

# *Firewood: 6 Questions to Answer Before you Purchase*

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## **1. How Much Firewood am I Buying?:**

Purchasing firewood can be hard when terms like cord, face cord, rick, stove cord, and pick-up load all can specify quantities of wood. A cord of wood is a stack 4' high by 4' deep by 8' long, or any arrangement equaling 128 cubic feet of wood. A cord can weigh anywhere from 1 to 2 tons, making the actual amount of fuel differ from cord to cord due to differences in density of species and how dry the wood may be. Obviously, moving such large quantities is hard to do without the right vehicle, and for many firewood buyers, a 4' log is far too big to burn at home.

A “face” cord (also known as a “rick” or “stove” cord) is about one-third of a full cord, where dimensions equal 4' high by 8' long and on average 16” deep. This is generally the quantity sold to individuals for use at home, but be wary; there is large variation between the stipulated amount of a face cord and what merchants actually deliver. This can often be the case when a pick up load is simply dumped in your yard without immediate stacking. Be sure to either have your supplier stack the wood or have a contact number if you have stack it yourself.

## **2. Firewood Pricing: What is a Fair Price?**

Due to the large variation in quantities sold to firewood users, knowing how to calculate prices can be quite useful when purchasing different types of cords. Usually, vendors will classify a face cord as 4' high by 8' long and some varying depth. In this case, simply divide the depth of a normal cord (48”) by the depth of the face cord, rick, or stove cord (X”) and multiply size factoring value(Y) by the price offered (P); this is the way to calculate price per cord from a smaller amount. The equation:

$$48'' \div X'' = Y \times P = \text{Price per Cord (in dollars)}$$

For example: you are offered a “rick” of firewood stacked 4' high, 8' long, and 18” deep at the price of \$80 per rick. If a full cord sells for \$160, how much are you paying in comparison?

$$48'' \div 18'' = 2.67 \times \$80 = \$213.60 \text{ per cord}$$

In this case, you would be paying more than the market value per cord by buying a smaller amount of wood. Keep in mind, market cordwood prices can be hard to locate and usually differ between regions.

## **3. What are BTU's?:**

A BTU, or British thermal unit, is a unit of measurement describing the amount of heat value a particular substance contains. It is defined as the amount of heat energy

necessary to raise one pound of water one degree Fahrenheit. BTU's can vary greatly between different fuel sources, including differing species of firewood.

BTU capacity varies greatly from species to species; dense hardwoods tend to have the highest BTU values, followed by softer hardwoods and harder softwoods, then lighter softwoods. Hardwood trees are angiosperms or flowering trees such as oaks, maple, and birches, whereas softwood trees are gymnosperms or coniferous trees like pines, firs, and spruces. Firewood enthusiasts prefer the slower, longer lasting burn of good hardwoods rather than the quick burning, high heat intensity of softwoods. If you are looking to warm up quickly, softwoods are ideal, otherwise their use as fuel is usually limited to kindling. Follow this link to learn more about relative BTU capacity:

<http://mb-soft.com/juca/print/firewood.html>

#### **4. Things to look for in Firewood: Which wood is good?**

Seasoning:

Choose wood that has been thoroughly seasoned. In general, firewood is “seasoned” following a harvest anywhere from three months to a year pending the seasoning conditions. Wood that is “green” or unseasoned contains higher amounts of water and makes for a poor fuel, which should be avoided unless you do not plan to use it until it is properly seasoned. Furthermore, burning wet wood can lead to higher rates of creosote condensation in your chimney, which can lead to increased chances of chimney fires due to its highly flammable nature. Signs of seasoning include a relatively lighter weight and cracks or “checks” in the ends of logs.



*Fig.1. Note the checks and cracks in the end grain of this seasoned oak.*

#### **5. Spread of Insects, Fungi, and Pests: Does Firewood Spread Disease and Insects?**

Many states have regulations pertaining to the transportation of invasive species that may inhabit firewood in hopes of preventing further spread. You can help by not purchasing or moving firewood from beyond a local source.

