

Buying & Storing Firewood & Pellets

Fact Sheet FS-937
 2012

Whether you buy or cut your own firewood, chances are that you still have plenty left to learn. Even people who have been heating with wood for decades often say “I wish I knew that years ago!” after reading tips like the ones contained here.

Every year, hundreds of thousands of Americans are sold substandard cord wood. This sheet will help you avoid getting a raw deal next time you buy firewood.

And if you heat with pellets, there are new developments you should know that will impact the fuel you buy.

Heating Fuel Cost Comparison

Prices vary, but you can get an idea of what it will cost you to use different fuels by looking at the table below. The fuel cost per heating season was calculated for a 2,000 square foot home in Maryland using this heating calculator: www.eia.gov/neic/experts/heatcalc.xls.

Fuel	Cost per Unit	Efficiency (%)	Fuel Cost \$/MBTU	Fuel Cost Heating Season
Wood Stove	\$200 cord	70%	\$12.63	\$1010
Pellet Stove	\$250 ton	78%	\$19.43	\$1554
Nat. Gas Furnace	\$2.95 therm	78%	\$37.84	\$3027
Coal Furnace	\$200 ton	75%	\$10.67	\$854
Oil Furnace	\$3.93 gallon	78%	\$36.33	\$2906
Propane Furnace	\$2.85 gallon	78%	\$39.94	\$3195
Electric Heat	\$0.12 kwh	98%	\$35.03	\$2802

Firewood

Firewood dealers come in all shapes and sizes, and although they may appear to be established or questionable, that does not necessarily mean you will be dealt a good or bad hand.

Before You Buy

Find a dealer with a good reputation. Check with friends, the Better Business Bureau, or an online rating site such as www.checkbook.org. Ask for references.

Ask the dealer what the moisture content of the wood is and how long it has been since it’s been split, not since it’s been felled. When the tree was cut is not nearly as important as when it was split, since seasoning really begins after splitting.

Ask what size truck the dealer delivers in and if it’s truly a full cord of wood, 4’ x 4’ x 8’. If the wood is delivered in a standard pick-up truck, you won’t be getting a full cord.

If you want it stacked, ask how much extra that will cost since stacking is typically not included. One benefit of stacking is that you can see whether you got a full cord, 4’ x 4’ x 8’, and if not, before the seller leaves you can either pay for what was delivered by calculating what fraction of a cord it is, or pay when you have been given a full cord.

Ask if you can inspect the wood before it is unloaded in your yard or driveway, so you can check its moisture content, type and volume. This will show the seller that you are an informed consumer, and will help to ensure that you get what was promised to you.

To save money, consider purchasing your firewood during the summer and then seasoning the wood yourself, to make sure it’s dry. If wood is already split, you can also buy it green as long as you have 6 - 9 months to dry it after it’s been stacked properly and covered.

Species

The species you select impacts the quality of your fire and the overall wood burning experience. Fruit or nut species—such as cherry, apple, hickory and pecan—can give off a pleasant aroma when burned in a fireplace. However, if you are burning wood in a stove, you should not smell any smoke. Smoke is a sure sign of an inefficient fire or appliance. Softwoods, green wood, and straight-grained wood such as pine generally are easier to split than others – something to remember if you are planning on splitting your own wood. Softwoods also tend to ignite quickly and are ideal for kindling. Hardwood species like oak are denser, making them more difficult to split but good for sustaining longer fires and producing more heat. It is good to have both types on hand.

Heat value for firewood is expressed in British Thermal Units (Btu). One Btu is the amount of heat energy necessary to raise one tenth of a UK gallon of water one degree Fahrenheit. Different species of trees produce different Btu values.

Species	Million BTU per cord	Splits	Burns	General Rating
Oak	25.3	✓✓✓	✓✓✓	✓✓✓✓
Ash	23.6	✓✓✓	✓✓✓	✓✓✓✓
Elm	21.4	✓✓	✓✓	✓✓✓
Sycamore	20.7	-	-	✓✓✓
Walnut	21.8	-	-	✓✓
White Pine	19.0	✓✓✓	✓✓	✓

Source: University of Maryland Extension and www.stovesonline.co.uk/woodburning_chart.html

Firewood Prices

According to an informal survey conducted by University of Maryland Extension, the average price per cord of oak or mixed hardwood firewood in Maryland was \$208 in 2011, up 40% from 2006. The values range from \$180-\$235 per cord. Prices tend to be higher in Central and Southern Maryland and lower in Western Maryland and the Eastern Shore. These survey results should be taken with caution because the range of values is high. They show that prices vary by region, range widely in any one place, and may indicate an upward trend—although it's difficult to say whether they will continue increasing or if competition will even them out in the future. In any case, it pays to look around before you buy. Sometimes you get what you pay for, so don't just buy by price.

