



Tasmanian Timber

Tasmanian Oak

Eucalyptus delegatensis, Eucalyptus obliqua & Eucalyptus regnans

Other common names: Australian Ash

The Timber

Warm, dense and resilient, Tasmanian Oak is the preferred hardwood for a wide range of applications. It works extremely well and produces an excellent finish. It can be used in all forms of construction as scantlings, panelling and flooring, and can be glue-laminated to cover long spans. Veneers, plywood and engineered products are also available. It is also a popular furniture timber, and eucalypt fibre is sought after for reconstituted board and the production of high quality paper.

Tasmanian Oak is light in colour, varying from straw to reddish brown with intermediate shades of cream to pink. It is recognised for its excellent staining qualities, which allow ready matching with other timbers, finishes or furnishings.

The Resource

Tasmanian Oak is the name used for three almost identical species of eucalypt hardwoods that are normally marketed collectively. *E. delegatensis* grows at higher altitudes, while *E. regnans* is found in wetter sites. *E. obliqua* has a wide distribution, occurring in wet forests but also extending into drier areas. The name Tasmanian Oak was originally used by early European timber workers who believed the eucalypts showed the same strength as English Oak.

Eucalypts are light demanding and grow best where they are not overshadowed. Regeneration occurs after fire, and seedlings establish best on bare mineral soil in the absence of leaf litter. In Tasmania, eucalypts may live for 400 years or more and regularly attain a height of 70 m; some individuals have been recorded as reaching 100 m. Mature trees may be 3-4 m or more in diameter.



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Tasmanian Oak properties:	
Colour	Generally straw to light, reddish brown.
Grain	Grain is usually straight, open and even. It is occasionally coarse-grained or fiddlebacked. Growth rings are visible and usually conspicuous.
Texture	Uniform and smooth.
Durability	In-ground contact: Class 4. Outside above ground: Class 3. Termite resistance of heartwood: Not resistant. Refer to AS 5604 – 2005 Timber – Natural durability ratings. For exterior applications, it should be painted or coated.
Lycetid susceptibility	Sapwood is generally susceptible. Tasmanian Oak is usually sold free of sapwood.
Sizes	Dressed seasoned timber 40 to 285 mm wide by 12 to 40 mm thick. Undressed seasoned timber 50 to 300 mm wide by 19 to 50 mm thick. Lengths up to 5400 mm long are available, with the bulk of production between 2700 and 4200 mm long.
Density	Approximately 650 kg/m ³ at 12% moisture content. Unseasoned density approximately 1050 kg/m ³ .
Shrinkage (green to 12% MC)	Approx. 5.5% radial, 11% tangential before reconditioning; 3.5% radial, 6.5% tangential after reconditioning.
Movement	Between 25% and 5% MC, radial movement is approximately 0.23% per 1% MC change; tangential movement about 0.36% per 1% MC change.
Strength groups	Seasoned SD3 and SD4, unseasoned S3 and S4.
Joint group	Seasoned JD3, unseasoned J3.
Structural grades	Most commonly available stress grades are F17 seasoned, F8 unseasoned.
Toughness (Izod)	15-24 Nm
Hardness (Janka)	4.2 kN unseasoned, 5.7 kN seasoned.

Fire hazard properties: flooring (AS ISO 9239.1)	
Critical radiant heat flux	> 2.2 and < 4.5 kW/m ²
Smoke development rate	< 750 %/min
Fire hazard properties: wall and ceiling lining (AS/NZ 3837)	
Material group no.	2
Average extinction area	> 250 m ² /kg
Workability	
General	Tasmanian Oak is highly resilient and relatively easy to work.
Blunting	Moderate. Can be severe in dense material.
Sawing	Cuts fairly cleanly with moderate feeding force.
Planing	Moderate feeding forces required. Surfaces very smooth and lustrous when working with the grain.
Moulding	Surfaces are true and clean, even end grain. Holds edges well.
Boring	Easy to drill. Holes are usually clean and to size.
Rebating + mortising	Generally produces excellent results.
Turning	Turns well with sharp arrises.
Nailing	Pre-drilling is often necessary in seasoned or denser material. Nails hold well.
Gluing	Glues satisfactorily with most common adhesives.
Bending	A good to fair bending timber. 25 mm material bends reasonably well to a radius of 100 mm.
Finishing	Readily worked to a smooth, lustrous surface. Most finishes adhere very well. Stains very well.



