

CHOOSING A WOOD STOVE

OLDER, UNCERTIFIED wood stoves produce 30 to 50 grams of particulate per hour, contributing to asthma and a host of other health issues. The internal design of wood stoves has changed entirely since the EPA issued standards of performance for new wood stoves in 1988. Today's wood stove models feature improved safety and efficiency; they produce almost no smoke, minimal ash and require less firewood.

Emission Limits for Wood Stoves.

EPA's mandatory smoke emission limit for wood stoves is 7.5 grams of smoke per hour (g/h) for non-catalytic stoves and 4.1 g/h for catalytic stoves. Some newer stoves have certified emissions in the 1 to 4 g/h range.

When comparing models, look for the EPA white label on the stove. A lower g/h rating means a cleaner, more efficient stove. Also check for safety labeling by the Underwriters' Laboratories of Canada (ULC) or another testing and certification body.

Manufactured by ACME INDUSTRIES Model Clearburner 854

U.S. ENVIRONMENTAL PROTECTION AGENCY
CATALYST EQUIPPED

MEETS EPA PARTICULATE MATTER (Smoke) CONTROL REQUIREMENTS FOR CATALYTIC WOOD HEATERS BUILT ON OR AFTER JULY 1, 1990. SEE CATALYST WARRANTY. ILLEGAL TO OPERATE WHEN CATALYST IS NOT WORKING. SEE OWNER'S MANUAL FOR OPERATION AND MAINTENANCE.

SMOKE THIS MODEL
0 (Grams Per Hour) 5.5

EFFICIENCY*
50% 60% 70% 80% 90% 100%

Wood heaters with higher efficiencies cost less to operate. *NOT TESTED FOR EFFICIENCY. THE VALUE INDICATED IS FOR SIMILAR CATALYST-EQUIPPED WOOD HEATERS.

HEAT OUTPUT
7,000 to 30,000 Btu/Hr

Use this to choose the right size appliance for your needs. ASK DEALER FOR HELP.

This wood heater will ensure low smoke output and high efficiency only if properly operated and maintained. See owner's manual.

WONDERS OF WOOD STOVES

How to heat your home efficiently

THE DIRTY TRUTH ABOUT WOOD STOVES

Older, uncertified wood stoves and inserts are dirty and inefficient, polluting the air in your home and community.



75% of wood stoves in homes today are less efficient than they should be.



Newer model makes homes healthier and safer by reducing the amount of smoke and dust while also cutting heating costs.

WOOD STOVE HEALTH CHECK

If you experience any of the following situations, you should consider replacing your old wood stove:

- You smell smoke in your house
- You can see smoke leaving your chimney
- The amount of dust around the house increases when using the wood stove
- You suffer from watery eyes and a stuffy nose when using the stove
- You constantly have to feed the stove wood because it's rapidly burning down

CREDIT: WWW.US.SCHOTT.COM

TYPES OF WOOD STOVES

The two general approaches to meeting the EPA smoke emission limits are non-catalytic and catalytic combustion. Although most of the stoves on the market are non-catalytic, some of the more popular high-end stoves use catalytic combustion. Because they are slightly more complicated to operate, catalytic stoves are suited to people who like technology and are prepared to maintain the stove properly, so it continues to operate at peak performance.

Non-Catalytic Stoves. Three components make these stoves efficient: firebox insulation, a large baffle to produce a longer, hotter gas flow path and pre-heated combustion air introduced through small holes above the fuel in the firebox. The baffle and some other internal parts of a non-catalytic stove will need replacement from time to time, as they deteriorate with the high heat of efficient combustion.

Catalytic Stoves. These stoves produce a long, even heat output—thanks to catalytic combustion—in which the smoky exhaust is passed through a coated ceramic honeycomb inside the stove where the smoke gases and particles ignite and burn. All catalytic stoves have a lever-operated catalyst bypass damper, which is opened for starting and reloading. The catalytic honeycomb degrades over time and must be replaced; it can last more than six seasons if the stove is used properly. If the stove is over-fired, if inappropriate fuel is burned, or if regular cleaning and maintenance are not done, the catalyst may break down in as little as two years.