Maryland Region	2006 \$/cord	2008 \$/cord	2010 \$/cord	2011 \$/cord
Western	123	150	192	192
Central	161	199	210	220
Southern	159	183	178	213
Eastern Shore	164	145	183	208
Average	149	176	195	208

Source: University of Maryland Extension

Laws and Regulations

In Maryland, firewood sellers must be licensed with the state as forest products operators. Those who are may be more honest brokers. You can check the list here:

www.dnr.state.md.us/forests/fpo_search.asp

Maryland offers a 100% tax exemption on the purchase of wood fuel, so there should be no tax on your purchase.

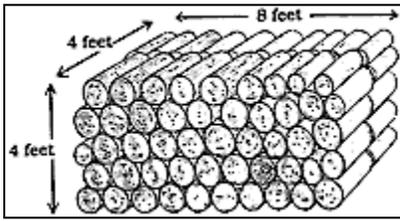
Moving firewood long distances can transport dangerous invasive pests such as the emerald ash borer (EAB), the Asian longhorned beetle, and the Sirex woodwasp. Never move firewood more than 50 miles even if it has no visible signs of infestation, as they can be difficult to see. Seasoned firewood or debarked firewood is less likely to contain pests, but they may still persist. It is best to buy or cut firewood where you burn it. For more information, visit www.dontmovefirewood.org.

As of July 2011, there is a ban on moving hardwood firewood out of the EAB quarantine zone. In Maryland, this means that you cannot transport firewood from west to east across the Bay Bridge or the Susquehanna River. EAB is an invasive species that feeds on and kills ash trees. Visit this website for more information: www.mda.state.md.us/plants-pests/eab/

How Much Wood is in a Cord?

The cord is the typical unit of measure for firewood. Appliances that burn cordwood are sometimes called “cordwood stoves.” Maryland law states that firewood must be sold by the cord or fraction of a cord. This rule is enforced by the Department of Agriculture Weights and Measures Program.

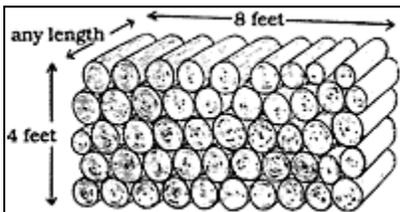
A standard cord of wood is 128 cubic feet in volume, but the actual volume of the wood is less, between 65 to 90 cubic feet depending on the size, straightness and moisture content of the logs. Wetter wood takes up about 8% more space than dry wood. The average volume of wood in a cord in Maryland is about 80 cubic feet.



A standard cord of wood is 8 feet long, 4 feet wide and 4 feet high.

Other Common Wood Measurements

A face cord (sometimes incorrectly referred to as a “rick” which is actually just any pile of wood) ranges in size from 1/3 to 1/2 cord. A standard face cord is 8 feet long, 4 feet high, and the width of one stack of wood, normally 16 to 24 inches.



A face cord is 8 feet long and 4 feet high. The width varies depending on the length of the wood.

Although not a standard unit of measure, it’s common to see wood sold by the truckload on Craigslist: www.craigslist.com. A typical truck bed holds less than a cord of wood. Pickup trucks can hold 1/5 to 1/2 of a cord depending on weight and how the wood is stacked. To calculate how much wood a truck bed can hold, simply multiply the bed length, width and height and divide by 128 for the number of cords.



Most truck beds hold much less than a cord of wood. Be suspicious of any dealer who claims to deliver a cord in a pickup truck.

A bundle of wood sold in a supermarket or convenience store is about 1/64 to 1/100 the size of a cord. Sometimes the volume of bundles is expressed in terms of cubic feet rather than cords. A bundle typically contains enough wood for three or fewer fires and weighs about 36

pounds. It is normally “kiln-dried” and acceptable to transport over long distances.

Note: Some stores sell artificial logs for use in fireplaces, but these should not be burned in wood stoves.

Point of Sale

When the dealer arrives, inspect the wood before it’s unloaded. If you have a moisture meter, know how to use it. You will need to have an axe on hand so you can split a few pieces of the wood and test the inside of the log, not the outside. Moisture content should be below 20%. Moisture meters can be purchased at hardware stores or online (see references).

If hardwood was advertised—and you can tell the difference between hardwood and softwood—make sure that 90-95% of the load is hardwood.

Check the volume—a full cord is 128 cubic feet, and a face cord is 8 feet long and 4 feet high. Maryland Department of Agriculture requires firewood to be advertised and sold by the full cord, or some fraction of a full cord, to allow buyers to compare prices between dealers. When the wood is delivered, try to have it unloaded close to where you will stack it. Be present when wood is delivered and inspect it before it’s unloaded. If the quality and/or quantity aren’t as advertised, do not accept the wood. Report dealers who deliver less than the amount you agreed upon to the Maryland Department of Agriculture Weights and Measures program:

www.mda.state.md.us/weights_measures/index.php



The seller is required by law to leave their name, address, price paid and amount delivered in cords. They should be registered with the Maryland Department of Natural Resources: www.dnr.state.md.us/forests/fpo_search.asp. Consider tipping honest sellers and/or recommending them to friends.

