

Good Firewood



*Burn it
Smart!*

The key to successful wood burning

Part of the *Burn it Smart!* series of publications. For more information visit www.burnitsmart.org

Whether you burn wood in a fireplace, stove or furnace, good quality firewood is the key to convenience, efficiency and safety. Wet wood and pieces that are not the right size and shape for your wood burner can be

frustrating, burn inefficiently and deposit creosote that can fuel a dangerous chimney fire. Good planning, seasoning and storage of the firewood supply are essential to successful wood burning.

— Measuring firewood quantity and comparing prices —

The first challenge in buying firewood is to measure quantity so you can compare prices. The cord is the standard unit of measurement for firewood. A cord measures 1.2 x 1.2 x 2.4 m (4 x 4 x 8 ft). But nobody burns four foot long pieces, so most dealers sell fractions of cords, often called “face cords”, “stove cords” or “furnace cords”, which are piles of wood 1.2 m (4 ft) high and 2.4 m (8 ft) long and as wide as the length of the individual pieces, usually between 30 cm (12 in) and 50 cm (20 in).



Firewood cut to length, split and stacked neatly to season.

The price of firewood sold in fractions of cords can be compared by calculating the volume of wood sold as a unit and comparing its cost per full cord. The table below gives some examples of how a simple calculation can be used to compare firewood prices.

Comparing prices of firewood in fractions of full cords

(assuming piles that are 2.4 m [8 ft] long and 1.2 m [4 ft] high)

Fraction of cord	Length of pieces (inches)	Volume of one unit (cu. ft.)	# needed to make a full cord	Price of one unit	Price per full cord
cord	48	128	1	\$200	\$200
1/4 cord	12	32	4	\$65	\$260
1/3 cord	16	43	3	\$75	\$225
1/2 cord	24	64	2	\$105	\$210

Note: The prices quoted are examples only and are not relevant to market prices.

Regardless of the length of the pieces or the terms used to describe the units of firewood being sold, always convert to a volume measurement so you can compare prices accurately.

— Tips on buying good firewood —

- Ask friends and neighbours who burn wood for recommendations on reliable suppliers.
- Shop around and select the dealer who seems most reliable and comes with the best recommendations.
- Do not order wood by phone. Go to the storage area to inspect the wood and take a tape measure to check piece length and pile size.
- Look for wood that is clean. Sand and mud on firewood makes it less desirable.
- Do not buy randomly piled wood. Only stacked cords can be counted.
- Either measure the piled wood before delivery or stack it (or have it stacked) at home before paying so you can measure it and confirm that you get the volume you pay for.
- If possible, get the wood in spring and stack it in your own yard so you can control the seasoning process.



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— What are the best tree species for firewood? —

All wood is chemically similar, regardless of species. It is the density that influences its behaviour in the fire and its value as firewood. Dense hardwoods like maple and oak have a higher energy content per cord and so release more heat per firebox load. They also produce long-lasting fires and coal beds. Softer woods like pine, spruce and poplar are less dense, burn faster and do not produce a long-lasting coal bed when burned.

Traditionally, hardwoods were the preferred firewood, especially in central and eastern Canada, but softer woods make excellent fuel for spring and fall use. Those who heat with wood in the coldest parts of Canada have only softwoods like spruce and pine to burn and they still manage to stay warm. The newer advanced technology wood stoves, fireplaces and furnaces can function well with a wider variety of wood species because of their better control of the combustion process than older conventional stoves.

Hardest (long burning)	Density of Common Tree Species
Ironwood	Here is a list of the tree species commonly used for firewood, according to their relative densities.
Rock elm	
Hickory	Trees at the top of the list have the most energy per cord, while those toward the bottom of the list have the least energy per cord.
Oak	
Sugar maple	Although they are less dense, the species in the lower half of the list can make excellent firewood for spring and fall because they make heat control easier and don't tend to overheat the house.
Beech	
Yellow birch	
Ash	
Red elm	
Red maple	
Tamarack	
Douglas fir	
White birch	
Manitoba maple	
Red alder	
Hemlock	
Poplar	
Pine	
Basswood	
Spruce	
Balsam	
Softest (shorter burns)	

— Firewood piece size for effective and convenient stoking —

Length

The length of the pieces must be suitable for your stove, furnace or fireplace. Shorter pieces are easier to handle and preferable to pieces that are too long for the appliance. Pieces that are even slightly too long can make fire stoking difficult or impossible. For stoves and furnaces, pieces should be at least 7.5 cm (3 in) shorter than the fire box size. Even if a stove firebox is big enough to take firewood as long as 50 cm (20 in), shorter pieces are usually more desirable for ease of handling and fire maintenance. Good quality firewood is a consistent length. Lengths varying more than 5 cm (2 in) are a sign of poor quality and may cause problems in loading the appliance. For convenient handling and stoking in most wood stoves, firewood is best cut into pieces 35 to 40 cm (14 to 16 in) long.



