

# Hardwood Lumber and Veneer Series



## Beech

FNR-275-W

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**EXPERT**  
REVIEWED

Beech (*Fagus grandifolia* Ehrh.) is a well-known tree species due to its characteristic smooth ash gray bark. The species is long lived and ranges throughout the Great Lakes region as well as the central and southeastern United States. It is also found in portions of east Texas, Louisiana, Arkansas, and Missouri. The trees are usually found on moist but well-drained soils. The tree is very tolerant to shade. In mature stands it is found in association with sugar maple and yellow birch. In the north, it forms a climax timber type called beech, birch, and maple.

The trees are often 70 to 80 feet tall and 2 to 3 feet in diameter. The largest reported specimen is 7.4 feet in diameter at 4½ feet high. Unfortunately, larger trees tend to be hollow, but this is beneficial as shelter for wildlife.

### Wood Color and Texture

The sapwood is white and wide on healthy trees, while the heartwood is darker, usually with a reddish color. The sapwood is easily discolored by oxidation and fungal stain if not properly handled in the log and green lumber stage. Pores are evenly distributed and indistinct without the use of a hand lens. Growth rings are delineated by a band of darker, dense latewood. The wood is without a characteristic odor.

The larger rays in beech are plumb in the middle and taper on each end and are plainly visible and distinctive to the naked eye.

### Workability

In terms of planning, turning, and boring, beech wood is rated near the top of all the woods discussed here. It is about average in shaping.



Chip Morrison, designer, and a beech tree

Dan Cassens

### Strength

At 12 percent moisture content, the wood weighs about 45 pounds per cubic foot making it comparable to hard maple and the oaks, but less than the true hickories. The strength properties are also high and fairly similar to hard maple and the oaks.

**Steam Bending**

The wood also bends well when properly conditioned with steam.

**Drying**

A mild kiln schedule is used as the wood is somewhat difficult to dry. Surface checking occurs easily in the air drying yard.

**Shrinkage**

The total volumetric shrinkage from green to oven-dry condition for beech is 17.2 percent. This is the highest shrinkage of any commercial hardwoods except hickory. High shrinkage will result in a large lumber volume loss and degrade during drying.

**Decay Resistance**

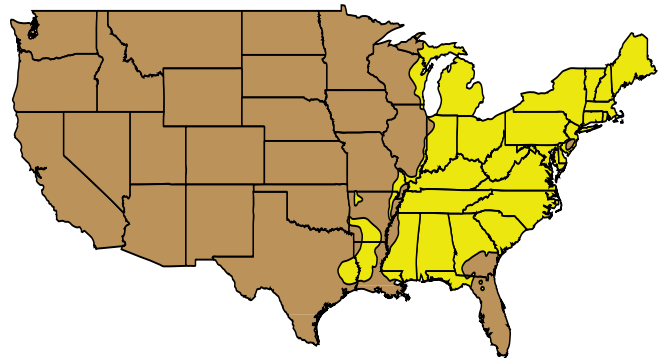
The wood has no resistance to decay.