*Emerald Ash Borer:*

This pesky insect has been quite a nuisance in recent years across the southern parts of Michigan and scattered about the Ohio-Indiana area. It has also been identified in parts of Illinois as recently as 2007. Although there are quarantined zones specific to these states, as well as sub-zoning in counties with higher borer counts, the spread continues largely due to the transportation of infested firewood without knowledge of the borer's presence, or even existence.

Unlike their slower, natural rate of movement (about one-half of a mile a year), firewood traveling great distances has proven to be the main cause of the spreading infestation. The larvae live in trees where they feed on the inner bark of ash trees, disrupting water and nutrient transportation. Check your firewood for D-shaped exit holes and serpentine feeding scars (galleries).

*\*Do not bring firewood into state parks or campgrounds! Purchase wood available at the campground or buy wood that has been inspected and has a seal of approval from the Department of Natural Resources commissioner on the packaging.*



*Fig. 2. (left) Note the D-shaped exit holes contrasted with the bark.*

*Fig. 3. (right) Galleries left by EAB larvae under bark.*

*Photos by Joe O'Brien of the USDA Forest Service*

#### *Dutch elm disease:*

Caused by a fungus and vectored into elm trees by elm bark beetles, this disease produces a blockage in water-conducting tissue in the tree, leading to discoloration, wilt, and eventually death. Already having wide-spread effect on the American elm population, preventing further spread is of the utmost importance. Unfortunately, trees that have been infected can put other adjacent trees at risk as well through root grafting.

Because of this, it is important to practice sanitation methods by removing the disease and/or insect source; chip, compost, or burn infected elm logs, the primary site for bark beetle breeding. Look for scarring under the bark similar to figure 4 below. If the firewood you are purchasing/have purchased shows similar traits, remove them from your wood pile and keep them far from other standing elms or elm firewood piles. However, if the bark is removed, the firewood is okay for storage and use.



*Fig. 4. Bark beetle scarring under bark on an elm. Photo from USDA Forest Service.*

#### *Oak Wilt Disease:*

Also caused by a fungus and root grafting, oak wilt has proven to be deadly to oak populations, specifically in red oaks. Spread across southern and eastern side of Minnesota, many thousands of landscape trees have become victims. Preventative measures such as avoiding moving logs from infected trees are necessary in fighting its movement into new areas. Oak wilt mats can and may form on infected logs, which has

proven to account for the establishment of new infection site that had previously showed no signs of oak wilt. Like Dutch Elm, this disease may be spread by firewood if the bark is intact.



*Fig. 5. Note the black fungal spore mats of oak wilt located under the bark of red oaks. Photo from USDA Forest Service.*

***\*Preventing the continuing spread of pests and infectious diseases is of the utmost importance. Check for these signs as well as any other unusual signs of infection!***

#### **6. Stacking and Storing:**

Stacking wood can help save time and space if done properly, not to mention provide a higher quality burn. Wood should be stored either raised off the ground or on a pervious surface in order to prevent fungal growth. Furthermore, raising the firewood with an open bottom can aid in seasoning by providing airflow. It is important to consider the repercussions of placing firewood in racks in or near your home. Carpenter ants, termites, and borers of sorts may move from your woodpile to wood in your structure, either causing damage or creating a nuisance.



*Fig. 6. (left) Outdoor firewood stack placed safely away from structures.*



*Fig. 7. (right) Indoor firewood stack.*

Stacking and storing wood close to your home can also increase your susceptibility to fires. The Department of Natural Resource's program Firewise is a community extension program focused on the protection of your home from fire. Creating a defensible space is one of the first steps you can take to reduce your risk for fire; move your firewood pile far enough away from your home or other structures to ensure that if a spark does reach your woodpile, your home/structure will not be in the direct danger of catching as well. Learn more about Firewise by accessing this web site:

<http://www.dnr.state.mn.us/firewise/index.html>