DAVIDS TIMBER

TECHNICAL GUIDE

www.davidstimber.com.au

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TREATED TIMBER

Timber is one of the world's oldest used building materials. It is a renewable, naturally occurring material - unique in a world of synthetic and composite building materials.

Today, timber is derived from sustainably managed forests and is one of our most environmentally friendly building materials. The wide distribution of timber, its ready availability, variety of uses and relative ease of handling and conversion, have all contributed to its wide acceptance in the building industry.

Timber used in outdoor environments and in high moisture conditions can be subject to attack from natural enemies such as fungi, insects, and weathering. Where protection is required, timber durability can be enhanced through the addition of preservatives.

Preservative treated pine is timber that has been impregnated with chemical solution containing two major components; fungicide and insecticide. Because the preservatives are forced deeply into the wood, treated pine has long term resistance to decay, insects and other wood destroying organisms, outliving many naturally durable timbers in exposed conditions.

This effective and lasting protection of pine enables it to be used in many applications where untreated pine is not suitable, such as pergolas, decks, cladding, retaining walls, posts and poles. As such, treated pine is a highly versatile material suitable for a wide range of applications.

TIMBER DURABILITY

The natural durability rating of a timber species is a rating of the timber's natural resistance to attack by wood destroying fungi and wood destroying insects. Pine, in particular, has a large area of sapwood which is the younger, outer wood of the tree. This wood is less durable than the inner heartwood. One of the main reasons for this is that the sapwood cells are usually hollow with high moisture and starch content which is conductive to decay. Heartwood cells have natural chemical deposits in them with a lower moisture content and no starch. Like Pine, the sapwood of all timber species has poor resistance and so the natural durability rating applies only to the heartwood of a timber species.

In general, there are two main factors that influence the durability of timber in service. The first is the natural durability of the particular species. The second is the type and degree of hazard to which the timber is exposed. The natural durability of particular species is expressed as one of four Durability Classes.

It is important to note that in general, the lower the moisture content of the timber, the less attractive it is to biological attack, notably by fungal organisms.

Decay is less likely to occur where the timber has a moisture content below 30 per cent. Seasoned pine (generally <15% moisture content) kept dry in service is therefore far less prone to fungal attack. It is also less attractive to insects, although there are some wood borers and termites that may attack seasoned timber. Organisms responsible for damage to timber include decay-causing fungi and insects such as borers and termites. In sea water, immersed timber is readily attacked by marine borers. By keeping timber used in external applications protected from the weather by physical means, or through the application of water repellent coatings or paint, it is likely to display greater durability than unprotected timber.

TIMBER DURABILITY

The following table lists typical agents of timber and insect attack:

FUNGI	BORERS	TERMITES
WOOD DECAYING FUNGI Brown Rot: attacks cellulose. White Rot: attacks cellulose & lignin Soft Rot: usually in very moist areas **WOOD DISFIGURING FUNGI** Staining Fungi - e.g. blue stain, usually in areas of high temperature and humidity. Does not attack cellulose or lignin but may enable areas for rot fungi.	**Lyctid borers** - female lyctid beetles lay their eggs under the surface of the timber and the young feed on the cellulose - not found in softwoods or the heartwood of hardwoods. **Anoboiid borers** - common furniture beetles - they usually attack moist timber (18-26% m.c) and commonly infest old furniture in both the hardwood and sapwood of softwoods. **Marine borers** - molluscs and crustaceans found in all Australian waters but most active in warm, tropical zones.	**Subterranean termites** living in nests in nearby trees or rotting wood, termites will forage in tunnels to find food and eat out susceptible wood. **Dry-wood termites** only found in humid and coastal areas and do not need subterranean protection deriving their moisture requirements from the wood they ingest.

For each of these Durability Classes there are three different service conditions, In ground contact, Outside above ground and Marine borer resistance.

These classes are based on field trials of untreated heartwood and indicate the resistance of the heartwood of the species to fungal, insect attack and borer attack. These classes are:

Class 1	Timbers of the highest natural durability.
Class 2	Timbers of high natural durability.
Class 3	Timbers of only moderate durability .
Class 4	Timbers of low durability.

These timbers have the same durability as untreated sapwood, which is generally regarded as Class 4, irrespective of species. Timber is also classed as being either resistant or not resistant to attack by termite. The life expectancy of each Durability Class for the three exposure conditions given in AS 5604-2005 is given on the next page.