Free Firewood

Free firewood is everywhere in much of Maryland, particularly because of the rash of recent storms. Another way to find free firewood is through classified ads in local

papers or online bulletins such as Craigslist. Many people take down trees and offer wood to whomever is willing to cart it away. Sometimes the wood is cut to wood stove lengths. Usually it is green. It is almost always good to have a pick-up truck, if you are interested in quantity.

A lesser known, but excellent way to obtain free firewood is by contacting local tree cutting services in your area to see if they ever have extra wood that they need to offload. In Maryland and other parts of the mid-Atlantic tree cutters often have to pay to dispose of their wood, and they are more than happy to drop it off in your driveway free of charge. The wood will likely include a mix of species, sizes and quality.

Some companies have sign-up forms on their websites because they are actively looking for easy ways to dispose of wood. They may even be willing to deliver if it is only a block or two away. Or, with the client's permission, they will often leave it on the curb. You would have to split and dry it. You can rent log splitters for about \$70 a day and split 2-3 cords in one day.

Cutting your own Firewood

National forests and many state forests allow you to cut your own wood for as little as \$10 per cord. You'll need a chainsaw and a pick-up truck, tractor, or rental trailer to transport the wood you cut. There are no national forests in Maryland, but there are state forests in just about every region of the state:

www.dnr.state.md.us/forests/mdforests.

Seasoning Firewood

Freshly cut firewood can have a moisture content of up to 50%, but it needs to dry until it is below 20% to burn efficiently. Wood that has a moisture content of over 20% is more difficult to light, gives off less heat, and increases the risk of a chimney fire due to creosote build-up. You always want to burn dry or seasoned wood. Dry wood will appear grey, develop splits or cracks on the ends and have bark that is peeling off.

Seasoning firewood requires time, between 6 to 9 months, but is easy to do. Follow these simple guidelines to properly season firewood:

- Logs should be cut into pieces 3" less than the size of the firebox, usually 16-20". Pieces that are less than 12" long may be better for small heaters.

- Store wood outdoors so any pests remain outside the home. Stack wood to facilitate air flow through the openings, which will aid in drying.

- Do not stack the wood directly on the ground. Use a wood shed or a wood rack that provides some space between the ground and the wood. This ensures that air can reach and dry all parts of the logs.

- Cover the top of the stack, but not the side. Some commercial firewood racks show a full cover, but they advise, "It is designed to be used in areas with extreme weather conditions only during the burning season after the firewood has cured."

Buying Pellets

Pellets should be made of pure wood with no additives. No binder is needed as naturally occurring lignin in the wood melts and then hardens when it cools. One common myth is that hard wood pellets will have more Btu's than soft wood. Once wood is densified, it will all have the same Btu content. The quality of pellets can vary significantly and once you find a good brand that works well in your stove, stick with it. Often people think the stove is not working properly when in fact they are using a substandard pellet. Wood pellets are cylindrical in shape and measure up to 1.5" (38 millimeters) in length and 5/16" (8 millimeters) in diameter. Most pellets have 5-10% moisture content and a heating value of approximately 8,250 Btu/lb.



Source: Pellet Fuels Institute

Pellets can be purchased at hearth specialty stores, home improvement stores, feed stores or online. Most pellet stoves are designed to burn wood pellets, which are normally manufactured from sawdust or woodchips. Corn stoves can burn corn kernels, while "multi-fuel" stoves can burn fuels made from corn, hulled wheat, cherry pits, or sometimes grass.

What Makes a High-Quality Pellet?

High quality pellets are dry, hard, durable, and produce little ash. All pellets should have chloride levels of less than 300 parts per million. Pellets should be no more than

0.5% dust. One way to check pellet quality is to measure the amount of dust in a bag. A 40lb bag of quality pellets should have less than ½ cup of dust at the bottom.

Wood pellets are divided into two grades according to their ash content. Premium grade wood pellets, the most common type on the market, have an ash content of less than 1%. In contrast, standard grade wood pellets have ash contents between 1-3%. Some non-wood biomass pellets have an ash content higher than standard grade. Using premium grade pellets helps reduce ash build up in pellet stoves.

Certified Pellets – The Future

New EPA regulations may soon require that certified pellet appliances can only burn the certified pellet fuel they were tested on. The Pellet Fuels Institute will be responsible for certifying pellet fuel, which should increase its consistency and quality. For more information on PFI certification, see www.pelletheat.org/wp-content/uploads/2011/11/retailer-ppt-for-web-draft-Nov-2011.pdf

Storing Pellets

It's best to store your pellets in a dry garage, basement or shed or other place where they won't get wet. If you received your pellet shipment in bags, you can stack them on top of each other. Pellets do not need to be seasoned like firewood, but it's good to keep them covered to protect them from moisture. They do not take up as much space as wood and can last in storage for about a year.

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