



Wood Smoke

Updated:

February 2011

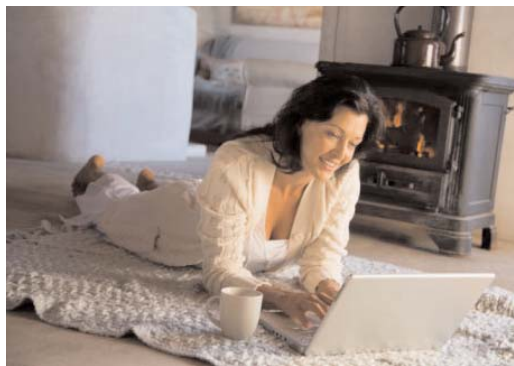
IT'S YOUR HEALTH



Wood Smoke

The Issue

Wood smoke, like any by-product of combustion (burning), contains a number of pollutants that can be harmful to your health. If you use a wood stove or fireplace in your home, there are steps you can take to minimize the risk of health effects for your family and neighbours.



Background

Some people use wood as a primary source of heat, and others have wood stoves as a back-up in case of emergencies, like power failures. Wood heating is popular in some areas because it is a renewable fuel.

However, the smoke from **wood stoves and fireplaces** pollutes the air outdoors and contributes to **smog**. **Outdoor air**

pollution has been associated with a wide range of adverse health effects and the scientific literature to date indicates that most sources, including wood smoke, appear to play a role in these effects. Smoke from outside can also seep into buildings, including nearby homes, and affect **indoor air quality**. The air inside your home can also be affected when you open the stove to add wood, or if your wood stove leaks.

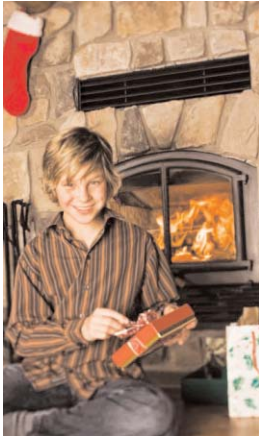
Older wood stoves, or wood stoves that are not **Canadian Standards Association (CSA)** or **US Environmental Protection Agency (EPA)** approved should be replaced as they can increase your risk of health effects. Always use hard (avoid soft), dry, clean wood that has been properly seasoned. It should be cut, split and stacked in a covered area for about six months (including the summer months) before burning.

The Pollutants in Wood Smoke

The main pollutants in wood smoke that cause health concerns are:

- **Particulate Matter:** This is the term for solid or liquid particles found in the air and is one of the primary

components of smog. They can be very small and can travel deep into your lungs, causing respiratory and heart problems.



- **Carbon Monoxide:** This is a colourless, odourless gas that is poisonous at high levels. It can interfere with the delivery of oxygen in the blood to the rest of your body.
- **Volatile Organic Compounds (VOCs):** These are a wide range of compounds that usually have no color, taste or smell. Some cause direct health effects, while others contribute to smog.
- **Polycyclic Aromatic Hydrocarbons:** These compounds are a health concern because of their potential to cause cancer.

In communities where wood heating is common, wood smoke can be responsible for as much as 25% of the airborne particulate matter, 15% of the volatile organic compounds and 10% of the carbon monoxide in the atmosphere. Wood smoke also contains small quantities of other toxic compounds, including nitrogen oxides and chlorinated dioxins. These can contribute to environmental hazards, like [smog](#) and [acid rain](#).

Health Effects Associated with Wood Smoke

Exposure to the pollutants in [wood smoke](#) can cause eye, nose and throat irritation, headaches, nausea and

dizziness. Wood smoke can also make [asthma](#) worse, and has been associated with an increase in respiratory problems. Smog, to which wood smoke can be a significant contributor, has been linked to severe health risks, including increased hospital admissions and even premature death.

While occasional exposure to wood smoke may cause minor and reversible problems for those with significant [respiratory disease](#), regular and continued exposure to this and other sources of smog may cause some additional and more significant health risks. These health risks are greater for people with existing heart and lung problems. Children are also at greater risk because their respiratory systems are still developing, and because they inhale more air due to their higher rates of activity.

