



## Alaska Native Village Air Quality Fact Sheet Series

# Wood Smoke



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## What is wood smoke?

Wood smoke is air pollution caused by firewood that doesn't burn completely. If the wood were to burn completely, there would be no visible smoke. The less efficiently a fire burns, the more smoke it produces, along with tiny particles and other harmful gases. Wood smoke is actually unburned fuel that could have produced more heat if burned completely.

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

Small particles and toxic chemicals in wood smoke are unhealthy for you and your family. They are so small that the body's natural defense mechanisms can't keep them from going deep into the lungs where they can damage lung tissue and contribute to lung disease.

These particles are actually made up of very small bits of wood tars and gases, soot and ash. Even occasional exposure to wood smoke can create problems such as watery eyes, stuffy noses, and chest tightness. Everyone may experience one or more of these symptoms, but children and older adults, and people with asthma or heart disease, are especially vulnerable.

Particle pollution can trigger asthma attacks and has been linked to heart attacks in people with heart disease. The particles and chemicals in wood smoke may also contribute to infectious respiratory disease like pneumonia.

## What is the best way to 'burn clean'?

### Dry, small and hot

- Be sure the wood is very dry. After splitting, firewood should dry for at least 6 to 12 months in a covered area with good air circulation. Begin the fire with a quick hot start.
- Open your stove's damper wide and leave it open for 20 to 30 minutes to allow air in to fuel the fire. This will allow the stove to get very hot and establish a hot bed of coals before adding any logs.
- Avoid large smoldering fires and don't overload your firebox with logs. Small hot fires burn more completely and provide more heat, while producing less smoke and using less fuel.

## Tips for clean burning

- Use dry clean wood.
- Burn only wood, not trash.
- Start fires small, burn hot.
- Don't dampen down at night.
- Don't overload firebox.
- Use certified wood stoves or other cleaner fuels.



*Escaping wood smoke creates indoor air pollution.*

## Other ANV Air Fact Sheets

- Diesel Fuel Use
- Road Dust
- Solid Waste Burning
- Indoor Air

For these fact sheets and related videos, visit:

[www.epa.gov/region10/tribal/air/alaska.html](http://www.epa.gov/region10/tribal/air/alaska.html)

## What is the best way to 'Burn Clean?'

*Continued*

### No garbage

Only burn clean, dry wood in your woodstove. Do not burn saltwater driftwood or treated or painted wood. Do not burn garbage, plastics, rubber, paint, oil, charcoal briquettes, or glossy colored paper.

Burning garbage can damage your stove and can cause serious health problems for you, your family and neighbors. Burning garbage produces toxic smoke that is dangerous inside and outside the home.

### What should come out of your chimney?

Except for brief periods during start-up and refueling, you should not see smoke coming from your chimney. If your stove is producing a lot of smoke, something is wrong. A wood stove or fireplace with a small hot fire should only produce a thin wisp of white steam.

If you see smoke, open your dampers to let in more air. Smoke means the wood isn't being fully burned which wastes fuel, produces air pollution, and can result in the buildup of creosote, a highly flammable crusty substance, creating a serious fire hazard.



*A clean burning wood stove with no visible smoke.*

## Region 10 Contacts

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### Should you completely fill your firebox at night?

No. Filling the firebox with fuel and using the damper to severely limit the air flow can be a fire hazard and creates a great deal of air pollution because the fire burns cooler

It is better to only fill your firebox halfway full of wood. By reducing the air supply with the damper, the fire smolders overnight. This does little for heating and can allow extra smoke to enter the house and produce unhealthy air. See the Fact Sheet on *Indoor Air* in this series.

### How are EPA certified stoves better?

When operated properly, certified stoves produce less smoke, less tar and provide a safer burn by both reducing health risks from breathing smoke and the chances of chimney fires from creosote build up. If not operated properly, they can still produce too much smoke.

Because certified wood stoves burn more of the wood fuel right in the firebox, they use up to a third less wood and can cut air pollution by up to 90 percent. Proper burning techniques will help you get the best heat from your stove, protect your family's health, and save money on fuel.

Consider replacing an old stove with a new home heating device, either an EPA certified wood stove or another device that uses even cleaner burning fuel. If there is no EPA certification label on the back of the stove, you have an old and potentially higher polluting device that may be contributing unhealthy smoke to your home and community.

## Learn more on the web

About wood stoves in general:  
EPA: [www.epa.gov/burnwise](http://www.epa.gov/burnwise)

Alaska Department of Environmental Conservation:  
[www.dec.state.ak.us/air/anpms/as/pm/ws-txt.htm](http://www.dec.state.ak.us/air/anpms/as/pm/ws-txt.htm)