NATURAL DURABILITY, PROBABLE LIFE EXPECTANCY

Class	Probable in-ground life expectancy	Examples	Probable above-ground life expectancy	Examples
1	Greater than 25 years	Treated Pine	Greater than 40 years	Treated Pine
2	15 to 20 years	River Redgum	15 to 40 years	Karri & Jarrah
3	5 to 15 years	Messmate & Karri	7 to 15 years	Messmate
4	0 to 5 years	Radiata & Slash Pine	0 to 7 years	Radiata & Slash Pine

* Ratings in this Table are based on expert opinions and the performance of the following test specimens:(a) In-ground: 50 × 50 mm test specimens at four sites around Australia. (b) Above-ground: 35 × 35 mm test specimens at eleven sites around Australia.

PRESERVATIVE TYPES

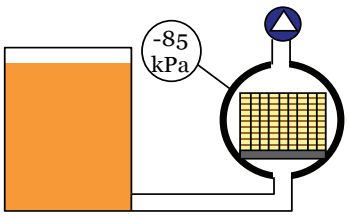
Three classes of preservatives are commonly used for the pressure treatment of pine timber.

Water-borne	Solvent-borne	Oil- borne
Water-borne chemical solutions comprise a mixture of water soluble compounds of copper and other chemicals.	Solvent based chemicals, such as LOSP, are solutions of fungicides, insecticides and in some cases water repellent chemicals. White spirit is the solvent commonly used for LOSP formulations.	Oil borne preservatives such as creosote and pigment emulsified creosote are a complex mixture of chemicals obtained from the distillation of coal tar. Being a liquid it is normally used without the addition of a solvent. Fuel oil is, however, is sometimes added to facilitate the treatment of railway sleepers.

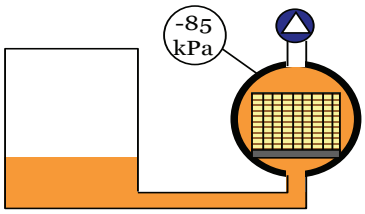
THE TREATMENT PROCESS

Prior to treatment, all timber is seasoned (air or kiln-dried) to remove moisture that would otherwise inhibit the uptake of the preservative chemicals. For water-borne and oil-borne treatments the timber is usually dried to a moisture content between 15-20 per cent. Timber to be LOSP treated is machined to its final size and as far as practicable, all drilling, notched and end-trimming completed. LOSP treatment uses relatively low pressures. Timber distortion is minimised because the treatment is solvent based.

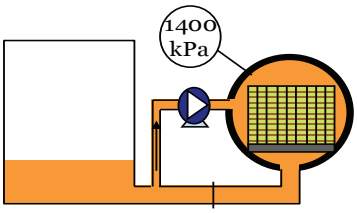
THE TREATMENT PROCESS



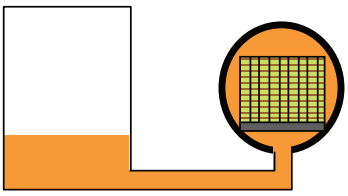
Initial Vacuum



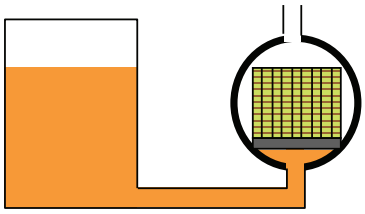
Fill Vessel



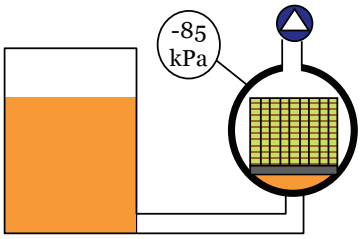
Raise Pressure



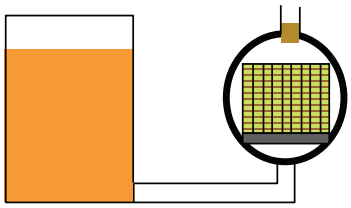
Relsease Pressure



Drain Vessel



Final Vacuum



Final Drain

TREATMENT METHODS

Davids Timber offer one of the widest range of preservative treatments available in the market place, a true leader of the timber preservation industry. Following is further information on our range.

