



Could your family be affected?

The inhalable particle pollution from one woodstove is equivalent to the particle pollution emitted from 3,000 gas furnaces producing the same amount of heat per unit.

— California Air Resources Board

Reducing Air Pollution from: Residential Wood Burning

Why should I reduce air pollution when burning wood in my home?

People who are exposed to toxic air pollutants at sufficient concentrations, for sufficient durations, may increase their chances of getting cancer or experiencing other serious health effects, such as reproductive problems, birth defects and aggravated asthma.

Pollution prevention can reduce the impact of air pollution by using materials, processes, or practices that can reduce or eliminate air pollution at the source. For example, switching from an old woodstove to an EPA-certified stove reduces the amount of smoke produced when you burn wood.

Why should I be concerned about air pollution from residential wood burning?

- Smoke resulting from improperly burned wood contains many chemical substances that are considered harmful. These include: some toxic air pollutants, fine particle pollution, carbon monoxide, nitrogen oxides, and volatile organic compounds (VOC).
- Toxic air pollutants are an important component of wood smoke. A group of toxic air pollutants known as polycyclic organic matter includes benzo(a)pyrene, which may cause cancer. Dangerous releases of toxic

air pollutants can occur if you burn wood in a fireplace, old woodstove, or old fireplace insert.

- Particle pollution in smoke can damage lung tissue and lead to serious respiratory problems when breathed in high concentrations. In low concentrations, particle pollution in wood smoke can harm the health of children, the elderly, and those with existing respiratory diseases.

How can I reduce air pollution from my woodstove, fireplace, or fireplace insert?

- Replace your old dirty woodstove with a cleaner and more efficient heating alternative such as gas, oil, propane, or electric heat. This will reduce your family's and neighbors' exposure to wood smoke pollution and will heat your home more efficiently.
- Burn only clean, dry, and seasoned wood that has been split and dried for at least 6 months.
- Burn hardwood rather than softwoods. Hardwoods are denser and burn more slowly and evenly, which produces less smoke. Hardwoods also provide more heat energy.

In most areas of the country, wood burning from fireplaces and woodstoves is the largest source of particle pollution generated by residential sources. It can contribute as much as 80% in the winter months.

— Olympic Region Clean Air Agency



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Residential Wood Burning

Heat More Efficiently

- Replace an old woodstove, fireplace insert, or fireplace with an EPA-certified woodstove or EPA-certified fireplace insert. Certified stoves use about one-third as much wood and circulate more heat into the home instead of out the flue. They emit 70% less pollution on average. That means less pollution indoors and out.
- Install a wood pellet stove, which uses compressed wood waste. It uses excess combustion air to make a fire burn hot and clean. These stoves are considered the most efficient stoves available with efficiency ratings exceeding 80%.
- Stop using your fireplace or install an EPA-certified wood burning fireplace insert, which burns fuel more efficiently than a fireplace. Fireplaces typically lose more heat from your home than they provide.

Change Operating Practices

- Never burn garbage, trash, plastics, rubber, petroleum products, paints, solvents, charcoal/coal, or treated woods. Burning these materials can be toxic and extremely harmful to your family and neighbors. These toxins can also foul the catalytic combustor and flue.
- Burn small, hot fires instead of large smoldering fires.
- Use small pieces of wood and do not overload the appliance.
- Clean ashes from the stove. Excess ashes can clog a stove's air intake vent, reducing its efficiency.
- Watch the chimney for smoke. Properly burning fires should give off only a wisp of white steam. The darker and thicker the smoke, the more pollutants the fire emits, and the more fuel it wastes.
- Do not burn wood when the outdoor air quality is poor.

Inspect and Maintain

- Have a professional inspect and maintain your wood heater and chimney on an annual basis. These inspections are essential to ensure safe and clean wood burning.
- Have a professional clean your chimney regularly to remove creosote buildup. Clean chimneys reduce the chance of a chimney fire.

How can I get the most out of my investment in wood burning equipment?

- Select a stove that is certified clean-burning and tested to EPA standards, i.e., those sold after 1992.
- Make sure it's properly installed, and inspected, and maintained.
- Avoid smoldering fires. For example, do not lower the airflow to the stove at night.
- Use only seasoned firewood, split to the right size for your stove or fireplace.
- Reduce your need for fuel: make your home more energy-efficient by weatherizing it.

What else can I do to reduce air pollution from wood smoke?

Help your community start a public awareness program to encourage cleaner wood burning practices, including information on the proper operation and maintenance of wood heaters; proper wood selection and use; the health effects of wood smoke; weatherization methods for homes; and determining the proper size of the heating equipment needed before purchase and professional installation. See the "Resources" section on the next page for more sources of information.

Burning garbage and other materials can be toxic and extremely harmful to the wood burning resident and neighbors. These toxins can also foul the catalytic combustor and flue.

*Significant levels of smoke pollutants leaking from fireplaces and stoves have been measured in some wood burning homes. **If you can smell smoke, there is a problem.** This is an important issue, particularly if a family member suffers from respiratory problems or heart disease.*



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Residential Wood Burning



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EPA-certified stove emits 70% less pollution on average, than non-certified stoves. They can use 1/3 less wood as non-certified stoves and deposit less creosote in chimneys.

That means there is less chance of a chimney fire, and will save you energy, time, and money.

—US EPA

Resources

- US EPA's Clean Burning Woodstove and Fireplace Website: www.epa.gov/woodstoves
- Hearth, Patio and Barbecue Association: www.hpba.org, (703) 522-0086
- Local Woodstove and fireplace retailers—see yellow pages or www.hpba.org
- Woodburning Handbook: www.arb.ca.gov/cap/handbooks/wood_burning/wood_burning_handbook.pdf
- Chimney Safety Institute of America: www.csia.org, (623) 547-0920
- Institute for Tribal Environmental Professionals: www4.nau.edu/itep, (928) 523-9555
- Olympic Region Clean Air Agency (ORCAA): www.orcaa.org/woodstove.html
- Burn It Smart Campaign: www.burnitsmart.org/english/index.html
- Community-Based Projects: www.epa.gov/air/toxicair/community.html
- A Guide to Residential Wood Heating: www.fipreca.ca/woodguide.pdf
- An Introduction to Home Heating with Wood: www.canren.gc.ca/app/filerepository/07C50F2F71C04818B9D567D0A2706246.pdf
- Air Pollution from Wood-Burning Appliances and Fireplaces: www.eere.energy.gov/consumerinfo/factsheets/ja3.html
- Woodstoves and Fireplaces: www.ysaqmd.org/woodstv.htm
- About the Air: 2001 Clean Air Excellence Award Recipients: www.deq.state.mi.us/documents/deq-aqd-newlt-April02.pdf

Placer County Air Pollution Control District in California has implemented a rebate program to encourage residents to replace high polluting non-EPA certified stoves with newer, cleaner-burning stoves such as an EPA Phase II certified woodstove, or a pellet stove or gas stove.

— Placer County Air Pollution Control District

Just 20 old non-EPA-certified wood stoves can emit more than 1 ton of fine particles into your community during the cold months of the year.

— U.S. EPA

