a general "run down" condition. About the only sure way to tell if it's CO is to have the patient stay away from the location for long enough to cleanse the system. This may take a day, in some cases. The blood may be cleansed before tests are done and it would appear that there is no poisoning.

Q: What should I do if I suspect that my family is being exposed to high levels of CO?

A: It is important to recognize the signs. Flu-like symptoms, headaches, shortness of breath, and nausea are the most common symptoms of low-level exposure. When the exposure is greater the signs are more noticeable. Confusion, fainting, and vomiting are all likely with higher levels of CO. What makes it even more difficult to diagnose is the fact that everyone appears to be affected differently. People with a history of heart or respiratory disease are especially vulnerable. If you think thee is a problem, do the following:

Get fresh air immediately, open windows, turn off combustion appliances (furnaces, gas clothes dryers, water heaters and any other appliance) and leave the house.

Go to the emergency room ASAP and tell them you think you have been exposed to CO. It is important to get your blood tested quickly after the exposure to confirm it.

Think about the following questions, as the doctor is likely to ask them. Do your symptoms occur only at home? Do they disappear when you leave the house and return when you enter that environment? Are others in the home suffering similar symptoms? Did everyone notice the symptoms about the same time? Have the appliances and venting systems been inspected recently?

To avoid CO poisoning, do not use your gas stove for heating. Prolonged use will elevate CO levels in the home.

Do not sleep in a room with an unvented gas heater or a kerosene space heater. Do not let the car run in an attached garage to warm up, even with the garage doors open.

Remember that a CO detector is not a substitute for a properly operating appliance and venting system. Have them both inspected every year. It is much better to avoid the CO than to recognize it when it is present.

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