Commercial scale preservative chemical treatment is carried out by vacuum-pressure methods in large specially designed treatment cylinders. This is the most common and has proven to be the most effective treatment method.

COPPER CHROME ARSENATE (CCA)

Copper Chrome Arsenate (CCA) water-borne preservative is by far the most widely used preservative for the treatment of pine timber. The first CCA product was developed in India by Dr. Sonti Kamassan in the 1930's and it immediately started to take the place of many other timber preservatives used at the time. The copper acts as a fungicide while the arsenic is also an insecticide. Chrome is included to fix the copper and arsenic to prevent them being leached from the timber.

Variations in the shade and intensity of the green colour of CCA treated timber are due to varying degrees of exposure to sunlight immediately after treatment. Colour therefore, cannot be used as a reliable guide to the level of preservative treatment. Also, the absence of colour in some areas of treated timber is no indication that they re untreated; use of a standard chemical indictor is the only sure way of establishing the presence of preservative.

'Fixing' of CCA preservatives occurs by a complex series of reactions. A white powder which sometimes appears on the surface of CCA treated timber up to 6 weeks after treatment is a harmless by-product of the process. These deposits are known as Glauber's Salt. They are water soluble and are easily washed or hosed off.

ALKALINE COPPER QUATERNARY (ACQ)

For almost a decade, ACQ treated timber products have been used in some of the world's most beautiful locations , like the pristine environments of national parks in Australia , North America, Europe and Japan to neighborhood playgrounds and backyards. ACQ stands for Alkaline Copper & Quaternary. This system of timber impregnation is based on the well established effectiveness of copper combined with an organic quaternary compound. Copper and quaternary compounds are effective fungicides and termicides. Together they provide protection against a broad spectrum of decay fungi, borer and termite attack.

All ACQ treated timber supplied by Davids Timber is treated to Australian Standards, AS1604 and readily available in hazard levels, H3 and H4.

ACQ treated timber will initially have a greenish appearance and will eventually weather to a honey brown colour before fading to a driftwood grey after exposure to the elements. Timber treated with ACQ can be painted or stained to match most outdoor colour schemes.

When using ACQ treated timber, we recommend the use of fasteners and other hardware which are in compliance with building codes for the intended use. The fasteners we recommend are quality hot dipped and stainless steel fasteners. Direct contact of ACQ with treated timber with aluminum is not recommended.

LIGHT ORGANIC SOLVENT PRESERVATIVE (LOSP)

Light Organic Solvent Preservative is an effective preservative formulation designed to provide a lasting protection for timber products used in external situations above ground. The formulation contains specialised fungicides for protection against fungal decay and an insecticide to provide lasting protection from termites and other wood boring insects. The complete formulation is applied by a controlled vacuum-pressure process.

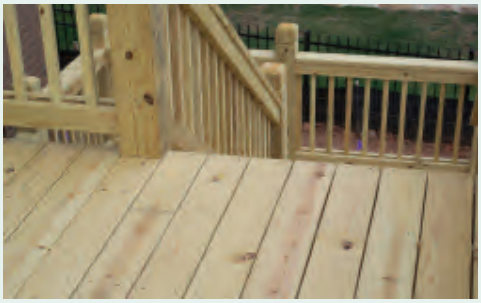
LOSP uses an organic solvent carrier to transport the active ingredients into the timber. This solvent does not saturate wood cells and causes little or no swelling during treatment. This means that the timber maintains its original size, shape and strength grading.

LOSP treated timber requires no kiln drying after treatment as the solvent evaporates from the timber over time without additional heating.

MICROPRO

MicroPro technology is a revolutionary way to pressure treat timber decks, fences, landscaping and general consutruction uses. MicroPro pressure treated timber is lighter in colour compared to copper based treated timber products.

The unique appearance of MicroPro treated timber will help differentiate the product. The attractive colour allows DIYers and contractors to build pressure treated projects using treated timber that is lighter and more natural in appearance.



HAZARD LEVELS

The best indicator for appropriate use of treated pine is “hazard class” as outlined in AS1604 - Timber Preservative-treated-Sawn and round. The type and degree of attack to which timber may be exposed in service is known as the “hazard”. Suitable treatments are defined for each hazard class.

