



***Fagus grandifolia***  
**American Beech**

**Family: Fagaceae**

Beech (*Fagus* spp.) contains eight species which grow in Asia [4], Europe (*F. sylvatica*), and North America (*F. grandifolia*). The word *fagus* is the classical Latin name, from the Greek word meaning to eat, in reference to the edible beechnuts. All species look alike microscopically.

*Fagus grandifolia*- beech, Carolina beech, gray beech, red beech, ridge beech, stone beech, white beech, winter beech.

**Distribution**

American beech grows in southeast Canada and in the eastern half of the United States, from Maine to northern Florida, and west from the Atlantic Coast to Wisconsin, Missouri and Texas.

**The Tree**

The American beech tree grows in large pure stands and intermixed with sugar maple, yellow birch, American basswood, black cherry, eastern hemlock, eastern white pine, red spruce, sweetgum, Southern magnolia, ashes, hickories and oaks. It grows best in deep, rich, moist, well-drained soils. American beech trees reach heights of 120 ft (37 m), with a diameter of almost 4 ft (1.2 m). The bark is thin, smooth, and gray to blue gray.

**The Wood**

**General**

The sapwood of American beech is white with a red tinge, while the heartwood is light to dark reddish brown.

**Mechanical Properties (2-inch standard)**

	Specific gravity	MOE x10 <sup>6</sup> lbf/in <sup>2</sup>	MOR lbf/in <sup>2</sup>	Compression		WML <sup>a</sup> in-lbf/in <sup>3</sup>	Hardness lbf	Shear lbf/in <sup>2</sup>
				Parallel lbf/in <sup>2</sup>	Perpendicular lbf/in <sup>2</sup>			
Green	0.56	1.38	8,600	3,550	540	11.9	850	1,290
Dry	0.64	1.72	14,900	7,300	1,010	15.1	1,300	2,010

<sup>a</sup>WML = Work to maximum load.

<sup>b</sup>Reference (98).

<sup>c</sup>Reference (59).

**Drying and Shrinkage**

Type of shrinkage	Percentage of shrinkage (green to final moisture content)		
	0% MC	6% MC	20% MC
Tangential	11.9	8.8	3.7
Radial	5.5	4.1	1.7
Volumetric	17.2	13.0	5.4

References: 0% MC (98),  
6% and 20% MC (90).

## Kiln Drying Schedules<sup>a</sup>

Condition	Stock				
	4/4, 5/4, 6/4	8/4	10/4	12/4	16/4
Standard	T8-C2	T5-C1	–	–	–
1-in. squares	T8-C3	–	–	–	–
2-in. squares	T5-C2	–	–	–	–
<sup>a</sup> References (6, 86).					

**Working Properties:** American beech ranks high in holding nails, but it should be pre-bored. The wood wears well and holds a polish, and it bends readily when steamed. Care is needed in gluing, but the wood finishes well with paint or transparent finishes.

**Durability:** Rated as slightly or nonresistant to heartwood decay.

**Preservation:** Sapwood and heartwood are permeable when pressure-treated with a compound like creosote. The red heartwood is extremely resistant to penetration.

**Uses:** Lumber, veneer, charcoal, railroad ties, pulpwood, cooperage, boxes, crates, baskets, pallets, furniture, flooring, sash, doors, trim, paneling, general millwork, woodenware, novelties, handles, brooms and brushes, food containers, turnery, and chemical extracts such as methanol, acetate and wood tar (creosote).

**Toxicity:** No information available at this time.

### Additional Reading and References Cited (in parentheses)

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