Sizing. Small stoves are suitable for heating a family room or a seasonal cottage. In larger homes with older central furnaces, you can use a small stove for

Winning Wood Stove Designs

In 2013, the Alliance for Green Heat hosted the first Wood Stove Decathlon, a competition created to encourage more efficient designs. A panel of judges evaluated several different stoves on a range of factors: overall performance, affordability, innovation, particulate matter emissions, efficiency, market appeal and carbon monoxide emissions.

Two of the top three were catalytic hybrid stoves; masonry stoves scored the highest on efficiency and cleanliness. Here are the six top overall stoves, though there were several others that scored high marks in individual categories:

Woodstock Union Hybrid Soapstone Stove

This stove combines steel, cast iron and soapstone to create a durable stove with thermal mass for holding heat. It utilizes secondary combustion and a catalytic combustor, along with a self-regulating air-to-fuel ratio, to maximize efficiency.

www.woodstove.com

Wittus xeos TwinFire

This clean-burning, double-chambered wood stove achieves high efficiencies through gasification, which converts wood into carbon monoxide dioxide and hydrogen at extreme temperatures. <http://tinyurl.com/k9edjtz>



Lopi (Travis Industries) Cape Cod Hybrid-Fyre Stove

Boasting 80 percent efficiency, this cast-iron stove features a large firebox surrounded by a convection heat exchanger. <http://tinyurl.com/lud7bkk>

Intercontinental 2B4W

Made from recycled steel oil barrels and fire brick, this masonry stove utilizes computerized combustion control system to maximize efficiency. www.rodzander.com

EcoLabel Tile Stove by Ofenbau and Feuerstellen

This Austrian tile stove achieves low emissions by using a baffle and series of slots to control air entering the inner combustion chamber. <http://tinyurl.com/n85p6bc>



HWAM

Made in Denmark, this cylindrical wood stove uses Autopilot HIS to control combustion; a remote control sensor "tells" the user when to add more fuel. www.hwam.com

"zone heating" a specific area of your home (family or living room). Medium stoves are suitable for heating small houses, medium-sized energy-efficient houses and cottages used in winter. Large stoves are suitable for larger, open-plan houses or older, leakier houses in colder climate zones.

Wood Matters. Dense or "hard" wood contains the most energy per cord and is the best choice for peak winter conditions. Burning softer woods during swing seasons keeps rooms from overheating. Regardless, wood should be dried and stored for at least two years before burning. **GB**

SOURCE: EPA



Pellet Stoves

Pellet stoves use compressed pellets (made from wood or other biomass) for fuel and can be used in either fireplace inserts or free-standing stoves. They are categorized into two types, based on the pellet delivery system.

Top-fed pellet stoves direct pellets into the combustion chamber from the hopper at the top of the stove. The combustion chamber is more likely to be filled with ash and other debris.

Bottom-fed pellet stoves feed pellets into the combustion chamber from the bottom and automatically push the ash into the ash pan. Cleanup is typically easier because of the larger capacity of the ash pan.

Pellet stoves are easy to operate and maintain. Unlike wood stoves, pellet-burning involves no cutting, less hauling, no splitting, stacking or waiting for wood to dry. If used correctly, pellet stoves produce very little smoke or creosote, which can cause chimney fires.

Stepping It Up: New EPA Rule Strengthens Standards for Wood Stoves

The EPA first established limits for particulate matter from wood stoves in 1988. In early 2014, the EPA proposed updated standards for new wood heaters, including pellet stoves. The rule, which should be finalized in early 2015, proposes a tiered schedule for implementing the new standards:

	Particulate Matter Limit	Compliance Deadline
Step 1: All stoves without current EPA certification	4.5 g/h	60 days after final rule is published
Step 2: All wood stoves and pellet stoves	1.3 g/h	5 years after effective date of final rule