The Hazard Class assigned depends on a number of factors other than insect attack, including temperature, the amount of moisture prevailing in service and the nature and geographical location of the exposure environment. Higher Hazard Class numbers are indicative of a more severe hazard.

Hazard Level	Exposure	Environment	Biological Hazard	Typical Uses
H1	Inside, above Ground	Completely weather protected, well ventilated and termite protected	Insects other than termites	Framing, flooring, interior, furniture and joinery
H2	Inside, above ground	Completely weather protected, well ventilated and termite hazard may exist	Insects including termites	Framing, flooring, Interior furniture and joinery
H3	Outside above ground	Clear of ground, subject to periodic wetting and attack by fungi & insects including termites	Decay fungi and insects including termites	Weatherboards, rails, cappings, decking, palings
H4	Outside in ground	In ground or persistently damp above ground where severe decay and insect, including termite attack	Severe decay fungi and insects including termites	Fence posts, landscape materials, retaining walls, posts, sleepers
H5	Outside in contact with ground or water	For use where high hazard ground contact, fresh water contact or critical end use is involved	Very severe decay fungi and insects including termites	Engineered retaining walls, house poles, power poles
H6	Marine	Where prolonged contact with sea water exists	Very severe decay fungi and marine borer hazard	Piles, boat hulls, jetty posts and cross bracing, landings

Each Hazard Level is given a rating which starts at H3 which is the most commonly used Hazard Level as it is used in most applications which include framing for pergolas and decking’s. H4 is used in most dry in ground applications such as H4 treated pine sleepers. H6 is the strongest of them all and designed to suit extreme moisture or marine conditions.

Davids Timber can supply treated timber to the hazard levels as noted in this table.

H2	H3	H4	H5	H6
LOSP	LOSP			
	CCA	CCA	CCA	CCA
	ACQ	ACQ	ACQ	
	MPRO	MPRO	MPRO	

TREATED TIMBER MAINTENANCE

Resealing Cut Ends

Treated timber should not be re-sawn or dressed by the user as this may reduce the protection afforded by the treatment. However, when a piece of timber is cut, notched or rebated, there may be a chance that un-penetrated heartwood is exposed on the cut surface. With low natural durability timber such as pine it is important that these areas are resealed with a suitable “in-can” or “brush on” preservative to ensure that a satisfactory preservative envelope is maintained.

Nails, Bolts & Metal Fixings

Due to the presence of copper and other electrolytes in the preservative, all metal connectors in contact with the treatment should be corrosion resistant. For most situations, hot dipped galvanized steel will provide satisfactory performance although higher grade material such as stainless steel should be considered for the critical connections particularly where there are additional sources of corrosion (salt) or where very long service life is required. Do not put treated timber in contact with, or above uncoated zinc-aluminium roofing sheets as the presence of copper ions may cause severe corrosion.

Painting and Staining

Unfortunately a perception has developed that treated timber does not need painting. While the preservative treatment will protect against decay and insect attack for decades, the timber is still prone to the effects of general weathering such as splitting, warping, fading and surface discoloration. While these factors may not be important in a retaining wall for example, they can seriously degrade from the appearance of a deck or pergola within a few years.

We strongly recommend that all dimensioned timber in weather exposed, above ground situations is painted or stained to maintain appearance and serviceability. There are a wide range of surface coatings available from clear water repellent sealants which require regular reapplication, clear or semi-transparent timber stains that show a natural timber appearance through to fill bodied, opaque acrylic paints that will last for over ten years. Treated timber can be painted or stained like normal untreated timber providing that it is dry and clean.

SAFETY PRECAUTIONS

CCA , ACQm MicroPro & LOSP treated timber can be planed, chiseled, nailed or drilled just as easily as untreated timber. Carbide tipped saw blades are suggested when big projects are planned. Nails, plates and bolts should be hot-dip galvanized and/or stainless steel. Good building practices should always be utilised in the application of treated pine to ensure maximum stability and endurance.

1. Wear gloves to help avoid splinters.
2. Cuts and abrasions should be protected from sawdust whilst sawing or machining timber.
3. Wash hands and face free of sawdust before meals or smoking. Food and drink should not be left exposed to wood dust.
4. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of sawdust.
5. When power sawing and machining, wear goggles to protect eyes from flying particles.
6. Sanding operations should be performed in well-ventilated areas. If this is not feasible, use dust protection equipment. A dust mask and goggles will generally suffice. Gloves and overalls in high dust situations are also recommended.



