Timber Advisory Notes

Department of Conservation and Land Management

CALM Timber Technology Weir Road Harvey WA 6220 (097) 29 1913 50 Hayman Road Como 6152 (09) 334 0333

Species: *Eucalyptus obliqua* L'Herit., *E. regnans* F.Muell. and *E. delegatensis* R.T. Bak..

Standard Trade Name: Tasmanian oak.

Common Names: Messmate stringybark, mountain ash and alpine ash respectively.

1. Size of tree / type of forest: These three 'ash type' species are tall to very tall trees of the hilly and mountainous locations of Tasmania, Victoria and NSW Mountain ash is the tallest tree in Australia, attaining heights between 55 and 75 m, with some trees to 100 m and 2.5 m diameter. Alpine ash attains heights of 20 to 40 m, occasionally 90 m, with stem diameters of 2 to 3 m, and messmate 45 to 90 m and 2 to 3 m diameter.

2. Wood description: Heartwood is light brown, yellow-brown or straw coloured to brown or pink brown. Sapwood is 2 to 3 cm wide, pale and not clearly distinguishable from heartwood in alpine and mountain ash, and pale yellow and usually distinguishable from heartwood in messmate stringybark. Texture is coarse and open, with straight grain and prominent growth rings.

3. Wood density:

Green density (kg/m^3): About 1050 alpine ash, 1030 mountain ash, 1080 messmate stringybark.

Air-dry density (kg/m^3): About 620 alpine ash, 680 mountain ash, 780 messmate stringybark.

Basic density (kg/m^3): About 490 alpine ash, 520 mountain ash, 630 messmate stringybark.

4. Drying and shrinkage:

	Tangential Shrinkage (%)	Radial Shrinkage (%)
Before reconditioning:	8.0 - 13.0	4.5 - 6.5
After reconditioning:	6.5 - 7.0	3.5 - 4.0

5. Workability: Considerable collapse occurs during drying so reconditioning is standard practice for dressed products. To reduce surface checking, boards are usually quartersawn. Relatively easy to work, dresses and finishes well, and polishes and stains easily.

6. Durability Class: 4 Decay 4 Decay + termites (CSIRO revised ratings 1996).
Sapwood of messmate stringybark is susceptible to *Lyctus* borer attack.

7. Strength Groups: S4 and SD4 alpine ash, S4 and SD3 mountain ash, S3 and SD3 messmate stringybark.

8. Strength Properties:

Property	Units	Green	Dry
Modulus of Rupture	**MPa**	63	110
Modulus of Elasticity	**MPa**	11000	13000
Max Crushing Strength	**MPa**	30	60
Hardness	**kN**	3.4	4.9

* Figures in the above Table are the minimum values for the group of species.

9. Uses: General construction, house framing, architraves, marine craft, flooring, furniture, plywood, panelling and tool handles. Used for pulp, paper and hardboard.

10. Availability: Readily available in all states of Australia, although the proportions of species in the mix can vary considerably.

BACKGROUND INFORMATION

1. **Size of tree and type of forest**

   Small trees have average heights up to 15 m, medium 15 to 30 m, and large over 30 m. Types of forest are sclerophyll (with closed canopy), woodland (with scattered trees), or rain forest. Diameter breast height is stem diameter at 1.3 m above ground.

2. **Wood description**

   For example, sapwood and heartwood colour, grain, figure

3. **Wood density (kg/m^3)**

   Green density is the density of wood in the living tree, defined as green mass divided by green volume, and useful for estimating transport costs. It varies with season and growing conditions.
   Air-dry density is the average mass divided by volume at 12 per cent moisture content (this is the average environmental condition in the coastal capital cities around Australia).
   Basic density is oven-dry mass divided by green volume. This measure has the advantage that moisture content variations are avoided.

4. **Drying and shrinkage**

   As wood dries, it shrinks more in the tangential direction (i.e. parallel to the growth rings) than it does in the radial direction (i.e. at right angles to the growth rings). The figures given are shrinkage from green to 12 per cent moisture content, before and after steam reconditioning treatment. Reconditioning recovers any cells that may have collapsed during drying, and is essential for species such as the ash-type eucalypts.

5. **Workability**

   Comments are made on the comparative ease or difficulty of turning, nailing and bending, on susceptibility to splitting and other working properties.

6. **Durability**

   The CSIRO Durability Classes are based on the performance in ground of outer heartwood when exposed to fungal and termite attack. Class 1 gives more than 25 years life, Class 2 gives 15 to 25 years, Class 3 gives 8 to 15 years, and Class 4 less than eight years. The ratings are not relevant to above-ground use. In late 1996, CSIRO published revised ratings, which include termite susceptibility.

7. **Strength grouping**

   In grading of structural timber, each species is allocated a ranking for green timber of S1 (strongest) to S7, and for seasoned timber SD1 (strongest) to SD8.

Minimum values for strength groups for green timber (units are MPa)

Strength property	S1	S2	S3	S4	S5	S6	S7
Modulus of rupture	103	86	73	62	52	43	36
Modulus of elasticity	16300	14200	12400	10700	9100	7900	6900
Maximum crushing strength	52	43	36	31	26	22	18

Minimum values for strength groups for seasoned timber (units are MPa)

Strength property	SD1	SD2	SD3	SD4	SD5	SD6	SD7	SD8
Modulus of rupture	150	130	110	94	78	65	55	45
Modulus of elasticity	21500	18500	16000	14000	12500	10500	9100	7900
Maximum crushing strength	80	70	61	54	47	41	36	30

8. **Strength Properties**

   Values are from Bootle, K.R. (1983). 'Wood in Australia. Types, properties and uses'. (McGraw-Hill)

9. **Uses**

   Various past and potential uses are given, but the list is obviously not conclusive.

10. **Availability**

    Timber from many species is available only near the areas that the trees grow naturally or in plantations. Imported timbers and their current availability are identified.