



## Wood/Coal Burning Facts

### Why the concern?

Air quality impacts may be of a health concern especially to those with allergies, asthma or other respiratory or cardiovascular problems. Small appliance emissions, taken together with many other emission sources, can have a significant impact on air quality.

The design of the wood/coal burning appliance and the method of operation determine the air emissions. These appliances could consist of indoor fireplaces, outdoor fire pits, outdoor furnaces and outdoor heaters for pools or hot tubs that burn wood or coal.

Pollutants that we are most concerned about include particulates, dioxins, furans and perhaps others like benzene, PAHs, etc. These can cause a local deterioration in air quality, especially if there are several appliances in an area.

### What can be done?

In light of growing evidence of health effects, the smell of woodsmoke no longer has the pleasant associations it once had.

Municipalities should consider these implications when making the decision about whether or not to permit such appliances in their areas. They should consider the collective impact of the growing number of emission sources and how they may add to the ambient air quality burden from existing industrial, transportation, energy, oil and gas and agricultural emissions from road dust, harvesting operations and crop residue burning. If they choose to approve these burning appliances, municipalities should monitor and enforce their requirements to ensure that the appliances are properly operated and maintained. Individuals and businesses should contact their local municipal offices before installing a solid fuel burning appliance for information on their bylaws or other requirements.

A solid fuel (wood/coal) fire releases particulate matter, dioxins and furans and total volatile organic compounds measured as methane, air toxics, metals including antimony, arsenic, barium, beryllium, cadmium, chromium, lead, manganese, mercury, phosphorus, titanium, particulate matter (PM), hydrogen chloride (HCl), carbon monoxide (CO) and oxides of sulfur and nitrogen into the air.

### Operators of wood fueled equipment can do the following:

#### Choose the Right Equipment:

Not all wood burning appliances operate the same way. They are designed to burn wood at various efficiencies. The heating efficiency of any wood heater depends on how completely it burns the firewood and how much of the fire's heat gets into the room (rather than going up the flue).

#### Change the way you operate your stove or fireplace:

- burn only clean, seasoned wood and nonglossy white paper;
- build small, hot fires instead of large smoldering ones;
- burn seasoned cordwood, densified logs and firelogs;
- watch your chimney for smoke;
- follow your appliance's operating instructions carefully; and
- inspect often, keep your appliance and chimney in good condition.

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## Burning Wood Efficiently

Firing your wood-burning system correctly, you will:

- reduce the amount of wood you need to heat your home;
- reduce outdoor and indoor air pollution from wood smoke;
- reduce the frequency of chimney cleaning; and
- increase the convenience and pleasure of wood burning.

**What should not be burned?** Garbage, wet or treated wood, plastic, rubber, wet or contaminated fuel (PCBs), heavy metals, paints, preservatives, petroleum products, paints, solvents, high sulphur coal, hazardous substances, animal carcasses, trash, manure or industrial waste.



**Burn Short, Hot Fires:** Build a small, hot fire first to preheat the firebox and chimney. Open the damper wide to help fuel the fire; leave open for about 30 minutes. To gain the most heat from each load of firewood, the wood should be flaming throughout the burn cycle until it is reduced to charcoal. You should periodically inspect your stove or fireplace to ensure a continued safe and clean-burning operation.

**Preventing Smoke, Smells and Cold Hearths:** The dense smoke from a slow, smoldering fire is potential heat energy that escapes up the chimney and either clings to the chimney flue as creosote or pollutes the outdoor air. Smoke contains harmful air pollutants, which can be irritating or even dangerous in high concentrations. Wood-burning systems that are properly designed, installed and operated will not spill smoke into the house. If you have been using proper burning techniques, burning only dry wood, and you still smell smoke in your home, have your system inspected.

**Reference Information on Wood Burning, Solid Fuel installation requirements and Health Effects of garbage burning can be found at:**

**Natural Resources Canada, Residential Wood Heating Guide** and is available at the following web site:

➤ [http://www.canren.gc.ca/prod\\_serv/index.asp?Cald=103&PgId=576](http://www.canren.gc.ca/prod_serv/index.asp?Cald=103&PgId=576).

➤ [Download the Guide in PDF format](#) (63 pages / 890 KB)

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<http://www.se.gov.sk.ca/environment/protection/air/Health%20effects%20burning.pdf>