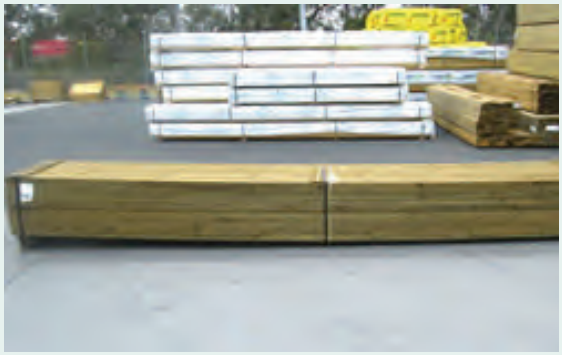


TIMBER MANAGEMENT

Minimise Your Stock Loss

We highly recommend the following stock management practices to minimise timber stock loss and degradation. If these practices are followed, stock loss will be greatly reduced, especially for timber stored on cantilever racks and in pigeon hole racking.

Store Packs Flat on Ground



Cantilever Racks

Re-banding packs with ratchet straps after making up orders reduces stock loss.

Pigeon Hole Racking

Stacking timber correctly in pigeon hole racks reduces stock loss.

Davids Timber Claims Policy:

Claims for shortages, damaged or faulty goods must be made within seven days of receipt.

COMMERICAL TIMBERS

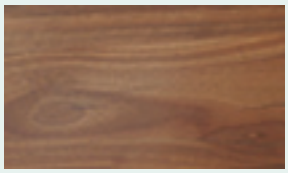
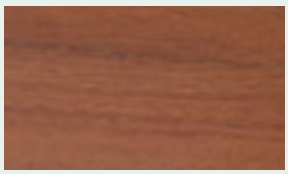
Davids Timber also supplies timber for Commercial, Civil and Government building projects.

We specialise in durable timbers including softwoods and hardwoods which are suitable for above-ground, in-ground, fresh water, and sea water applications.

All the commercial timbers which are available from Davids Timber are a Durability Class 1,2 and 3 and are sourced from sawmills based in Victoria, New South Wales and Queensland.

Davids Timber can also offer;

- Information on current tender opportunities.
- A high level of focused customer service.
- Supply of large end sections, which can be difficult to source.
- Timbers sourced from sustainably managed resources.

Colour	Species & Characteristics	Strength Rating	Durability
	**BLACKBUTT** Origin: NSW & QLD Grain: Moderately coarse textured and uniform Colour: Pale brown / slight pinkish tinge	**STRENGTH UNSEASONED** F11, F14, F17 & F22 **JANKA UNSEASONED** 7.3	**ABOVE-GROUND** Class 1 **IN-GROUND** Class 2
	**SPOTTED GUM** Origin: VIC, NSW & QLD Texture: Frequent presence of wavy grain Colour: Pale to dark brown	**STRENGTH UNSEASONED** F14, F17, F22 & F27 **JANKA UNSEASONED** 8.0	**ABOVE-GROUND** Class 1 **IN-GROUND** Class 2
	**YELLOW STRINGY BARK** Origin: VIC, NSW & QLD Texture: Medium and even Colour: Pale / Dark Brown	**STRENGTH UNSEASONED** F8, F11, F14 & F17 **JANKA UNSEASONED** 6.3	**ABOVE-GROUND** Class 2 **IN-GROUND** Class 3
	**SYDNEY BLUE GUM** Origin: VIC, NSW & QLD Texture: Moderately coarse and even. Colour: Pale / Dark Brown	**STRENGTH UNSEASONED** F11, F14, F17 & F22 **JANKA UNSEASONED** 6.4	**ABOVE-GROUND** Class 2 **IN-GROUND** Class 3
	**IRON BARK** Origin: NSW & QLD Grain: Tight & usually straight grained Colour: Pale Brown - Dark Red	**STRENGTH UNSEASONED** F14, F17, F22 & F27 **JANKA UNSEASONED** 11	**ABOVE-GROUND** Class 1 **IN-GROUND** Class 1
	**CYPRESS PINE (White)** Origin: NSW & QLD Grain: fine with even texture, knots are common Colour: Pale / Dark Brown	**STRENGTH UNSEASONED** F4, F5 & F7 **JANKA UNSEASONED** 5.6	**ABOVE-GROUND** Class 1 **IN-GROUND** Class 2

Other timber species available, please contact sales team for more information.

