Carbon Monoxide Detectors

Every house needs at least one. In Ontario, since Ontario 2014, it is the law, in other jurisdictions, it is just good sense.

Carbon Monoxide (CO) may seem like a relatively new issue to some, but it's been around for a long time. It is a by-product of burning fuels – initially warned against when it came to cars in the garage. Now we know that it is a by-product that can kill without warning. An odourless, tasteless, clear gas that mixes well with the air, CO is created in every furnace, gas water heater, fireplace or any other appliance where fuel burns to give heat. The difference is, in a properly working unit, the gas is vented outside through its venting system. However, a crack in the pipe or an improper air pressure system can force the gas into our homes. The result can be very dangerous. The biggest problem with CO gas is that not only is there no evidence (a smell, colour, etc.) the body reacts by getting tired and/or nauseous, which in the normal course of life can happen and leads you to go to bed, stay home and expose yourself further to this noxious gas that will eventually, if volumes increase sufficiently, lead to death.

CO alarms have been mandatory in new residential buildings containing a fuel-burning appliance (e.g. a gas furnace/stove) or a storage garage (for motor vehicles) since 2001. We always recommend a plug in style CO detector on every floor where a bedroom is used. The reason for this is that the gas is the most dangerous when we lay down to rest, we can easily fall unconscious at this stage. The gas at knee height is often more concentrated and it is also at this point when we are in the most danger. A plug in style detector is inexpensive and can save your life and those of your loved ones. According to a Toronto Star article, the gas can build up very quickly and the damage is often done at lower levels than you may think. Neurological and heart damage can occur at 25 parts per million (ppm) and death can occur at only 35 ppm.

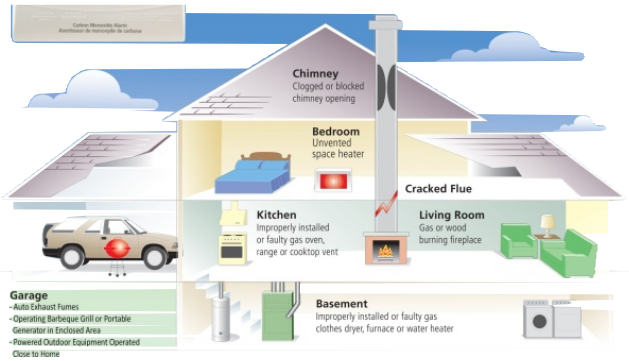
Regardless of season there are fuel burning appliances in operation, any of which can cause the gas. The use of a CO detector is the only way to avoid the risk since symptoms are such that you can suffer serious damage or lose consciousness before you realize what is happening. In Ontario alone, there have been 17 deaths from CO gas and another 16 people have been rushed to hospital. This includes the 6 people treated for CO poisoning this January after being on a boat in downtown Toronto with a faulty generator that leaked the gas into the boat. One person aboard the boat was placed on oxygen for over four hours after a 20 minute exposure.

Standard CO poisoning indicators include flu-like symptoms, drowsiness, or burning eyes, however, in the winter when many people suffer the flu or are prone to indoor allergies, the symptoms can be attributed to some other cause. The problem can begin without warning, on new and old appliances. Any appliance or installation that burns fuel can cause carbon monoxide to enter the home including - all gas appliances (fireplace, furnace, dryers, stoves, and BBQs) wood burning fireplaces, or a car running in attached garage. CO poisoning can affect people in any closed area including - tent, cottage, vehicle, or workshop, but for the most

part, lethal doses of CO poisoning are reported in the home because with symptom onset occupants often go to sleep.

The Technical Standards and Safety Authority (TSSA) identifies some less known danger signs to watch for in the home:

- ċ air that is stale or stuffy (often the case in overheated houses or homes with electric baseboard or radiant heat);
- ċ smell of gas - if you ever notice a smell of gas leave the home and call the gas company;
- ċ a pilot light that goes out; or a furnace going on and off too often;
- ċ debris falling into clean out at the base of the chimney;
- ċ symptoms onset among your inspection group;
- ċ excessive moisture forming on windows and walls - be sure to rule out other causes for this sign (including excessive humidity levels, heavy curtains in cold weather);
- ċ stains on outside of chimney or soot build up around the exhaust vent; and
- ċ chalky white powder on the chimney/exhaust vent pipe.



Carbon Monoxide detectors should and must be installed on each sleeping floor, at a minimum. The TSSA recommends that detectors be placed only at knee height while the CMHC recommends any height is acceptable. Ideally, there should be an alarm on every level where a potential source of carbon monoxide exists. However, be aware of the installation restrictions such that a CO detector / alarm should not be installed next to the fuel burning appliance or next to a smoke detector. With the installation of plug in style detectors take care not to install on a plug operated by a light switch. Even low levels over an extended period of time can lead to health problems for pregnant women, children and the elderly or anyone with a history of heart or respiratory problems.

Product standards do not allow CO detectors to display low levels of CO concentration (under 30ppm), however, the unit should be monitoring and storing this information - which can be accessed by pushing a button on the unit. Low level detectors, which can provide important health information to those at an increased risk, are becoming commercially available; however, they will not be certified by UL or CSA.

Not all detectors are created equal - use a detector with digital display of readings, a wide range of detection, a memory of past readings, and the CSA or UL label. Replacement is recommended by the CMHC every 5 years unless the manufacturer recommends a longer or shorter life.

What to do if the alarm goes off? In Case of an Alarm

- ċ Leave the house immediately - newer detectors will sound a warning or alarm only at high levels (70ppm) which significantly exceed levels recommended by Canadian health guidelines and your exposure should be minimized.

- Evacuate the house, including pets and do a head count
- From outside, call 911 only if people have symptoms - call the Gas Company, heating contractor, or fire department to investigate further if no symptoms are present
- If the house is a single family home, do not ventilate the house, turn off fuel burning appliances or reset alarm until the cause is determined - many homes are classified false alarms because the house was ventilated and equipment turned off before the levels are re-measured.
- If the home is not single family (duplex, row or town house, or apartment) do ventilate and turn off all fuel burning appliances immediately.
- Do not re-occupy the house until additional tests (through professional testing) and/or repairs deem the house acceptable.
- NEVER assume your detector is faulty unplug it. Unless it is to plug in again immediately and check the reading again.
- Many organizations suggest that if you are feeling well, open all windows and doors to ventilate the house and call the fire department. You may consider taking the over-precaution of leaving the home regardless.