Minimizing Your Risk

If you are concerned about the health effects of wood smoke, or have someone in your family who may be sensitive to its effects, the best thing you can do is switch to a different heat source, like natural gas or oil.

If you do heat with wood, you can minimize your risk by installing an “advanced combustion” wood stove or fireplace insert that reduces toxic emissions. When buying one of these



appliances, look for a sticker from the Canadian Standards Association (CSA) or the United States Environmental Protection Agency (EPA). The sticker certifies that the appliance emits up to 95% fewer particulates and is up to 20% more fuel efficient than conventional models.

Also, you can reduce the amount of wood you burn and lessen the impact of wood smoke by following these steps:

- Use dry, clean wood that is properly seasoned. It should be cut, split and stacked in a covered area for about six months (including the summer months) before burning.
- Allow more ventilation when starting a fire, and close the dampers when the wood is well charred. This technique produces more heat, so you use less wood.
- Use smaller pieces of wood. They burn more efficiently, so they are a better source of heat.
- Do not burn household garbage or cardboard. Plastics, foam and the coloured ink on magazines, boxes, and wrappers produce [harmful chemicals](#) when burned. They may also damage your wood stove or fireplace.
- Never burn pressure treated or any other chemically treated wood. The smoke from these woods may contain chemical residues that can make you sick. This kind of wood is often used for structures in outdoor settings such as fences, decks and play structures. Consult your local municipality for disposal instructions.



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wood smoke and makes this information available to Canadians. Health Canada is also working with other government departments to determine the best ways to minimize risks associated with wood smoke.

Need More Info?

For more information on the health effects of wood smoke and air quality visit the following websites:

- Do not burn ocean driftwood, plywood, particle board, or any wood with glue on or in it. They all release toxic chemicals when burned.
 - Do not burn wet, rotted, diseased, or mouldy wood as this may expose your family to moulds and spores that can harm their health. People with [respiratory conditions](#) are believed to be especially sensitive to mould.
 - Try to avoid burning wood on days when the [air pollution level](#) is high.
 - Follow manufacturers recommended procedures for stove and chimney maintenance and cleaning.
 - Protect yourself and your family from [carbon monoxide \(CO\)](#) poisoning by installing at least one CO detector in your home.
- [Air Health Effects Division](#), Safe Environments Programme, Health Canada at: <http://www.hc-sc.gc.ca/contact/ewh-sem/hecsg-dgsesc/ahe-eas-eng.php> or call 613-957- 1876
 - Health Canada's [Air Quality web section](#) at: www.health.gc.ca/air
 - *It's Your Health*, [Dioxins and Furans](#) at: <http://www.hc-sc.gc.ca/hl-vs/iyh- vsv/ environ/dioxin-eng.php>
 - *It's Your Health*, [Dampness, Mould and Indoor Air](#) at: <http://www.hc-sc.gc.ca/hl-vs/iyh- vsv/ environ/air-eng.php>
 - Environment Canada's [Residential Wood Heating](#) web section at: <http://www.ec.gc.ca/residentiel-residential/default.asp?lang=En&n=E9FE1750-1>

Health Canada's Role

[Health Canada](#) assesses scientific evidence about the health effects of

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- Natural Resources Canada's *All About Wood Fireplaces* at:
http://oee.nrcan.gc.ca/publications/infosource/pub/Heat_and_Cool/Wood_Fireplaces.cfm
 - Canadian Mortgage and Housing Corporation's *About Your House* publication, [How to Reduce Chemical Contaminates in Your Home](#) at:
http://www.cmhc-schl.gc.ca/en/co/maho/yohoyohe/inaiqu/inaiqu_006.cfm
 - Canadian Mortgage and Housing Corporation's *About Your House* publication, [Carbon Monoxide](#) at:
http://www.cmhc-schl.gc.ca/en/co/maho/yohoyohe/inaiqu/inaiqu_002.cfm
 - The US Environmental Protection Agency *Burn Wise* website at:
<http://www.epa.gov/burnwise/index.html>

For safety information about food, health and consumer products visit the [Safe Consumers](#) website at:
www.health.gc.ca/consumer

For additional articles on health and safety issues, go to the [It's Your Health](#) web section at:
www.healthcanada.gc.ca/iyh

You can also call toll free at
1-866-225-0709
or TTY at 1-800-267-1245*