



American White Oak

Quercus alba L., *Quercus bicolor* Willd. Syn. - *Q. platanooides* Sudw., *Quercus prinus* L. Syn. - *Q. montana* Willd., *Quercus michauxii* Nutt., *Quercus muhlenbergii* Engelm., *Quercus lyrata* Walt., *Quercus* spp.
 Note: the main species is *Q. alba*.

Commercial names:

English:	White oak.
Spanish:	Roble blanco americano.
French:	Chêne blanc d'Amérique.
Italian:	Quercia bianca americana.
German:	Amerikanische Weisseiche.

Common names:

U.S.A.:	White oak (<i>Q. alba</i>)
	Swamp white oak (<i>Q. bicolor</i>)
	Swamp chesnut oak, Basket oak (<i>Q. michauxii</i>)
	Chinkapin oak (<i>Q. muhlenbergii</i>).

Physical properties:

Density:	670-730-770 Kg/m ³	
Shrinkage:	Moderately unstable	
Shrinkage values:	Total	Unitary
Volumetric:	16.0%	(-)
Tangential:	8.0%	(-)
Radial:	5.0%	(-)
Hardness:	-	Semi-hard

Mechanical properties (Wood free of defects)

Static bending:	101 N/mm ²
Modulus of elasticity:	13,000 N/mm ²
Compression parallel to grain:	-
Compression perpendicular to grain:	7.5 N/mm ²
Shear:	-
Toughness:	-

Origin and availability:

This wood is found in the eastern United States and in southwest Canada. The extension of the forest mass, production and export are important.

Wood description:

The sapwood ranges in color from cream to light brown and the heartwood varies from pale yellow-brown to a pale or dark brown, which can also sometimes have a pink cast. The wood rays are visible and in a series pattern and larger than those of red oak. The growth rings are visible. The wood is straight-grained and the texture of the grain varies from medium to coarse (open).

Drying:

The drying rate is slow. It is a difficult wood to season, and the drying procedure must be carried out with great care. There are risks of surface checks, internal checks (honeycombing), stain, ring failure, and collapse caused by pockets of moisture, juvenile wood and reaction wood. Recommended drying schedules are T4-C2 (4/4) and T3-C1 (8/4) for upland oak and T2-C1 (4/4) for lowland oak, all of them from FPLM.

Technological properties:

The performance of roundwood during sawing is quite varied and some cases it is difficult. The saws dull at a normal rate. The wood has good qualities for obtaining both rotary-cut and sliced veneer. Machining presents no problems, but it varies according to the growth rate; wood that has grown more slowly is easier to work. When planing, working with a blade angle of 20° is recommended. Tools become dull at a normal rate. The wood has good qualities for steam bending. The performance of this wood in bonding varies greatly, although it is generally classified as correct. Nailing and screwing require previously bored holes. Finishing presents no problems.

Natural durability and ease of penetration:

This wood is classified as durable or moderately durable against the action of fungi, susceptible to anobiids and lyctids, and moderately durable against termites. The heartwood is not penetrable and the sapwood is moderately penetrable.

Applications:

Decorative veneers./ Furniture and cabinetwork./ Interior carpentry: floors and paneling./ Tool handles./ Heavy weight structural framing./ Cooperage./ Musical instruments.

Note: In the southern United States there is another species of oak, Q. virginiana Mill, which is different from the species in the "white oak group". This species is the most resistant and tenacious of the American oaks and is used in the construction of railway freight cars, boats, and agricultural implements. The commercial availability of this wood is scarce.