

## Wood Burning Basics

### Burn Only Dry, Seasoned Firewood

Freshly cut wood contains up to 80% moisture, and must be "seasoned" (dried to 20-25% moisture content) before burning. Wood containing more than 25% moisture is "wet" or "green", and should never be burned in a fireplace or woodstove. If exposed to rain, a fallen tree will wet-rot before it ever dries enough to be used for fuel. To properly season firewood, cut it into stove-sized pieces and stack it so air can circulate and carry away the moisture as it evaporates through both ends of each piece. The woodpile must be sheltered to prevent rainwater from being re-absorbed, which reverses the drying process: firewood that is exposed to rain will rapidly become just as wet as it was when freshly cut. Wood must be cut into pieces and stacked out of the rain for at least 6-9 months to season properly. If no seasoned wood can be found, high-density compressed sawdust logs make an excellent substitute. Avoid burning mill ends in woodstoves, as the exhaust from even "untreated" mill ends has shown itself to be tremendously corrosive to metal.

### Burn The Wood Gases

Most of the moisture content remaining in seasoned firewood consists of wood resins. As wood heats up in the fire chamber, these resins emit combustible gases which, when ignited in the secondary burn chamber, can account for as much as half the heat output of the fire. When green or wet firewood is burned, the extra water content turns to steam and mixes with the wood gases, preventing them from igniting and releasing their heat value. When the draft control is set too low and the fire smolders, the wood gases won't ignite in the resulting oxygen-starved environment, even if the firewood is properly seasoned. When the wood gases aren't burned in the secondary burn chamber, they escape up the chimney, taking their heat value with them and creating heavy creosote formation.

### Follow These Wood burning Tips

- If steam bubbles and hisses out of the end grain as the firewood heats up on the fire, the wood is wet or green, and needs to be seasoned longer before burning.
- If a wood supplier advertises his wood as "seasoned", or claims that it has been "down" for a year or two or ten, be skeptical. Ask if the wood has been cut into pieces and stacked out of the rain for at least 9 months. If it hasn't, it isn't ready to burn.
- Shelter the woodpile from the rain, but don't cover it completely with plastic tarps or store it in an enclosed shed or garage; air circulation is necessary to ensure proper seasoning.
- Never burn garbage, or mill ends in a woodstove. These contain chemicals which, when burned, are highly corrosive to metal.
- Unless the stove is EPA approved, never try to make a load of fuel burn longer than 6-8 hours. EPA approved appliances have built-in safeguards to prevent smoldering, but many older airtight can be adjusted to smolder along for extended periods, resulting in heavy creosote deposits.
- Operate woodstoves with their draft control wide open for 20-30 minutes each time firewood is added, or until the fresh load is totally engulfed in flames. This will send heat up the flue to help solidify the liquid creosote deposited by the previous load, while kindling the wood to start gasification of the resins for efficient burning.
- NEVER try to clean a chimney by deliberately starting a chimney fire. Have the chimney professionally cleaned and inspected at least once per year.
- If a chimney fire occurs, close the draft control on the stove completely to quench the supply of oxygen, and call the fire department immediately. Then, make sure the chimney is thoroughly cleaned as soon as possible.