Tasmania Timber Celery Top Pine Properties

Availability & Appearance		
General Availability	Availability is limited, and is constrained by location and style of harvesting operations.	
Appearance Grade	Available	
Plantation	Not available	
Structural Grade	Not usually available	
Veneer	Limited (mainly decorative thicknesses)	
Sizes	Undressed seasoned timber 25 to 300 mm wide by 25 to 50 mm thick. Unseasoned timber available in smaller sizes, or cut to order.	
Colour	Varies from white to pale straw. Darkens with age.	
Grain	Grain is straight, fine and even with clearly visible growth rings.	
Texture	Close and uniform.	

Density	Unseasoned	Seasoned
Density (per standard)	1050 kg/m3	650 kg/m3

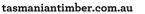
Seasoned density is based on moisture content of 12%. Unseasoned density is an approximation as it depends on the moisture content at the time of measurement. Measured kg/m3.



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Celery Top Pine Properties

Durability	
Above-Ground	Class 2: 15-40 yrs
In-Ground	Class 3: 5-15 yrs
Susceptible to Lyctid Borer	Not Susceptible
Termite Resistant	Yes

Species Specific Notes: Termite resistance of heartwood: resistant. The above-ground durability of the heartwood is very good. Refer to AS 5604-2005 Timber - Natural durability ratings.

Durability is defined as the inherent resistance of a timber species to decay, or to insect or marine borer attack. All references to durability refer to the heartwood only. A scale of low to high - durability class 4 = low (0-5yrs); 3 = (5-15yrs); 2 = (15-25yrs); 1 = high (25yrs+) - has been adapted for in-ground durability.

Environmental Details	
Resource	Native - Wet Eucalypt and Rainforest
Reserves	82% of total Celery Top Pine forest types are reserved.
Certification	Available
Chain of Custody	Available
Carbon Storage	286 kg/m3
R Values	0.68 (100mm)



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Celery Top Pine Properties

Fire Properties		
Average Specific Extinction Area	> 250 m2/kg	
Critical Radiance Flux - Higher	> 2.2 < 4.5 kW/m2	
Critical Radiance Flux - Lower	> 2.2 < 4.5 kW/m2	
Smoke Development Rate	< 750% per min	
Fire Properties Group Number: 3		

Species Specific Notes: Fire Properties Group Number 3 if used on MDF or particleboard ≥12mm; veneer thickness 0.6-0.85mm.

Average Specific Extinction Area is determined by the volume of smoke measured over the mass loss of the tested sample per test carried out in accordance with 'Cone Calorimeter Test' AS/NZS 3837. It is measured in units of m2/kg.

Bushfire Attack Level (BAL): Naturally bushfire-resisting timbers are those with inherent bushfire-resisting properties. Some species have been tested and a number are in the process of being tested. Resistance is measured by BAL. BAL-12.5: Ember attack, BAL-19: Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux between 12.5 and 19 kWm3, BAL-29: Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux between 19 and 29 kWm3.

Critical Radiance Flux measures the radiant (heat) energy required to sustain burning. It is used in Australia to regulate floor coverings. The requirements are set out in BCA Specification C1.10a, providing CRF values for floor coverings based on Class of building, the location within the building (general use or use in fire isolated exits) and whether or not the building is sprinkler protected or not. CRF is measured in kW/m2.

Smoke Development Rate is the speed at which smoke increases as determined by testing flooring materials in accordance with AS ISO 9239.1. The rate is expressed in terms of percent/minutes. For buildings not protected with a sprinkler system, a maximum smoke development rate of 750 percent/minute applies.

EFH Ingnitibility is a measure of the tendency of a material to ignite measured on a scale of 0-19. An index of 0 indicates that the material did not ignite during the 19 minutes that the test takes. An index of 19 indicates that the material ignited in the first minute.

EFH Smoke-Developed Index is a measure of the concentration (measured by optical density) of smoke a material emits as it burns. It is based on an arbitrary scale of 0 to 10. The higher the index, the greater the hazard from smoke is likely to be.