Tasmanian timber is sustainably grown, harvested and processed to meet the highest standards in quality and environmental practice.

For further information contact:

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Tasmanian Timber

Tasmanian Oak

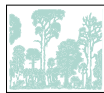
Eucalyptus delegatensis, Eucalyptus obliqua & Eucalyptus regnans

Forest Type

Distribution of forest type that contain these species:



Forest Type Location



Wet Eucalyptus



Rain



Reserved

35%

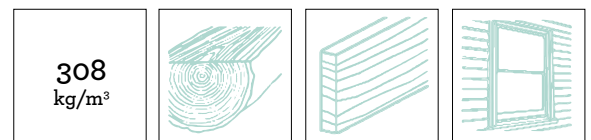
35% of total Tasmanian Oak forest types are reserved

Certification



chain of custody

Carbon Storage²

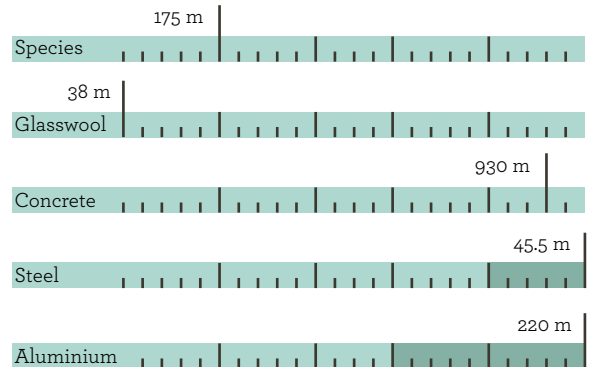


Availability



Thermal Resistance³

Thickness required to achieve a value of R1



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Appearance

As the tallest flowering plant in the world, *E. regnans* grow up to 100 m. *E. delegatensis* and *E. obliqua* do not reach these heights, reaching about 70 m with the tallest trees achieving 90 m.

Flowers: the species produce buds in clusters of seven or more, with white cream flowers. The flowers are hermaphroditic.

Leaves: the leaves are asymmetrical and rounder in shape in their juvenile forms. *E. regnans* has green, asymmetrical lance-shaped leaves. *E. obliqua* has asymmetrical glossy green, leathery lance-shaped leaves while *E. delegatensis* has dull blue-green asymmetrical sickle-shaped leaves.

Bark: the bark of each of these species is characteristically 'stringy'. *E. obliqua*'s bark is rough and persistent to the small branches. *E. regnans*' rough bark sheds in long ribbons and is often seen hanging from the branches. *E. delegatensis* has reddish-brown to grey bark with longitudinal furrows on the lower trunk.

Forest

The species grow in native forests. *E. delegatensis* is the dominant forest species in cooler, higher altitudes. *E. obliqua* is mainly found in lower altitudes, but ranges from the coast to 600m in hilly or mountainous country. *E. regnans* is widespread but it prefers well-drained soils in areas of high rainfall and low fire frequency.

Growing Constraints: mature *E. obliqua* and mature *E. delegatensis* will survive even severe wildfires in contrast to the fire sensitive *E. regnans*, which does not survive even low intensity fires.

Seedlings of all three species establish best after fire has exposed bare mineral soils, with minimum leaf litter. They thrive when they are not overshadowed. The species are generally not successful as plantation stock as the seedlings do not respond well after transplanting.

Distribution: these three species occur in Dry Eucalypt and Wet Eucalypt native forest types. 35% of these forest types are in reserves.

Environmental

The aim of environmentally sustainable and responsible building practice is to consume minimal resources during construction, operation and eventual demolition.

Sustainable Management¹: The National Forest Policy Statement identifies three principles for sustainable forest management: preserve biological diversity, maintain ecological processes within forests, and community benefit. Species sourced and processed in Tasmania from certified native forest and plantations are considered to be sustainably managed.

Certification: certified forests are managed in line with internationally recognised performance-based standards and are subject to third party audit. Most forests in Tasmania are certified to the Australian Forest Certification Scheme (AFCS). This requires compliance with AS 4708 (for forestry growers) and AS 4707 for Chain of Custody (forest to consumers). AFCS is internationally recognised by the Program of the Endorsement of Forest Certification schemes (PEFC) and certifiers are independently accredited by JAS-ANZ.

