

Heating with Wood: Keeping it Clean

We take pride in our quality of life in Washington, and we all want to protect and preserve the environment. But many of the things we do contribute to air pollution, including driving cars, burning yard waste, and using wood stoves and fireplaces. Wood smoke is one of the main sources of air pollution in Washington.

If you use a wood stove or fireplace, consider replacing it with a cleaner form of heat such as gas or electricity. If you choose to heat with wood, be sure your wood stove or fireplace is certified, and use the tips in this document to help reduce smoke. Less smoke means cleaner air for you, your family, your neighbors and the environment. And the less smoke you produce, the more heat and value you get from your wood.

How to “burn clean”

With most other heating systems, everything is pre-set. With wood heat, you control everything: fuel, efficiency and the amount of pollution. A wood fire needs your attention and management.

The fuel: Keep it dry!

Wood can seem dry and still contain plenty of water -- up to 50 percent. The moisture in wood makes the fire give off more smoke. On the other hand, dry wood can provide up to 44 percent more heat. It is against state law to burn wood with more than 20 percent moisture content in fireplaces or wood stoves.

Two things work very well to ensure your wood is dry enough: time and cover. Whether you buy wood or harvest your own, follow these tips to get it fire-ready:

- Split it. The wood will dry best and burn most efficiently if the pieces are 3 ½ to 6 inches in diameter.
- Cover it. Protect the wood from rain and weather. Stack it loosely-- in layers of alternating directions-- to allow plenty of air circulation. Store it off the ground so that air can circulate beneath it.
- Give it a year. Wood that has been split, dried and stored under cover for at least one year usually meets the dryness requirement.

WHY IT MATTERS

In winter, more than half of Washington's fine particle air pollution comes from home wood burning devices such as wood stoves and fireplaces. They put out hundreds of times more air pollution than other sources of heat such as natural gas or electricity.

Much like cigarette smoke, wood smoke contains hundreds of air pollutants that can cause cancer and other health problems.

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Special accommodations:

If you need this publication in an alternate format, call the Air Quality Program at 360-407-6800. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

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State law does not regulate the dryness of any wood sold. Even if the seller states that the wood is dry or seasoned, you need to make sure for yourself. You -- not the seller -- are responsible for the dryness of the wood you use in your fire.

The fuel: Keep it legal!

Legal fuels are:

- Dry, untreated wood.
- Manufactured logs (pressed sawdust or sawdust/wax), when you follow the product instructions and the recommendations in your stove owner's manual.
- Paper, ONLY when starting the fire.

Illegal fuels are:

- Garbage (including diapers).
- Plastic or rubber products.
- Treated wood (including particle or strand board).
- Asphalt-based or waste petroleum products.
- Paints and chemicals.
- Animal carcasses.
- Anything else which normally emits dense smoke or obnoxious odors.
- Paper, when not being used to start the fire.

The smoke: There's a state law on how much!

State law limits the density of smoke from indoor fires to no more than 20 percent opacity. Opacity means how much your view through the smoke is blocked. One hundred percent opacity means you can't see anything through the smoke. Twenty percent opacity means there is very little smoke and you can see almost perfectly through it.

There are two exceptions to the opacity rule that allow you limited time for denser smoke:

- Starting the fire -- You have up to 20 minutes every four hours.
- Stoking the fire -- You have up to six consecutive minutes in any one-hour period.

If you use dry enough fuel and the right equipment, and give your fire the right amount of air, there should be no visible smoke from your chimney or stove pipe -- only heat waves.

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The fire: Give it air!

The right amount of air gives you a hotter fire and more complete combustion. That means you get more heat from your wood and less smoke and pollution. Here are some tips for cleaner burning:

- Build small, hot fires. Don't add too much fuel at one time.
- Step outside and check the chimney or flue. If you can see smoke, your fire may need more air.
- Read and follow the stove manufacturer's instructions.
- Don't "bank" the stove full of wood and damper down the air supply. This wastes wood, produces more air pollution, causes more creosote to form (which can lead to chimney fires), and yields very little heat. Half-full is adequate; it provides enough air space for efficient combustion.
- Don't damper down too far. Allow enough air to reach the wood. This varies among models and kinds of stoves.
- Make sure your stove is the right size for your home. Too large a stove will overheat your living space, making you want to damper down. This causes more pollution and wastes wood.
- Don't burn in moderate temperatures. You'll want to damper down, which causes more pollution and wastes wood.
- Don't burn when air currents carry your smoke to your neighbor's yard or house.

The stove: Certified is cleaner!

The stove you use makes a lot of difference when it comes to air pollution. Any stove sold in Washington today (since 1988) must be certified. Certified stoves have passed an emissions standards test at an approved laboratory.

Many older stoves are uncertified. Compared to new, properly operated certified models, uncertified stoves:

- Produce about five times more pollution than certified models.
- Use about a third more wood.
- Cause more creosote, making it necessary to clean your chimney more often.

It is illegal to install an uncertified wood stove in Washington. If you own an uncertified stove, consider replacing it with a less polluting heat source.

Some certified stoves have catalytic combustors, which burn away pollutants in the smoke at a high temperature. These require special attention to the manufacturer's instructions. Using them incorrectly can shorten the life of the catalyst and cause the stove to become

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more polluting. A worn-out catalyst must be replaced immediately. Catalysts generally last one to five years, depending on how the stove is used.

Pellet stoves:

As with wood stoves and fireplaces, pellet stoves must meet Washington's emission standards. Generally, pellet stoves produce 90 to 98 percent less pollution than a typical *uncertified* stove. Pellet stoves are more expensive than cord-wood stoves, but they require very little tending to operate. However, they do require regular maintenance as recommended by the manufacturer.

Burn bans: A last resort

Sometimes, even "cleaner burning" is not enough. Most of the air pollution in residential areas during the fall and winter comes from burning wood. In some areas, the combination of weather patterns and high population causes too much wood smoke to build up in the air. When this happens, air quality agencies may call a health burn ban to protect public health. During a health burn ban, you are not allowed to use your wood stove, fireplace, or other home heating device (unless you have no other heat source) until air quality improves. Health burn bans always apply to uncertified devices. Sometimes--when air pollution from wood smoke reaches higher levels--certified devices must be shut down, too.

Health burn bans last only for the time it takes to get air quality back to a healthier level. You can help by keeping aware through the media. Most radio and TV stations announce health burn bans.

If all wood heat users operated certified wood burning devices, burned only dry wood, and obeyed wood burning regulations, health burn bans would be less frequent and we'd all breathe more easily during the winter.