



## Wood-burning stoves

*The quality of air in a home can be severely compromised by a leaky or an improperly used wood-burning stove. It is important to have a properly installed stove to help reduce the risk of wood smoke.*

### What is wood smoke?

Wood smoke consists of a complex mixture of gases and very small solid and liquid particles. Some of the components of wood smoke are hazardous to human health:

- *Carbon monoxide*, (CO) an odorless and colourless gas that reduces the blood's ability to carry oxygen.
- *Polycyclic Aromatic Hydrocarbons (PAH's)*, consist of 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco.
- *Formaldehyde* is a colourless, strong smelling gas. It is a type of volatile organic compound (VOC), which means that the compounds vaporize to a gas at normal room temperatures.
- *Nitrogen oxides* is a term used to refer to two species of oxides of nitrogen: nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). Nitric oxide is a colorless, flammable gas with a slight odour. Nitrogen dioxide is a reddish brown, non-flammable, gas with a detectable smell.

### What are the health effects of wood smoke?

Exposure to CO can affect unborn babies, infants and people with

anaemia or a history of heart disease. Breathing low levels can cause fatigue and increase chest pain in people with chronic heart disease. Higher levels produce symptoms such as impaired vision, dizziness and weakness in healthy individuals. Each year people die from CO exposure due to improperly maintained or exhausted heating appliances.

Short-term effects of PAH's are eye irritation, nausea, vomiting, diarrhea and confusion. Long-term effects may include cataracts, kidney and liver damage and jaundice.

Breathing formaldehyde can cause watery eyes, burning sensations in the eyes, nose and throat, nausea, coughing, chest tightness, wheezing, skin rashes and allergic reactions.

High levels of NO<sub>2</sub> may impair proper functioning of the respiratory system causing irritation of the respiratory tract and causes shortness of breath and the ability to fight infection.

### What can we do about the problem?

- Check with your municipality to see if there are any permits or by-laws related to wood-stoves.
- Choose a woodstove that is the proper size for its location and use, a smaller stove generally burns cleaner and uses less fuel.
- Opening the air inlet dampers will increase your stove's heat output, increase its efficiency and reduce pollution.
- Select a stove that's certified, clean-burning and meets Canadian Standards Association (CSA) standards.

- Make sure it's properly installed and inspected.
- Install a CO detector and smoke alarms in proper locations.

### How can I prevent wood smoke?

- Avoid smouldering fires by using proper burning methods.
- Use only dry, seasoned firewood that is split to the right size for your stove.
- Reduce your need for wood fuel by making your house more energy-efficient (caulking windows and doors).
- Do not burn garbage, plastic, particleboard, plywood or any other painted or treated wood.
- Do not burn wood when local municipality has issued a local air quality advisory.

### Where can I find more information on wood smoke?

For more information call Health Connection 721-7520 (1-877-721-7520) 8:30am to 6pm Monday to Friday or visit the following websites:

**Health Canada**  
[www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/wood-bois-eng.php](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/wood-bois-eng.php)

*Adapted from Health Canada.*