Chain of Custody: ensures that timber supplied is from a certified forest source. It requires controlled labelling and an auditable trail from the forest along the supply chain involving forest managers, processors, manufacturers, and stockists.

Carbon Storage²: the growth of trees absorbs carbon, other emissions and particles from the atmosphere; converting them into wood and other biomass. Some carbon is released by harvest and processing, but the carbon stored within the recovered wood is contained for the life of the material.

R Values³: a material's resistance to the flow of heat is calculated as its R Value. The R Value of the building envelope is the sum of individual building components. The insulation (R Value) properties of building materials are important considerations in the design of energy efficient structures.

Availability: Tasmanian Oak is freely available and is continuously harvested.



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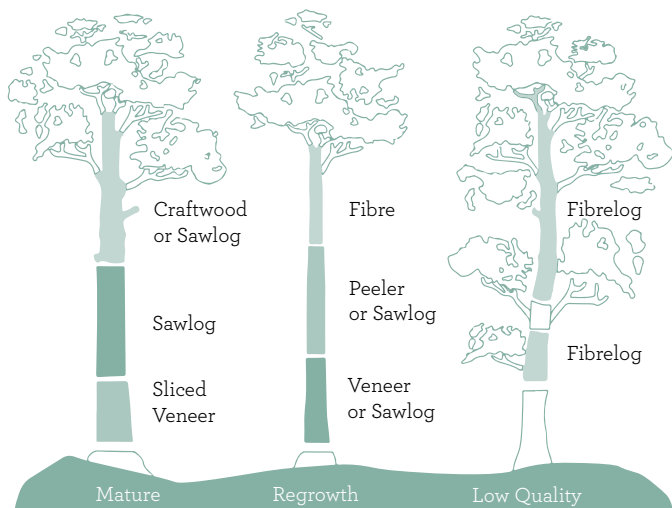
Tasmanian Timber

Tasmanian Oak

Environmental Summary	
Resource Available from sustainably managed sources ¹	✓
Reserves A percentage of this species is reserved	✓
Certification This species is available with forest certification	✓
Chain of Custody Product with Chain of Custody is available	✓
Appearance Product for appearance use is available	✓
Structural Product for structural use is available	✓

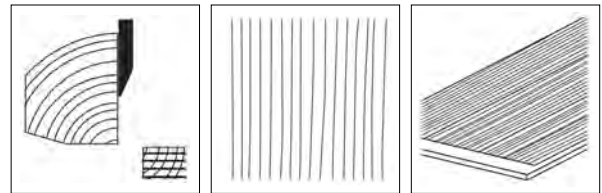
Tree Product

Mature Eucalypt Profile Shown

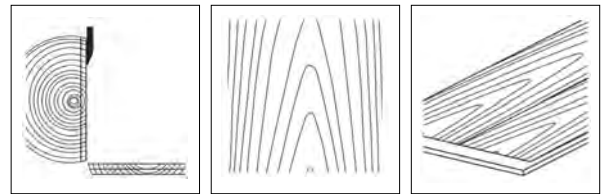


Products Appearance

Quarter Sawn Veneer

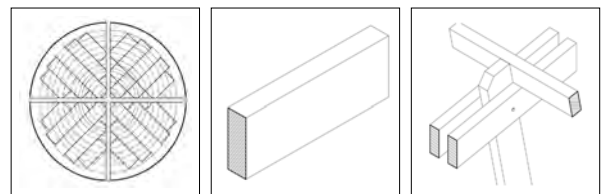


Crown Cut Veneer

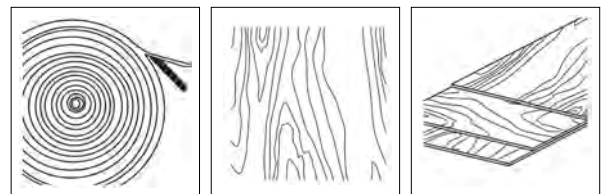


Products Structural

Sawn Solid



Peeled Veneer



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Characteristics



Colour:

Heartwood pale brown to white brown and often with pinkish tints. Generally there is no noticeable colour difference between sapwood and heartwood.



