



Heating your Home with Wood

Choosing the Right Wood Burning Appliance for You

Pellet Stoves

The rise and volatility in prices of fossil fuels, along with associated environmental concerns, have led to an increased interest in alternative fuels for residential heating options. Modern wood stoves employ new technologies to increase fuel efficiency and reduce air pollution issues previously associated with burning wood. Other technologies have also introduced more options for the use of wood and wood products for home heating.

Pellet stoves are sophisticated appliances that burn specialized biodegradable fuel made from compressed renewable organic materials. Wood pellets are manufactured from wood chips milled into wood flour and then compressed under high pressure into small pellets resembling rabbit food — often with no additional resins or binders. This process is complex and costly. Although pellet stoves are very simple to operate and maintain they require electricity to internally auger the pellets into the burn chamber and ignite. Conversely, wood stoves burning firewood do not depend on electricity but are manually, not thermostatically, controlled. Pellet stoves are so fuel efficient (up to 90%), they are exempt from EPA emission testing standards.

On the outside, pellet stoves often resemble traditional wood stoves, but the similarities stop there. Pellet fuel is loaded into hoppers within the stove; hopper capacity varies in size with the appliance, ranging from 40 to 135 pounds. Pellets are carried from the hopper to the combustion chamber by an auger that is controlled manually or electronically by thermostat. Heat output is regulated by the rate pellets are fed into the fire. Fans and heat exchangers move the heat created from the burning pellets convectively away from the appliance and into the surrounding space. Because of this design, pellet stoves often remain cool to the touch and pose less of a hazard to small children than traditional wood stoves that rely on radiant heat.



Pellet stove



Wood pellets have great potential as a fuel source.

In the right situation, pellet stoves can offer a very reliable and efficient heating option for your home. However, the manufacturing process for the pellets is expensive and wood flour can be dangerous until compressed into pellets. Additionally, pellets are not available in many locations. Imported pellets are unsustainable, uneconomical and leave a large carbon footprint. Transporting wood fuel any distance beyond 50 miles eliminates many of the benefits associated with renewable fuels.

**Advantages:**

- Exceptionally efficient, almost zero emissions and very little creosote deposits.
- Clean and easy to operate and maintain; hoppers only need to be loaded daily, or less.
- Less expensive to install; many can be direct vented, eliminating the need for an expensive chimney or flue.
- Higher heat output than firewood.

Disadvantages:

- Require electricity, will not operate during a power outage.
- Complex appliance with expensive components that can break down.
- Pellets may not be locally available.

Additional resources:

www.woodheat.org
Wood Heat.org

<http://hearth.com>
Hearth.com

www.chimneys.com
Chimneys.com

www.epa.gov/burnwise
EPA – Burn Wise

www.hpba.org/
Hearth Patio and Barbeque Association