



Australia relies upon many species of imported timber in both structural and architectural applications. These timbers offer a range of properties and aesthetic qualities which lend themselves to a variety of applications such as heavy construction and domestic decking all the way through to fine joinery and craft.

This brochure covers a small range of timbers some more readily available than others in the Australian market place. Each is described along with normal applications and the most commonly needed Timber Properties including durability and hardness, which is normally assessed when considering a timber for use as a product such as flooring.

Douglas Fir

Pseudotsuga menziesii

Other common names – Oregon and Coastal Douglas Fir

A second variety of Douglas Fir, *Pseudotsuga menziesii* var. *glauca* is commonly called Rocky Mountain Douglas Fir or Blue Douglas Fir.

Douglas Fir is one of the most commercially traded and important timbers in the world with the primary source of supply coming out of North America and additional material being plantation grown in New Zealand, Great Britain and Europe. It accounts for approximately one fifth of all the softwood resource in North America.

The natural growth range stretches from southern Mexico along the Rocky Mountains through to British Columbia and the Pacific Coast then west to Alberta in Canada down mid western USA through Montana, Idaho, Colorado and

New Mexico. Most production, especially for export, comes from the coastal areas of British Columbia, Washington and Oregon.

Coastal Douglas Fir is the second largest tree in North America with heights up to 100 metres and diameters regularly reaching 2–3 metres. The Rocky Mountain variety is smaller, usually not growing over 40 metres high with diameters about 1 1/2 metres.

Apart from the size the main difference between the two varieties is the colouring of the needles. The variety name *glauca* refers to the whitish cast over the blue-green colour which is slightly different from the green needles of the Coastal Douglas Fir.

The tree, now called Douglas Fir, was first discovered by Scottish naturalist Archibald Menzies, during the British Vancouver expedition, at Nootka Sound on Vancouver Island in 1791. In 1825 on a following expedition, another Scot, David Douglas, rediscovered the tree and realising its potential value introduced the species into Britain.

The classification of the tree caused some difficulties for many years; it is not a true fir although the needles are similar the cones are more like those of a spruce and for a long period it was called the Douglas Spruce. Botanists finally decided that the tree was most closely related to the hemlocks, especially a hemlock of Japan called *Tsuga*, and a new genus *Pseudotsuga* (pseudo-hemlock) was devised. Finally a sharing of the credit for discovering the tree was adopted when the scientific name *Pseudotsuga menziesii*, recognised Menzies and Douglas was confirmed in the common name.

Timber Properties

- Density (average) : 650kg/m³ green; 530kg/m³ dry
- Durability: Class 4
- Strength Group: S5 green; SD5 dry
- Hardness Rating (average): 2.3kN green; 3.2kN dry

The material is fairly easy to work although the softer earlywood zones are sometimes compressed when machined causing ridges on the planed surface when the fibre re-expands at a later time. This characteristic of soft earlywood and hard latewood makes the timber unsuitable for wood turning and causes it to wear unevenly.

Heartwood colour ranges from a yellowish to pale reddish yellow (slow growing stock) to orange red or deep red (fast- grown stock), the colour varying greatly in different samples. Sapwood is



A large Douglas Fir in the Umatilla National Forest, Oregon. Photograph courtesy of Dave Powell USDA Forest Service

With the compliments of:



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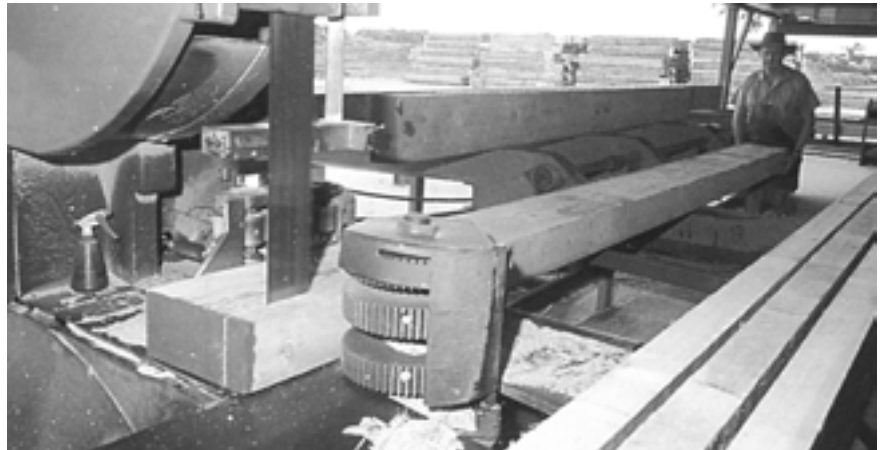
distinctly paler varying in width from about 50mm in mature trees to 75mm in fast growing plantation stems. Growth rings are very prominent because of the considerable difference in density between earlywood and latewood. It is easy to dry, although some surface checking may occur and has a reasonably low shrinkage rate between 2.5 to 4%.

The timber has a distinct resinous odour when freshly cut, and sometimes this resin content, when high, can bleed through paints and other coatings. The grain is generally straight with the texture coarse and uneven depending on the prominence of the growth rings. Because of these characteristics the timber is not a good base for paint finishes and has differential gluing properties. It holds nails and screws well although it does have a tendency split near edges and so pre-drilling is recommended.

Douglas Fir or Oregon is the most popular timber imported into Australia. For over a



Regrowth Douglas Fir forest



Band sawing of flitch to produce smaller end sections

hundred years logs and then flitches were regularly imported and recut in a wide range of sizes including deep section material such as beams, commercial products like formwork and industrial roof purlins, window and door joinery and boatbuilding including masts and spars. In domestic housing the availability of long lengths and deep end sections, was very widely used for floor systems and roof frames, particularly for internal exposed rafter situations.

Over recent years the bulk of the timber has been imported in West Coast lumber sizes, although some flitch is still available, with most grades including joinery, furniture, scantling for framing and specific use grades such as spar and mast, readily available.

Uses for Douglas Fir are quite varied. For many years it was the preferred domestic framing timber in the east coast capital cities and also widely used for window and door joinery, staircase manufacture, internal exposed posts and beams, handrails, skirtings and architraves.

Until recent years Douglas Fir was also used for many external applications.

Current structural framing regulations restrict the use of low durability timber in some circumstances. That does not mean that Douglas Fir can't be used in applications such as pergolas and carports where coverings such as roofs or other adequate protection from the ingress of moisture can be assured. For more information on external applications you should obtain a copy of the Australian Timber Importers Federation, Timber Information Bulletin No.4 Oregon (Douglas Fir) In the Elements.

Further Reading

This is one Guide in a series of Imported Timber Species Guides numbered 3.1 to 3.9, the complete series is available from your local Timber Advisory Service or by downloading from the Technical Bulletin section of www.timber.net.au

- Wood in Australia – Keith R Bootle published by McGraw-Hill Book Company.
- Selecting Timber – a publication of BRANZ

For further information on this brochure, contact the Timber Advisory Service on free call 1800 044 529 or email showroom@tdansw.asn.au Level 6, 525 Elizabeth Street, Surry Hills NSW 2010. General Information on the use of timber can also be found at the web page www.timber.net.au

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