Grain:

Generally moderately open to coarse, but even and straight. Growth rings are often noticeable.



Features:

1. Fiddleback: small and evenly strong rippled undulations in the grain that form in the timber at the base of large trees.
2. Gum Vein: a natural exudation of resin between growth rings, also called kino, produced in trees as a result of fire or mechanical damage.

Credits:

Maps: Tasmanian Government Department of Primary Industries and Water; **Tree Product Illustration:** Forestry Tasmania; **Forest Type Illustration:** Fred Duncan, Forestry Tasmania; **Forest Image:** Tasmanian Timber Promotion Board; **Species Illustration:** Vicky Dewsbury; **Species Application Image:** © ITC Limited

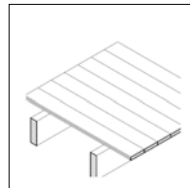
1. National Forest Policy Statement, daffa.gov.au

2. 2004; Ximenes, F.A. and Davies, I. "Timber CAM – A carbon accounting model for wood and wood products in Australia". dpi.nsw.gov.au/forests/info/timbercam

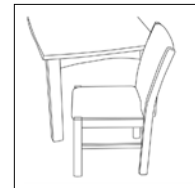
3. R Value Comparison Calculations - AS2878:2000, and ASHRAE, 2005 Physical Properties of Materials.

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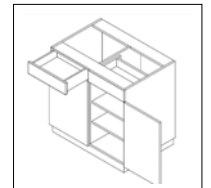
Applications



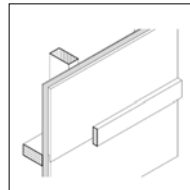
Flooring



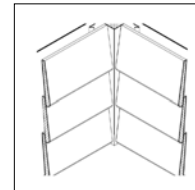
Furniture



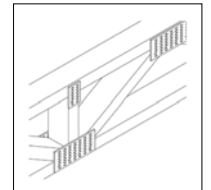
Joinery



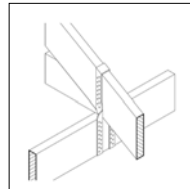
Fitting & Trims



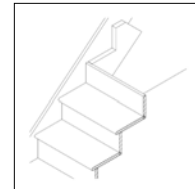
Lining & Cladding



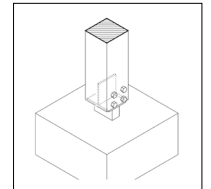
Truss & Nail Plated



Framing



Windows, Doors, Stairs



External Structures*

* when protected and not in ground contact



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Tree

Eucalyptus obliqua, *E. regnans* and *E. delegatensis*



Funding assistance was provided through the Tasmanian Community Forest Agreement Industry Development Program, a joint initiative of the Australian and Tasmanian governments and administered by the Australian government Department of Agriculture, Fisheries and Forestry.

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Grades of Tasmania Oak

Dried and machined Tasmanian Oak for appearance applications is generally graded to rules set by Australian Standard AS2796.2 – 2006: “Timber–Hardwood–Sawn and Milled Products, Part 2: Grade description” as a minimum allowable quality. These rules are reproduced overleaf. This Standard covers most milled hardwood products except window frames, sashes and sills.

Tasmanian Oak is available in three traditional grades: Select (SEL), Medium Feature–Standard (MF) and High Feature (HF). Select Grade timber is the most uniform in appearance, while Medium and High Feature contain larger amounts of natural feature such as gum, natural stains and knots. Timber is generally graded on all faces.

Additionally, Tasmanian Oak flooring is available in two aesthetic grades – *Prime and Classic*. Tasmanian Oak Classic is a high feature grade, visually enhanced by the natural characteristics of timber. Tasmanian Oak Prime provides minimal feature.

Tasmanian Oak is usually sold free of sapwood. Burl or hobnail feature may be present, as there is no limitation on them in any of the grades. None of the grades contain timber with decay, compression failures, shakes, splits or other fractures. Want, wane and mechanical damage are permitted only on concealed surfaces.

All grades of timber are allowed the same amount of distortion; this is governed by product type rather than timber grade. Thus, a product of any grade can be expected to fit readily into its intended application. However, flooring or light decking of Medium or High Feature may require knots or holes that approach the maximum size allowed to be trimmed out. A pack of timber of a particular grade will have a fair distribution of boards with the amount of feature allowed in that grade.

