

Woodburning 101

Dangers of woodsmoke

Smoke from wood-burning stoves contains tiny particles that are so small the body's natural defenses can't prevent them from lodging deep into our lungs. These tiny particles can damage and change the structure of lung tissue and also carry harmful toxins directly into our bloodstream. This can lead to serious respiratory problems, asthma attacks, heart problems and even premature death.

Certified woodstoves burn cleaner

Oregon was first in the nation to require new "certified" woodstoves to meet air pollution standards and all new stoves are required to be certified by the Environmental Protection Agency (EPA). You can tell if your stove is certified by looking on the back for a certification sticker from Oregon DEQ or EPA. Woodstoves that are not certified waste up to 60% of the wood burned in them. Certified stoves are much less polluting than older, non-certified stoves, reducing fine particles by 70%. Additionally, pellet stoves and oil or gas furnaces or stoves are even cleaner than certified stoves.

Replace your woodstove, save money

The Oregon Department of Energy (DOE) has a tax credit of up to \$300 available for homeowners who purchase a premium efficiency woodstove or pellet stove. For more details on this program and the qualifications, visit the Oregon DOE website:

www.oregon.gov/ENERGY

If you own an old, inefficient stove, replacing it with a newer, cleaner heating system will pay for itself through fuel savings. Alternative stoves could include natural gas stoves and furnaces, EPA certified woodstoves and pellet stoves.

There are two kinds of approved wood-burning stoves: "catalytic" stoves and "non-catalytic" stoves. Catalytic stoves use a ceramic catalyst inside the firebox to assist with the burning of waste-gases (smoke). Non-catalytic stoves use a combination of sophisticated baffles and air supply designs to burn waste gasses efficiently.

Both design approaches do the job. In general, catalytic stoves are a little more efficient initially than non-catalytic stoves, but catalytic stoves deteriorate over time and need to be replaced every 2-4 years to ensure good performance.

Wood-burning tips

- Burn only wood. No garbage, plastics, rubber, paint or oil, briquettes, paper, etc. Burning these items releases harmful chemicals into the air.
- Build small, hot fires instead of large, smoldering ones.
- Don't "bed the fire down" for the night. Holding a fire overnight is a fire hazard and can create serious indoor and outdoor air pollution problems.
- Open your damper if the smoke is dark. Dark smoke indicates more pollution is being produced and fuel is being wasted.
- Keep your stove clean and well-maintained. Follow manufacturer guidelines; replace catalytic stove filters every 1-4 years. Have your chimney checked and cleaned at least once a year.



Before purchasing a new or used stove, look for a certification sticker like the one above, usually located on or near the back of the stove.

Use seasoned wood

The best fuel for woodstoves is dry, "seasoned" wood. Seasoned wood has a moisture content of about 20% or less. It tends to be dark in color, cracked on the ends, light in weight and has bark that is easily broken or peeled. Here are some tips for preparing seasoned wood:

- Split the wood to help it dry. Wood will dry out more quickly and burn best if the wood is cut to about 3 1/2 inches to 6 inches in diameter.
- Cover the split firewood to protect it from the weather and stack it loosely in alternating layers, at least 6 inches off the ground.
- Time must be given to allow the wood to reach 20% or less moisture required for seasoned wood. This process takes



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approximately 6-12 months. Think ahead and buy next winter's wood well in advance.

Consider "carbon-neutral" firelogs for fireplaces

Manufactured firelogs are pre-packaged fuel for fireplaces usually made from recycled sawdust and wax. Firelogs are a user-friendly solution for building a fire in a fireplace and are a significantly cleaner burning alternative to using firewood. Resource-efficient firelogs made with 100% renewable resources, instead of petroleum, are now available for a "carbon-neutral" fire. Firelogs produce approximately 70% less toxic air pollution than firewood. They produce significantly less carbon monoxide and creosote as compared to firewood. Firelogs burn between 2-4 hours depending on the size.*

*Source: Environment Canada and US EPA - Region 5, Content and emission characteristics of Artificial Wax Firelogs, May 2006

Maintenance tips

Each year there are numerous Oregon home and chimney fires caused by wood burning. Periodic

inspection of your stove or fireplace is essential to its continued safe and clean-burning operation. The Oregon Chimney Sweep Association recommends an annual chimney cleaning to remove creosote build-up and to identify potential problems. Things to consider:

- The Chimney cap may be plugged by debris.
- Catalytic combustor and baffles are exposed to very high heat and deteriorate as used. Replace every 1-4 years depending on use.
- Stovepipe angles and bolts are subject to corrosion.
- Gaskets on airtight stove doors need replacement every few years. Gaskets and seals are used by the appliance designer to control the location and flow of air into the appliance.
- Check seams on stoves sealed with furnace cement. Seams may leak and cause you to lose valuable heat and reduce the efficiency of the unit.
- Replace broken or missing firebricks.
- Keep the floor of your stove clean of debris and ash.

Guidelines for Preparing Seasoned Wood				
Species	Minimum Outdoor Drying Time	Heating Value Million Btu per Air-Dried Cord	Ease of Splitting	Sparks
Alder	Longer than 6 months	18-21 medium	easy	moderate
Cedar	6 months	14-20 medium-low	easy	many
Douglas Fir	6 months	19-21 medium	easy	moderate
Madrone	6 months	30 high	difficult	very few
Maple	6 months	19-21 high-medium	moderate	few
Oak	6 months	29-31 high	moderate	few
Pine	6 months	17 medium-low	easy	moderate
White Fir	6 months	17 medium-low	easy	moderate