EFH Spread-of-Flame Index is a material's propensity to burn rapidly and spread flames based on a scale of 0 to 10 where 0 means that the materials will not cause flames to reach the ceiling and 10 indicates that the material could be expected to cause flames to reach the ceiling of a room within 10 seconds of ignition.

Fire Properties Group Number: is rated from 1-4 - 1 (Non-Combustible), 2 (Reasonably Non-Combustible), 3 (Slightly Combustible), 4 (Combustible).

Joint	Unseasoned	Seasoned
Joint Group	J3	JD3

The joint group is a classification of the strength of a species in joint design. The values are from 1 (very high strength) to 6 (very low strength).



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Celery Top Pine Properties

Mechanical Properties	Unseasoned	Seasoned
Hardness (Janka)	3.9 kN	4.5 kN
Impact	7.6 J	6.5 J
Maximum Crushing Strength	36 MPa	56 MPa
Modulus of Elasticity (MOE)	9.4 GPa	12 GPa
Modulus of Rupture (MOR)	69 MPa	98 MPa
Toughness (IZOD)	7.6 Nm	6.5 Nm

Modulus of Rupture (MOR) is a measure of maximum stress which timber can momentarily sustain when loaded slowly and continuously as a beam. Measured in MPa.

Modulus of Elasticity (MOE) is of importance in determining the deflection of a beam under load, the greater the stiffness, the less the deflection. Measured in GPa.

Maximum Crushing Strength, also referred to as compression strength, measures the ability of the timber to withstand loads applied on the end grain. Measured in MPa.

Impact provides the Izod value, which is the energy taken in joules (J) to fracture the timber.

Toughness is a measure of timber's ability to resist shocks and blows, and is synonymous with impact strength. It is measured in Nm.

Hardness refers to the Janka hardness test and is a measure of timber's resistance to indentation. This value is as listed on the CSAW website.

Movement	
Radial	0.11% per 1% MC change
Tangential	0.19% per 1% MC change

Radial and tangential movement is the percentage of dimensional change for each 1% moisture content change between about 3% moisture content and the fibre saturation point for the particular species. Between (FSP) 25% and 5%MC. Figures are approximate.



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Shrikage	
Radial	1.6%
Tangential	3.1%

Species Specific Notes: May undergo longitudinal shrinkage up to 0.3% if compression wood is present.

Tangential shrinkage is the measure of the percentage reduction in dimension from the unseasoned to 12% moisture content condition. Radial shrinkage is perpendicular to the growth rings, it is shrinkage in the direction towards the centre of the tree. Measurement is % value. Green to 12%MC. Figures are approximate.

Stress	Unseasoned	Seasoned
Common Structural Grades	Structural #3: F8	Structural #3: F11
Structural Grades	S1:F14, S2:F11, S3:F8, S4:F7, S5:F5	S1:F17, S2:F14, S3:F11, S4:F8, S5:F7

A stress grade is defined in AS 1720 as the classification of timber for structural purposes by means of either visual or machine grading. The stress grade indicates the basic working stresses and stiffnesses to be used for structural design purposes. Measured in MPa.

Strength	Unseasoned	Seasoned
Strength Group	\$4	SD5

Strength groups are given for unseasoned (S1-S7) and seasoned (SD1-SD8) timber in accordance with AS 2878. S1 and SD1 yield the highest strength and stiffness whereas S7 and SD8 yield the lowest.



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Workability	
General Workability	The close grain and resilience of Celery Top make it an easy timber to work.
Bending	An excellent bending timber. 25 mm material bends very well to a radius of 50mm.
Blunting	Moderate.
Boring	Holes are clean and to size.
Finishing	Readily worked to a smooth, flat surface. Most finishes adhere very well.
Gluing	Glues satisfactorily with most common adhesives.
Moulding	Straight-grained material produces good mouldings.
Nailing	Difficult to nail when seasoned. Pre-drilling is recommended.
Planing	Planes well with the grain. Tends to chip and flake when working against the grain, which can be a problem near knots.
Rebating + Mortising	Generally produces good results.
Sawing	Usually cuts cleanly and accurately. Moderate feeding forces required.
Turning	Turns well. Care needs to be taken to avoid chipping near fine edges.

Source: Centre for Sustainable Architecture with Wood (CSAW), Wood Solutions



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