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: *Callitris columellaris* F. Muell. sens. lat.
Sm. *C. glauca* R. Br. ex R. Bak. *et* H.G. Sm.

Standard Trade Name: White cypress pine

Common Name: White cypress pine, cypress pine

1. Size of tree / type of forest: This softwood is widely distributed in inland areas of Australia with moderate rainfall. Today it forms extensive forests only in the Tambo-Dalby-Inglewood region of southern Queensland and the Baradine-Narrabri and Cobar districts of northern New South Wales. White cypress pine is a small to medium-sized tree, usually growing to about 18 m tall and 0.45 m in diameter at breast height, but occasionally reaching 30 m by 0.9 m.

2. Wood description: Heartwood is light-yellow to dark-brown and has frequent dark-brown knots, and sapwood pale yellow and wide. Texture is very fine and even and grain is straight. The wood has a characteristic resinous odour and has a slightly greasy feel.

3. Wood density:

Green density (kg/m^3):	About 770 kg/m^3.
Air-dry density (kg/m^3):	About 680 kg/m^3.
Basic density (kg/m^3):	580 kg/m^3.

4. Drying and shrinkage:

		Tangential Shrinkage (%)	Radial Shrinkage (%)
(Mature)	Before reconditioning:	2.8	2.1
	After reconditioning:	2.1	2.1
(Immature)	Before reconditioning:	3.6	2.9
	After reconditioning:	3.2	2.9

5. Workability: It is brittle and care is needed when working. Knots and resin are common, which can affect workability. Inadvisable to dress timber at low moisture contents because of its brittleness. Tends to split when nailed and pre-drilling is recommended. Owing to its susceptibility to fine surface checking, white cypress pine is one timber which gives a better painting performance when coated in the unseasoned condition, and by slowing the initial drying rate the coating inhibits the formation of checks. The sapwood is unusual in that it, as well as the heartwood, is very difficult to impregnate with preservatives, even when high pressures are applied.

6. Durability Class: 2 Decay 2 Decay + termites (CSIRO revised ratings 1996).
Sapwood resistant to *Lyctus* borer attack.

7. Strength Groups: S5 and SD6.

8. Strength Properties:

Property	Units	Green	Dry
Modulus of Rupture	**MPa**	71	79
Modulus of Elasticity	**MPa**	7700	9000
Max Crushing Strength	**MPa**	40	53
Hardness	**kN**	5.6	6.5

9. Uses: Flooring and lining boards, building framework, posts and small poles. Not favoured for paper manufacture owing to frequent knots and high extractives content.

10. Availability: Reasonable availability in Western Australia
Readily available in other States.

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.