



Wood Type:
Hardwood

Durability:
Slightly durable

Treatability:
No information

Moisture Movement:
Medium

Density (mean, Kg/m³):
510

Texture:
Fine

Availability:
Limited availability at
specialist timber mer-
chant

Chemical Properties:
Iron staining may occur in
damp conditions,
similarly corrosion of
metals

Use(s):
Joinery - Interior, Furni-
ture

Colour(s):
Yellow brown

Introduction

The genus *Quercus* with more than two hundred separate species produces the true oaks. Most of these are found in the northern hemisphere where, in temperate regions they may form pure stands, or may be dominant species in mixed wood lands, while in warmer countries they tend to occupy the mountain areas. Most of the true oaks are trees but some are shrubs. The trees, on the basis of wood structure, fall into three groups; the red oaks, the white oaks, and the evergreen oaks or live oaks; the red and white oaks are deciduous. Descriptions of the species that occur within Europe are as follows: European oak *Quercus petraea* Liebl. (*Q. sessiliflora* Salisb.) and *Q. robur* L. (*Q. pedunculata* Ehrh.) known also as English, French, Polish, Slavonian, etc oak, according to origin.

Environmental

Not listed in CITES. Believed available from well-managed sources. Check certification status with suppliers.

Distribution

Q. petraea produces the sessile or durmast oak, while the pedunculate oak is produced by *Q. robur*: both species occur throughout Europe including the British Isles, and extend into Asia Minor and North Africa.

The tree

Both species reach a height of 18m to 30m or a little more depending upon growth conditions which also affect the length of the bole. When drawn up in forests at the expense of their branches, this may be 1.5m or so in length, but in open situations, the tree branches much lower down. Diameters are about 1.2m to 2m.

The timber

There is no essential difference in the appearance of the wood of either species. The sapwood is 25mm to 50mm wide and lighter in colour than the heartwood which is yellowish brown. Quarter-sawn surfaces show a distinct silver-grain figure due to the broad rays. The annual rings are clearly marked by alternating zones of early-wood consisting of large pores, and dense late-wood. Conditions of growth accordingly govern the character of the wood to a great extent; for example, in slowly grown wood the proportion of dense late-wood is reduced in each annual growth-ring, thus tending to make the wood soft and light in weight. The growth conditions in the various countries which export oak, vary considerably.



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Drying

Oak dries very slowly with a marked tendency to split and check, particularly in the early stages of drying, and there is considerable risk of honeycombing if the drying is forced, especially in thick sizes. End and top protection must be provided to freshly sawn stock exposed to sun and drying winds, and sticker thickness should be reduced to about 12mm for stock piled in the open air during early spring and onwards until winter.

Strength

Both the sessile and pedunculate oaks have well known and high strength properties, and those hybrid oaks developed from both types and common throughout Europe, are similar in their strength properties. * MECHANICAL PROPERTIES. Note: In BS 5268-2: 2002, there is a discrepancy between Tables 7 and 15 regarding characteristic density and Strength classes for use in joint design. The values quoted here should be used, rather than those included in the 14 March 2002 edition of the Code.

Working qualities

Medium to difficult - The working and machining properties of oak vary with the mild to tough material which either machines easily or with moderate difficulty. These basic properties are concerned with growth conditions, but they may be exaggerated by indifferent drying methods which allow plain-sawn boards to cup, or severe case-hardening to develop, causing excessive wastage in planing and moulding, cupped stock in resawing, and a greater degree of blunting of cutting edges. These must be kept sharpened, particularly where cross grain is present, and especially in planing highly-figured quarter-sawn surfaces where there may be a liability for the grain to tear out at the juncture of the wide ray-figure thus producing a shelly appearance. In general, oak finishes well from the planer or moulding machine although in some cases a reduction of cutting angle to 20° is preferable. The wood can be stained, polished, waxed, and glued satisfactorily, takes nails and screws well, except near edges, when the wood should be pre-bored, and takes liming and fuming treatments well.