**Commercial Use, Grading, and Value**

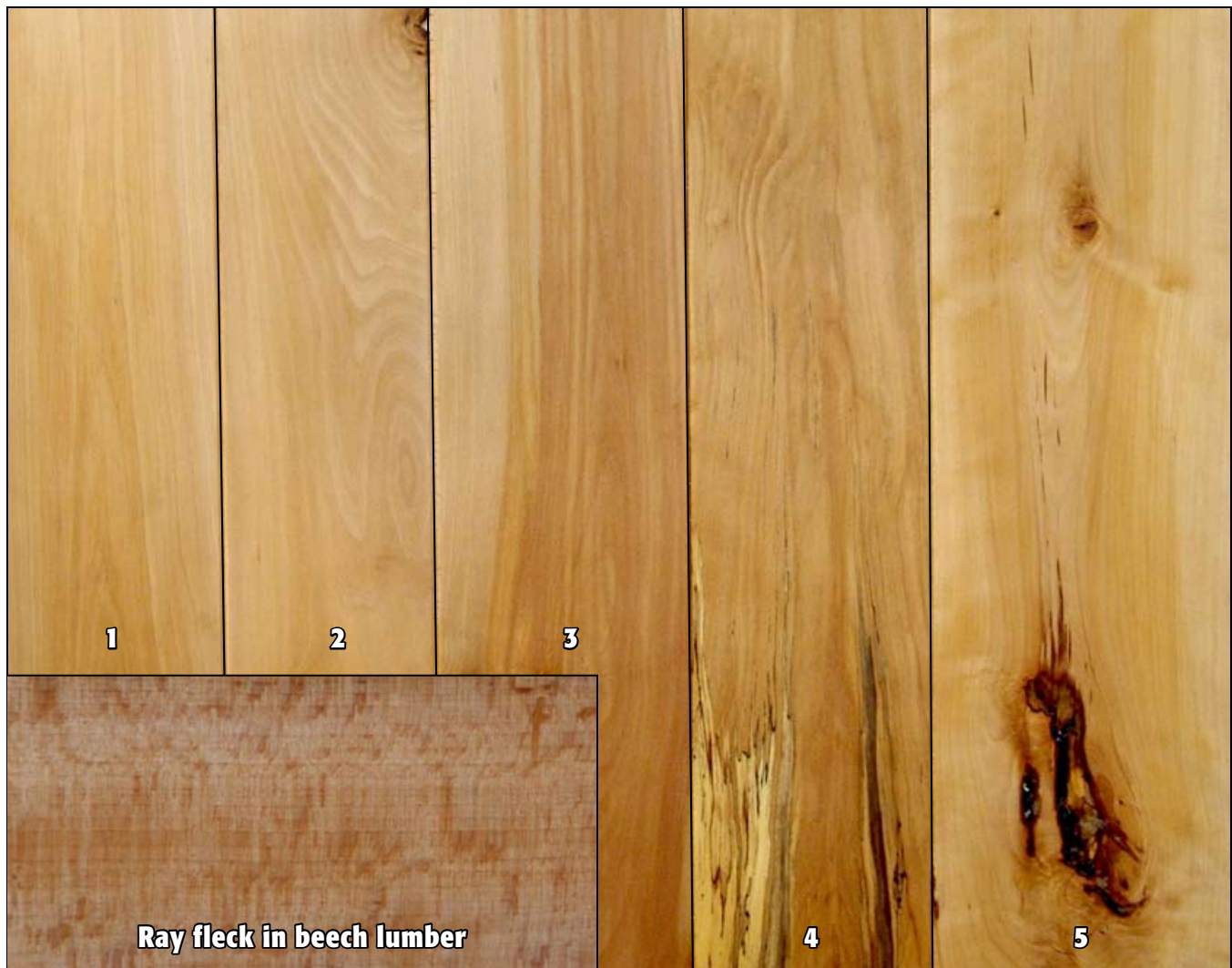
Unlike the substantially increased popularity of maple, during the last several years the demand for beech has changed little. It provides a hard surface and takes a smooth finish. As a result, it has had

some unique uses such as wooden clothes pins as well as brush backs and handles, woodenware, and novelties. As a strong, easily turned and bent wood, it is used for chair production. Container veneer is another use. Flooring, railroad ties, and pallets are other applications.

The wood is graded standard using the NHLA rules, and the lumber is some of the least expensive material available.



Range of the American beech



Chip Morrison

Beech is a uniform grained wood and one of our most dense species. It is low valued. The white sapwood is preferred. Young healthy trees will have wide, white sapwood and red brown colored heartwood. The trees are prone to interior decay.

Beech has a unique ray pattern. The rays are relatively short but disproportionately wide. The ends of the rays can easily be seen in the flat sawn surface and when quartered (see insert) shows conspicuous and beautiful ray fleck.

Board 1 shows a characteristic flat sawn grain pattern.

Boards 2 and 3 show small characteristic knots. Board 3 also shows the lighter colored sapwood in contrast to the heartwood.

Board 4 shows a spalding pattern mostly at the bottom. Spalding is actually decay and results when the logs are allowed to lay for extended times. The white wood is actually in the advanced stage of decay. The black lines are called zone lines and mark the advance of the decay fungi. Spalding is common in the dense white wood species, particularly hard maple.

Board 5 is cut near to the heart of the log and shows a somewhat flatter ray fleck on the right side.

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