All pieces should be about the same length.

Diameter

Most commercial firewood is not split small enough for effective fire building and maintenance. Big firewood pieces tend to smoulder longer when placed in the fire, whereas smaller pieces ignite quickly. Small pieces are better for small fires in mild weather. Even in cold weather each load should be made up of a few small pieces that will ignite quickly and some larger pieces that will burn steadily for several hours. Ideally, the wood should be split to a variety of sizes ranging from 7.5 cm (3 in) to 15 cm (6 in) measured across the largest cross section. Expect to pay more for wood that is split smaller and into a variety of sizes.



Small firewood pieces are usually better than large pieces for convenient stoking.

When shopping for firewood look for consistent piece length and a range of piece diameters.



The piles above may look neat and orderly, but the wood will not season quickly because:

- the pieces are too big and all the same
- they are placed directly on the ground
- the rows are too close together
- stacks are not covered

This wood will not season in a single summer.

— Tips for stacking and storing firewood —

- Stack the wood in separate rows in an open location where the summer sun can warm it and breezes can carry away the moisture. Do not stack unseasoned wood tightly in an unvented storage area.
- Do not allow firewood to lie on the ground for more than a couple of days before stacking. Mould and rot can set in quickly.
- Stack the wood up off the ground on poles, lumber rails or pallets.
- The top of the pile can be covered to keep off rain, but do not cover the sides.

In general, wood that is cut, split and stacked properly in the early spring will be ready for burning in the fall. Extremely hard woods like oak, and large pieces of firewood, may take longer than the summer months to dry enough. Drying may also take longer in damp maritime climates.

— How to tell if wood is dry enough —

There are a few ways to tell if wood is dry enough to burn efficiently. Use as many indicators as possible to judge the dryness of the firewood you are considering.

- Checks or cracks in the end grain can be an indication of dryness, but may not be a reliable indicator. Some wet wood has checks and some dry wood has no checks.
- The wood tends to darken from white or cream colour to grey or yellow as it dries.
- Two dry pieces banged together sound hollow; wet pieces sound solid and dull.
- Dry wood weighs much less than wet wood.
- Split a piece of wood. If the exposed surface feels damp, the wood is too wet to burn.
- If in doubt, burn some. Dry wood ignites and burns easily; wet wood is hard to light and hisses in the fire.



Checks in the end grain of seasoned wood.



When cut,
up to 50%
moisture.



Seasoned
wood is
15 to 20%.

— In the fall, move the wood to winter storage —



When the firewood has dried in the sun and summer breezes, move it to winter storage. The area should be dry and fully sheltered from rain and snow. Ideally, this area is close to, but not inside the house. Large amounts of wood should not be stored inside houses because of the risk of mould growth, which can contaminate the indoor air with spores. However, a small amount of wood stored inside can give it time to warm to room temperature before burning.

Look for firewood produced using sustainable harvesting methods

Try to buy your wood from someone who uses good forest management practices. Environmentally sound woodlot management involves thinning out dying and damaged trees and less desirable species. To support sustainable forestry practices, use wood from a blend of species. Burn the softer woods, such as pine, poplar and aspen, in the spring and fall. These are the ways you can help to ensure that wood is a sustainable energy source for home heating.



— Why there is no standard price for firewood —

Here are some of the factors that can affect the price of firewood:

Energy content: Very soft woods like poplar and spruce have about half the energy content per cord of very hardwoods like white oak or iron wood. Based on energy content, they should cost about half as much per cord. However, processing, transportation and storage costs are the same regardless of species, so while the price of softwoods may be lower, expect to pay considerably more than half the cost of hardwoods.

Location: Because of shipping and storage costs, firewood sold in urban areas can cost at least double the purchase price in rural areas.

Dryness: Fully-seasoned firewood usually costs more than green, unseasoned wood because it has been stored for longer.

Piece size: Firewood processed in shorter lengths and split smaller usually costs more because of the additional handling and labour involved.

Amount purchased: A bag of firewood purchased at a convenience store will cost more per cord equivalent than the purchase of a full cord or more.

Delivered or not: Delivered wood is more expensive than wood you load, transport and stack yourself, especially if it is stacked by the supplier.

For all these reasons, firewood can range in price from less than \$150 for the equivalent of a full cord to more than \$300. Paying a little extra to get good quality seasoned firewood that is the right length and split properly is a good investment because of increased convenience and efficient burning.



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