TIMBER CONVERSION CHARTS

Lineal Meters to Cubic Meters
Lineal meters x nominal width x nominal depth = Cubic meters
Eg: 300 lineal x 0.100 x 0.038 = 1.14 m3

$ Per Lineal Meters to $ Per Cubic Meters
$ Lineal meters / nominal width / nominal depth = Cubic Meters
Eg: $0.79 0./075/0.025 = $421.36 m3

Cubic Meters to Lineal Meters
$m3 / nominal width / nominal depth = $ Lineal Meters
Eg: 0.694 m3 / 0.075 / 0.025 = 370

$Cubic Meters to $Lineal Meters
$m3 x nominal width x nominal depth = $ Lineal Meters
75x25 = $420 m3 converts to $420 m3 x 0.075 x 0.025 = $0.79

Square Meters to Lineal Meters
Sq Meters / cover width x waste factor = Lineal Meters
140 sq meters cover width / 0.080 / 2.5% = 1794 Lineal Meters

$ per Square Meter to $ per a Lineal Meter
= 1 / cover width = ? $ Square Meters / ? = $ Lineal Meter
Eg: 80 x 19 Flooring at $31.25 m2 converts to = 1/0.8 = 12.5
$31.25 m2 / 12.5 = 2.50 Per Lineal Meter

Lineal Meter to Square Meter
= Lineal meters x cover width = square meters
Eg: 878 lineal x 0.80 = 70.24 square meters (the 0.080 is the cover size for 100 x 25 flooring)

$ per a Lineal Meter to $ per a Square Meter
1 / cover width = ? X $ per a lineal meter = Square Meter
Eg: 80 x 19 Flooring at $2.50 lineal converts to 1 / 0.080 = 12.5 x $ 2.50 = $31.25

$ per Cubic Meter to $ per and Each
= Length x nominal width x nominal depth = m3 x $m3 = $ Unit Price
Eg: 1 Piece 2.4 x 125 x 50 at $420.00 m3 Converts to
2.4 x 0.125 x 0.050 = 0.015 x $420.00 = $6.30 Each

$ Each Price to $ Cubic Meter
= Each Price / nominal width / nominal depth / length = $ per a m3
Each price / nominal width / nominal length / = $ m3
Eg: $6.30 / 0.125 / 0.05 / 2.4 m = $420.00 m3

Pack Weights

Rougher Header	700kg per pack
ACQ Decking	1 tonne per pack
Treated Pine Rails	1.5 tonne per pack
Treated Pine - 150 x 25 6.0	2.0 tonne per pack
Treated Pine - 150 x 25 3.6	1.5 tonne per pack
Treated Pine Sleepers	800kg per pack

TREATED PINE SPAN TABLES

Pergola Rafter Spans for 600 mm and 900 mm Spacing - (Wind Classification N1 & N2)

	Single Span						Continuous Span					
	Rafter Spacing 600mm			Rafter Spacing 900mm			Rafter Spacing 600mm			Rafter Spacing 900mm		
Size	F5	F7	MP10	F5	F7	MP10	F5	F7	MP10	F5	F7	MP10
90 x 35 mm	1800	1900	2200	1500	1800	1700	2200	2400	2800	2000	2200	2200
90 x 45 mm	2100	2200	2700	1900	2100	2300	2700	2900	3300	2300	2500	2700
120 x 35 mm	3000	3300	3800	2800	3000	3000	3500	4000	3800	2800	3100	3000
120 x 45 mm	3600	3900	4300	3200	3400	3700	4100	4500	4700	3200	3600	3700
140 x 35 mm	4000	4300	4500	3300	3700	3500	4200	4700	4500	3300	3700	3500
140 x 45 mm	4500	4700	5100	3800	4100	4400	4800	5300	5500	3800	4200	4400
190 x 35 mm	5600	5800	5900	4600	5100	4700	5700	6400	5900	4600	5100	4700
190 x 45 mm	6000	6200	6800	5200	5600	5800	6500	7200	7200	5200	5900	5800
240 x 35 mm	7000	7200	7200	5800	6400	5800	7200	7200	7200	5800	6500	5800
240 x 45 mm	7200	7200	7200	6700	7000	7200	7200	7200	7200	6700	7200	7200

Notes: 1) Refer to general notes for information that is relevant for all span tables.
2) For design parameters, refer to figure 7.26. AS1684.2 and 3.
3) Where rafters are equal to or exceed four times their breath, blocking should be used to reduce distortion.

