

# Buying/Storing Firewood & Pellets

Fact Sheet FS-01-2012

Whether you buy or cut your own firewood, chances are that you still have a lot 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 those 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.

## Purchasing Firewood

Firewood dealers come in all shapes and sizes and just because they appear established or fly-by-night does not necessarily mean you will be dealt a good or bad hand. To save money, consider purchasing your firewood during the off season and season 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.

## 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](http://www.checkbook.org). Ask for references.

Talk to the dealer by phone and ask 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 once its split.

Ask what size truck he delivers in and if it's truly a full cord of wood, 4 x 4 x 8. If he delivers in a pick-up truck, you won't be getting a full cord.

If you want it stacked, ask how much extra that is 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 or pay him when he has given you a full cord.

Ask if you can inspect the wood before he dumps it in your yard or driveway, so you can check its moisture content, type and volume. This will put him on notice that you know at least the basics and will help to ensure that he shows up with what is promised.

## Point of Sale

When he arrives inspect the wood before its dumped. If you have a moisture meter, know how to use it. You will need to have an axe on hand so you can split 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.

If hardwood was advertised (and you know hard wood from softwood) make sure 90 - 95% is hardwood. Don't quibble about a few pieces of wood.

Check the volume – a full cord is 128 cubic feet; a face cord is 8 feet long and 4 feet high. We are not encouraging buyers to be nitpicky – just careful. Then, if you find it as advertised, try to have him dump it as close to where you will stack it.

- Be present when wood is delivered and inspect it before it is unloaded. If the quality and/or quantity aren't as advertised, do not accept the wood. Report dealers who deliver less than a full cord of wood to the Maryland Department of Weights and Measures:

[http://www.mda.state.md.us/weights\\_measures/index.php](http://www.mda.state.md.us/weights_measures/index.php)



- The seller is required by law to leave with 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](http://www.dnr.state.md.us/forests/fpo_search.asp)

- Consider tipping honest sellers and/or recommending them to friends.

## Species

The species you select can impact the quality of your fire and overall wood burning experience. Species named after fruits or nuts – 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 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
Ash	23.6	✓✓✓	✓✓✓	✓✓✓✓
Elm	21.4	✓✓	✓✓	✓✓✓
Oak	25.3	✓✓✓	✓✓✓	✓✓✓✓
Pine	19.0	✓✓✓	✓✓	✓
Sycamore	20.7	-	-	✓✓✓
Walnut	21.8	-	-	✓✓

Source: University of Maryland Extension, [http://www.stovesonline.co.uk/woodburning\\_chart.html](http://www.stovesonline.co.uk/woodburning_chart.html)

## Firewood Prices

According to an informal survey conducted by the Maryland Extension Service, the average price per cord of firewood in Maryland was \$208 in 2011, up 40% from 2006. Prices tend to be higher in Central and Southern Maryland and lower in Western Maryland and the Eastern Shore. Most local wood is oak or mixed hardwood.

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 are supposed to be registered with the state. Those who are may be more honest brokers. You can check the list here:

[www.dnr.state.md.us/forests/fpo\\_search.asp](http://www.dnr.state.md.us/forests/fpo_search.asp)

Maryland offers a 100% tax exemption on the purchase of wood fuel so you don't have to pay tax on your purchase.

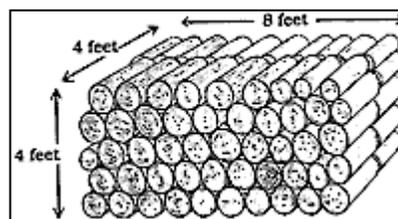
Moving firewood long distances can transport dangerous invasive pests such as the Emerald Ash Borer, the Asian Longhorned Beetle or the Sirex Woodwasp. Never move firewood more than 50 miles – even if it has no visible signs of infestation as it can be difficult to see. Seasoned firewood or firewood that has been debarked is less likely to contain pests, but they may still persist. It is best to buy firewood or cut it where you burn it. For more information, visit <http://www.dontmovefirewood.org>.

