

Purchasing Firewood in Alaska

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Wood is abundant in most of Alaska and is an important source of heat and enjoyment. Cutting firewood for one's own use takes time and hard work but it can be good for "body and soul," providing physical exercise and a sense of self-sufficiency and satisfaction.

Using wood as a fuel for heating purposes has many advantages:

- Wood is plentiful and renewable.
- Wood can provide a reliable source of heat in the event of power outage or shortage of other fuels.
- Wood is inexpensive if the user provides the labor.
- Wood fires are aesthetically pleasing.
- Wood fires provide a lot of direct, radiant heat.

Using wood also has some disadvantages:

- Handling can be dirty work and may be difficult due to weight, bulk, splinters, and hard edges.
- All species of wood do not burn uniformly—they vary in heat output, length of time they burn, tendency to spark, and brightness.
- Wood fires require attention (adding fuel, stoking, guarding against sparks, removing ash, maintaining stoves and chimneys).
- Storage space is needed.
- Wood burns best after seasoning for twelve months.
- Wood smoke can be harmful to air quality.

Firewood Characteristics

It is important to understand three characteristics of wood when purchasing firewood. Density, resin content and moisture content are characteristics that vary between species, on average, and between trees of the same species. This variability contributes to differences in weight, intensity and rate of combustion, and the amount of heat in a given volume of wood.

Density is usually expressed in pounds per cubic foot at a specified moisture content. In general, the denser the wood, the higher the heat output.

Resins, when present, are usually highly flammable and can result in more heat from wood that is less dense than others without high resin content.

Moisture content is usually expressed as *green* or *air dry*. Paper birch has a green moisture content of about 80 percent; aspen about 100 percent. This means that the moisture in green aspen weighs just as much as the wood itself when totally dry. Air dry means the moisture content is from 12 to 20 percent. You can maximize the heat output from firewood by seasoning it under cover, with good air circulation, for one year. Split wood dries more quickly and burns more evenly. In general, the drier the wood, the higher the heat output.

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Buying Firewood

Firewood is most often sold by the cord or some portion of a cord. A cord is a **stack** of wood four feet high and eight feet long in four foot lengths. A cord, then, is a **volume** of 128 cubic feet of wood, bark, and air space. The actual amount of wood in a cord varies depending on the size of the sticks and how well they are trimmed and stacked. A cord of firewood with six- to eight-inch diameter, well-trimmed sticks, carefully stacked will contain 85 to 90 cubic feet of wood and bark. Note that a cord is not a precise measure of wood volume.

Sometimes wood is sold by the *face cord* or *short cord*. That means the stack of wood is four feet by eight feet but the sticks are stove or fireplace length, usually 12 to 20 inches, so there's much less wood than in a full cord.

When buying firewood, ask how the seller defines a cord, the price per cord, the species of the wood, and how, and for how long, it was seasoned, in order to compare the deals offered by various sellers. Having the wood delivered and stacked, rather than dumped, will increase the cost. The best deal is the lowest cost per cord of wood, seasoned properly for the longest period (up to 12 months) and made up entirely of birch in interior and southcentral Alaska, and hemlock and Alaska cedar in Southeast.

Alaska Wood Fuels in Air Dry Condition (20 percent moisture content)

Tree Species	Relative Density Index	Density (lb. per cu.ft)	Pounds per Cord (85 cu. ft.)	Million BTUs per Cord*
Southeast				
Hemlock	.45	33.6	2,856	22.0
Alaska cedar**	.44	32.9	2,797	22.0
Western red cedar	.32	24.0	2,040	19.8
Sitka spruce	.40	30.0	2,550	18.1
Southcentral/Interior				
Paper birch	.55	41.0	3,485	23.6
White spruce	.40	30.0	2,550	18.1
Quaking aspen	.38	28.4	2,414	16.6
Balsam poplar	.34	25.5	2,168	15.0

*BTUs listed are near the maximum available and will be less in your stove depending on its efficiency, which is usually only 50 to 70 percent.

**Alaska cedar may have more BTUs per cord due to high resin content.