Select Grade (SEL)	
Select Grade has a relatively even grain and figure that provides a rich but generally uniform texture and surface.	
Natural stain or discolouration	Slight.
Other discolouration	Not present, except if product is to be painted.
Black Speck	Small amount may be present.
Quartersawn tight gum vein	Individual tight gum veins may be up to 2 mm wide and 250 mm in length. Aggregate length of all tight gum veins present is less than half of the board length.
Backsawn tight gum vein	As for quartersawn tight gum vein.
Loose gum vein	Not present.
Gum & latex pockets, overgrowth of injury	Not present.
Holes	Small holes up to 2 mm in diameter may be present. The maximum number of holes varies with the board width. For boards between 50 and 100 mm wide, 5 holes are allowed in any 100 mm with a total of 10 holes allowed in any 900 mm length. For boards wider than 100 mm, 8 holes are allowed in any 100 mm length with a total of 16 holes allowed in any 900 mm length.
Tight knots	Tight knots may be present, but they must be smaller in aggregate than 15 mm measured across their largest dimension, or 1/4 of the surface width for any 1 m of board length.
Checks appearing on the surface	Small checks may be present, but they will each be less than 1 mm wide and 250 mm long.



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Grades of Tasmania Oak

Medium Feature Grade–Standard (MF)	
Medium Feature Grade provides a surface with distinct natural appeal. Features that may affect structural soundness are excluded.	
Natural stain or discolouration	May be present.
Other discolouration	Not present, except if product is to be painted.
Black speck	May be present.
Quartersawn tight gum vein	Tight gum veins may be present, but each will be less than 5 mm wide.
Backsawn tight gum vein	Backsawn gum vein may be present, but will be a maximum of 2 mm deep, 1m long and 60 mm wide across the largest dimension.
Loose gum vein	There may be loose gum veins present up to 3 mm wide. They will not intersect a board end or extend from surface to surface, and the aggregate length of all loose gum veins present will be less than 1/5 of the board length.
Gum & latex pockets, overgrowth of injury	May be present, but will not extend from surface to surface. Maximum width will be 10 mm, length 50 mm and depth if backsawn 2 mm.
Holes	Small holes up to 3 mm in diameter may be present. The maximum number of holes varies with the board width. For boards between 50 and 100 mm wide, 16 holes are allowed in any 100 mm with a total of 24 holes allowed in any 900mm length. For boards wider than 100mm, 24 holes are allowed in any 100 mm length with a total of 36 holes allowed in any 900 mm length.
Tight knots	May be present, but individually or in aggregate over 1m length of board, will be lesser than 40 mm measured across the largest dimension or 1/3 the surface width.
Checks appearing on the surface	May be present, but each will be a maximum of 2 mm wide and 250 mm long.

High Feature Grade (HF)	
High Feature Grade Tasmanian Oak provides a surface that is rich with a lively and vibrant character.	
Natural stain or discolouration	May be present.
Other discolouration	Not present, except if product is to be painted.
Black speck	May be present.
Quartersawn tight gum vein	May be present, but maximum width will be 5 mm.
Backsawn tight gum vein	May be present, but maximum depth will be 2 mm.
Loose gum vein	There may be loose gum veins present up to 3 mm wide. They will not intersect a board end or extend from surface to surface, and the aggregate length of all loose gum veins present will be less than 1/5 of the board length.
Gum & latex pockets, overgrowth of injury	These will not extend from surface to surface. Maximum width will be 15 mm, length 75 mm and depth if backsawn 2 mm.
Holes	Pinholes may be present. The maximum number of holes varies with the board width. For boards between 50 and 100 mm wide, 16 holes are allowed in any 100 mm with a total of 24 holes allowed in any 900 mm length. For boards wider than 100 mm, 24 holes are allowed in any 100 mm length with a total of 36 holes allowed in any 900 mm length. Up to 3 holes between 3 mm and 10 mm in diameter may be present in any 1 m length of board.
Tight knots	The largest dimension individually or in aggregate of any tight knots present in any 1m length of board will be less than 50 mm for boards greater than 133 mm wide; the maximum dimension of tight knots for boards less than 133 mm wide is 3/8 of the surface width.
Checks appearing on the surface	May be present, but each will be less than 2 mm.



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