Maryland currently has a ban on moving firewood in effect for all counties west of the Chesapeake Bay to minimize the spread of the Emerald Ash Borer (EAB). The EAB is an invasive species that feeds on and kills ash trees. The quarantine applies to all hardwood species of firewood. Visit this website for more on the quarantine: <http://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 Weights and Measures.

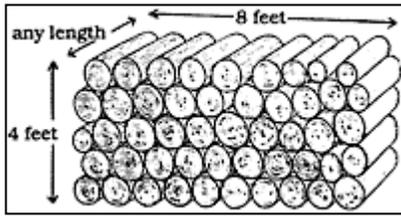
A standard cord of wood is 128 cubic feet in volume, but the actual volume of the wood is less, between 65 to 90 cubic feet depending on the size, straightness and moisture content of the logs. Wetter wood takes up about 8% more space than dry wood. The average volume of a cord in Maryland is about 80 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”) ranges from the size of a third or half 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 (1.3 to 2 feet).



*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 is common to see wood sold by the truck load on Craigslist. 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. 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.*

Truck Type	Volume in Cubic Feet	Loading Method	Stacked to Top of Box	Stacked to Above Top of Box
1978 Dodge Longbed	73	Random	0.35 cord	0.44 cord
		Stacked	0.47 cord	0.58 cord
1981 Ford Shortbed	62	Random	0.30 cord	0.37 cord
		Stacked	0.39 cord	0.48 cord
1976 Datsun Pickup	39	Random	0.18 cord	0.23 cord
		Stacked	0.24 cord	0.31 cord

Source: University of Maryland Extension, 2011

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 less 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.

## 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 known as “green wood”. Green wood is 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 less than 16” pieces (3” less than the size of the firebox). 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.”

## 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. Also use this heating calculator: [www.eia.gov/neic/experts/heatcalc.xls](http://www.eia.gov/neic/experts/heatcalc.xls)

Fuel	Cost per Unit	Efficiency (%)	Fuel Cost \$/mBTU	Fuel Cost Heating Season
Wood Stove	\$200 cord	70%	\$11.36	\$909
Nat. Gas Furnace	\$1.03 therm	85%	\$13.33	\$972
Coal Furnace	\$250 ton	70%	\$21.65	\$1732
Oil Furnace	\$3.37 gallon	85%	\$28.59	\$2287
Propane Furnace	\$2.67 gallon	85%	\$34.39	\$2751
Electric Heat	\$0.14 kwh	100%	\$41.03	\$3282

Source: University of Maryland Extension

## Obtaining Firewood for Wood Stoves

Firewood can be purchased from local dealers at costs that are relatively inexpensive compared to other heating fuels such as propane, oil and electricity. In some cases, it can even be obtained for free. Prices and quality can vary greatly within a region, so it pays to shop around.

### Free Firewood

The most likely 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.

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 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:

<http://www.dnr.state.md.us/forests/mdforests>.

### Buying Pellets

Pellets, the fuel burned in pellet stoves, are cylindrical in shape. Standard pellets 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.



Pellets can be purchased at hearth specialty stores, mass merchants, home improvement stores, feed stores or online. Most pellet stoves are designed to burn wood pellets, which are normally manufactured from sawdust or woodchips. Other biomass pellets burned in corn or "multi-fuel" pellet stoves are made from corn, hulled wheat, cherry pits or grass.

### What Makes a Quality Pellet?

High quality pellets are dry, hard, and durable and produce little ash. All pellets should have chloride levels 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.

Feedstock	Bulk Density (kg/m <sup>3</sup> )	Energy Content (MJkg <sup>-1</sup> )	Ash Content (%)
Sawdust	606	20.1	0.45
Bark	676	20.1	3.7
Logging Leftovers	552	20.8	2.6
Switchgrass	445	19.2	4.5
Wheat Straw	475	16	6.7
Barley Straw	430	17.6	4.9
Corn Stover	550	17.8	3.7

Source: PennState Extension

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.

### 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.

## Author's Name

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