

# Fact Sheet

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## Heating with wood can affect your health

### Wood smoke contributes to air pollution in Toronto

Wood smoke contains a mix of pollutants that can be harmful to health. When wood is burned in fireplaces or woodstoves, the pollutants that are released affect air quality both indoors and outdoors. Smoke that is released outdoors can seep into nearby buildings and homes, potentially affecting anyone who lives or works in the neighbourhood.

People are most likely to burn wood in the winter, when it's cold. Many people believe that poor air quality is only a problem in Toronto during the summer. However, winter weather conditions sometimes trap cold air and air pollution near the earth's surface, causing smog to build up. Smoke from burning wood increases the health risk from air pollution at any time of the year.

The amount of smoke and pollution created by wood-burning increases when improper burning techniques are used, or when burning does not occur efficiently.

### Wood smoke can harm your health

Wood smoke can cause coughing, wheezing, shortness of breath, and a tight feeling in the chest. Wood smoke can reduce lung function and lead to more visits to hospital emergency rooms. For people with asthma, wood smoke can make it hard to breathe, or trigger an attack. Many pollutants in wood smoke are known to cause inflammation and irritation in the lung, and are linked to cardiovascular and respiratory disease. Some chemicals in wood smoke have also been linked to cancer.

Some people may feel the effects of wood smoke even at very low concentrations. Children, people with lung diseases and heart conditions, people who work, play sports or exercise outdoors, pregnant women, and seniors may be more affected by wood smoke.

### How can I reduce my exposure to wood smoke?

The best way to reduce exposure to wood smoke is to avoid burning wood!

If you like the cozy feel of a fire, consider switching to a natural gas fireplace, which has much lower emissions than even the most efficient woodstoves.

If you live in a neighbourhood where wood-burning is common, keep your windows closed. Take measures to seal areas where drafts occur. Making your home more energy efficient will reduce the amount of air pollution that comes in from outdoors, and could reduce your heating bill as well!

Consider investing in an air cleaner. Installing a HEPA air filter in your home reduces the amount of wood smoke and several other air pollutants in your home, resulting in benefits year-round.

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## If you do burn wood, you should:

### Get an efficient wood-burning appliance

Traditional fireplaces and old woodstoves produce many emissions and use a lot of fuel. In comparison, low-emission wood-burning appliances (“CSA-EPA certified” wood-burning appliances) emit up to 90% fewer emissions and use up to a third less wood.

In Ontario, two rebates are available to residents who replace their old wood-burning appliance with a CSA or EPA-certified one:

- \* The Canadian government offers a [\\$300 rebate through Natural Resources Canada](#)
- \* [The Ontario government offers a \\$300 rebate](#)

### Call in the professionals

To ensure that your wood-burning appliance will operate safely and efficiently, have it installed by a technician certified under the Wood Energy Technical Training (WETT) program.

### Learn about good burning practises

The fuel used in the fire and the way the fire is built have a big impact on the amount of emissions and the amount of wood burned.

- Use only clean, dry wood. Firewood should be stored outside, covered, and off the ground. Burning clean, dry wood reduces wood consumption by 25 percent.
- Build small fires. Split wood into pieces about 10-15 cm in diameter. Do not overload fireplaces and stoves— air must be able to circulate within the stove for the most efficient burning.
- Build hot fires. A smouldering fire is not an efficient fire. Fires that smoulder produce more smoke – and more pollution! Smoky fires also cause creosote to build up in the chimney, creating a fire hazard.

Creosote is a residue formed from wood gases that are not completely burned. It builds up inside the chimney as a sticky substance that is highly flammable. If ignited, creosote can burn for days at temperatures that are hot enough to destroy the chimney and cause a house fire. The likelihood of creosote build up inside the chimney is increased when the fire is not hot enough to burn efficiently. To ensure safety, the appliance and chimney should be inspected and cleaned by a technician once a year.

Environment Canada has some good resources to help you learn how to [“Burn it Smart!”](#)

### Install a Carbon Monoxide Detector in your Home

Wood smoke contains a mixture of substances, one of which is Carbon Monoxide (CO). Carbon Monoxide can cause dizziness, fainting, and – at very high concentrations – death. Carbon Monoxide is colourless and odourless, so you can’t detect it on your own. To protect you and your family, install at least one [carbon monoxide detector](#) on every level of your home.

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Also, install a new battery in each [smoke alarm](#) in your home once a year.

A home [air filter](#) may also be helpful.

## **Do not burn...**

Burn garbage, plastic, styrofoam, cardboard, pressure-treated wood, painted wood, particle-board or plywood. These substances release many different chemicals when they are burned, some of which can be extremely harmful.

## **Synthetic firelogs**

Some people choose to burn synthetic firelogs. Environment Canada has conducted a study with the US Environmental Protection Agency (EPA) on the content and emission characteristics of Artificial Wax Firelogs. The results did not indicate high levels of emissions from burning these artificial logs. The residue from the ashes however can contain a lot of heavy metal. A poster presentation on this study can be found on the [EPA website](#).

### **What kinds of pollutants are in wood smoke?**

Wood smoke is a mixture of substances, and sometimes it is difficult to know how a complicated mixture affects human health. However, scientists have identified health effects that are associated with many of the individual pollutants in wood smoke.

**Fine particulate matter (PM<sub>2.5</sub>)** is a mix of microscopic particles that can include many different chemicals. PM<sub>2.5</sub> can cause irritation and inflammation in the lungs, is linked to respiratory illness, and can increase risk of mortality for people with pre-existing heart and lung problems.

**Carbon Monoxide (CO)** impairs the body's ability to transport oxygen. Prolonged exposure can cause dizziness and fatigue, and at very high levels can lead to unconsciousness and death.

**Nitrogen Dioxide** acts as an airways irritant and can cause shortness of breath

**Polycyclic Aromatic Hydrocarbons (PAH)** are a group of chemicals, many of which are created when wood is burned. Prolonged exposure to PAH increases risk of cancer.

**Volatile Organic Compounds (VOC)** are a group of chemicals, many of which are created when wood is burned. Many VOCs have been associated with irritation and inflammation, and some, like benzene, increase risk of cancer.

**Dioxins and Furans** form in very small quantities when almost anything is burned. They are known carcinogens.

**Formaldehyde** can cause coughing, headaches and eye irritation.

**Acrolein** is an eye and respiratory tract irritant.