Pergola Beam Spands - (Wind Classification 1 & N2)

	Roof Load Width (RLW)								
	1800 mm			2400 mm			3000 mm		
Size	F5	F7	MP10	F5	F7	MP10	F5	F7	MP10
120 x 45 mm	1700	2000	2200	1600*	1700	1700	NS	1700	1700*
140 x 45 mm	2200	2600	2700	1900	2200	2200	1700*	1900	2000
190 x 45 mm	3100	3500	3500	2700	3000	3000	2400	2800	2700
240 x 45 mm	3900	4500	4300	3400	3800	3700	3000	3400	3300
Continuous Span									
120 x 45 mm	1900	2200	2300	1700	1900	1900	1500*	1700	1700
140 x 35 mm	2300	2600	2700	1900	2200	2300	1800	1900	2000
190 x 45 mm	3200	3500	3500	2800	3100	3100	2500	2800	2800
240 x 45 mm	4100	4500	4400	3400	3900	3800	3100	3400	3300

Notes: 1) Refer to general notes for information that is relevant for all span tables.
2) * denotes 600 mm rafter spacing only. Member span is not suitable for rafter spacing greater than 600mm.
3) For design parameters, refer to figure 6.22, AS1684.2 and 3.

TREATED PINE SPAN TABLES

Batten Spans - (Wind Classification N1 & N2)

	Batten Spacing 600mm			Batten Spacing 900mm			Batten Spacing 600mm		
Size	F5	F7	MP10	F5	F7	MP10	F5	F7	MP10
70 x 35 mm	650	850	800	500	650	600	NS	650	600
70 x 45 mm	850	1050	1000	650	850	800	650	850	800
90 x 35 mm	1100	1200	1200	850	1050	1200	850	1050	1200
90 x 45 mm	1200	1200	1200	1100	1200	1200	1100	1200	1200

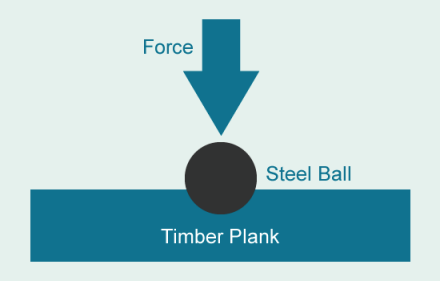
Notes: 1) Refer to general notes for information that is relevant for all span tables.
2) Maximum overhang of battern is 250 mm. Refer to AS 1684 tables for other overhanging spans
3) NS = Not Suitable

General Notes:

1) All tables have been produced from AS1684 - 2006 Residential Timber Framed Construction Standard and assumes that a roof sheet mass of 10 kg/m2 is added.
2) Maximum wind speed N. refer to AS4055 for site wind classification
3) These tables assume the building practice contained in AS1684 - 2006 Residential Timber Framed Construction Standard and tables should be read in conjunction with that standard.

JANKA HARDNESS

The Janka hardness test measures the hardness of wood. It measures the force required to embed an 11.28 mm (0.444 in) steel ball into wood to half the ball's diameter. This method leaves an indentation. It is a good measurement technique to determine the ability of a type of wood withstand denting and wear. It is also a good indicator of how resistant it is to sawing and nailing. In Australia Janka results are displayed in either newtons (N) or kilonewtons (kN).



STRENGTH GRADING

Timber is classified according to strength grading. Many factors are taken into account in the Stress Grading of timber including, length, density, flexibility, rigidity and natural imperfections. Stress Grading of timber can be done by a machine or visually.

Machine Grading of timber is a process whereby a calibrated machine computes a stress grade according to the weight and strength of the timber. This method of grading timber is less reliable than visual grading as it doesn't take into account imperfections within the timber.

Stress Grading of timber can also be done visually. The visual grader of timber evaluates the size, frequency and significance of imperfections as well as the species and other properties of the timber to calculate a Stress Grading. Visual Stress Gradings can range from F1 to F27.
Treated Pine is usually classified as either F5 or F7.

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