

# F27 SEASONED AUSTRALIAN HARDWOOD

**INSTALLATION** GUIDE



AUGUST 2023

## Performance Statement

Where used and installed in accordance with the following requirements, Pentarch Forestry F27 seasoned hardwood will satisfy the performance requirements of the National Construction Code and AS 1684.2 and AS 1684.3 – Residential timber framed construction. See Design and Installation requirements for sizes and span tables.



## Product Description

### Intended use

Pentarch Forestry F27 seasoned hardwood is suitable for use in buildings in internal applications and for some species, in external above ground weather exposed applications. See table below to determine which species qualify for above ground durability class.

### Moisture Content (MC)

Pentarch Forestry F27 seasoned hardwood will be supplied with a moisture content in the range of 10 to 15%.

### Product Profile

Pentarch Forestry F27 seasoned hardwood will be supplied with planer dressed faces and edges and pencil round corners. Structurally graded with allowances applicable in line with AS 2082.

At the time of supply, Pentarch Forestry F27 seasoned hardwood may contain minor surface checks that result from the drying process. Where exposed to direct sunlight, these can be expected to become more predominant. See Storage and Weather Protection on next page.

## Timber Species and Properties

The timber species supplied by Pentarch Forestry F27 seasoned hardwood may comprise the following species: Blackbutt, Grey Gum, Ironbark, Silvertop Stringybark and Tallowwood, either as single species or mixed species, pending availability.

Where single species are required, this will need to be specified and ordered.

Some basic properties for these species are given in the table below:

PROPERTY	TIMBER SPECIES					
	BLACKBUTT	GREY GUM	IRONBARK	SILVERTOP STRINGYBARK	TALLOWWOOD	SPOTTED GUM
STRENGTH GROUP	S2	S2	S2	S2	S2	S2
JOINT GROUP	JD2	JD1	JD1	JD2	JD1	JD1
DENSITY (12%MC) (KG/M3)	900	1100	1100	860	1000	990
UNIT TANGENTIAL MOVEMENT (UTM)	0.37	–	0.37	0.36	0.37	0.38
IN-GROUND DURABILITY CLASS (AS 5604)	Class 2	Class 2	Class 1	Class 3	Class 1	Class 1
ABOVE GROUND DURABILITY CLASS (AS 5604)	Class 1	Class 1	Class 1	Class 3	Class 1	Class 1
BUSHFIRE RESISTANT (AS 3959)	Yes	Yes	Yes	No	No	Yes
TERMITE RESISTANT (AS 3660.1 AND AS 5604)	Yes	Yes	Yes	No	Yes	Yes
LYCTID SUSCEPTIBLE (AS 5604)	No	Yes	No	No	Yes	Yes

### Product Identification

Products supplied will be identified on accompanying invoices and delivery dockets as well as by ink branding on the timber.

### Stress Grades

Pentarch Forestry F27 seasoned hardwood is visually stress graded in accordance with AS 2082 – Timber – Hardwood – Visually stress graded for structural purposes, to achieve F27 stress grade.

### Sapwood

Pentarch Forestry F27 seasoned hardwood may contain limited amounts of sapwood as permitted by AS 2082.

## Sizes and Tolerances

Pentarch Forestry F27 seasoned hardwood is available in the following cross-sections and lengths.

At the time of manufacture (machining), Pentarch Forestry F27 seasoned hardwood will be produced within the following X-section tolerances:

**Depth** -1 mm, +2 mm

**Breadth** -1 mm, +2 mm

As timber equilibrates in service some dimensional changes will occur and should be allowed for.

## Packaging

Packs of Pentarch Forestry F27 seasoned hardwood will be supplied on gluts, covered with plastic and strapped.

# Design & Installation

## Design

Pentarch Forestry F27 seasoned hardwood is supplied in finished dressed dimensions. AS 1684.2 and AS 1684.3, which are primary referenced documents under the NCC, and therefore 'deemed to satisfy', include span tables for the seasoned sizes and stress grade F27.

For applications that fall outside the scope and provisions of AS 1684, Pentarch Forestry F27 seasoned hardwood should be engineer designed, constructed and certified in accordance with AS 1720.1 – Timber Structures Code.

## Durability and Preservative Treatment

Above ground weather exposed structural hardwood framing shall be of a species with an appropriate above ground natural durability class and preservative treatment of sapwood, if present, in accordance with Construction Timbers in Queensland (CTIQ) (i.e. generally above ground durability Class 1 timber such as blackbutt, grey gum, ironbark and tallowwood). Further information can be found in CTIQ and QTimber.

## Construction in Bushfire Prone Areas

Deck bearers, joists and posts used in designated bushfire prone areas are to be of a species that satisfies the requirements of AS 3959 – Construction in Bushfire Prone Areas. Guidance on use of timber in bushfire prone areas is provided in Pentarch Forestry's Construction in Bushfire Zones brochure per state are available for viewing or download at: [www.pentarch.com.au/timberproducts.html](http://www.pentarch.com.au/timberproducts.html) and Wood Solutions Design Guide 04, Building with timber in bushfire prone areas, including installation. Further information can be found in WoodSolutions-Building in Bushfire Prone Areas.

## Termite Management

Termite management of timber structures shall be in accordance with the NCC and AS 3660.1 – Termite management.

## Installation and Building Practice

For residential construction, Pentarch Forestry F27 seasoned hardwood shall be installed in accordance with the requirements of AS 1684.2 and AS 1684.3 with respect to building practice, housing, notching, member support, connections, bracing and tie-down.

WIDTH/ DEPTH (MM)	THICKNESS (MM)		READILY AVAILABLE MAX LENGTH (MM)*
70	35	45	All sizes readily available in lengths to 6.0m
90			
120			
140			
190			
240			
290			

\* Longer lengths are available in nail plated sections. Nail plated members are not suitable for weather exposed applications (defined by AS 1684.2/3 Appendix B).

## Moisture Movement

Pentarch Forestry F27 seasoned hardwood is supplied in the MC range of 10 to 15%. For most applications, little additional moisture movement (shrinkage/expansion) should result.

Where used in some environments however, moisture movement can be expected. For example:

- In internal applications in hot dry inland areas and in air-conditioned buildings, moisture content in the timber could get to as low as 8% and in non-conditioned hot humid tropical locations, as high as 16%.
- Similarly, in weather exposed applications, moisture contents may range from around 10 to up to 18%, depending upon prevailing prolonged weather exposure.

The wider/deeper the timber section, the greater moisture movement change will be and where required, due allowance should be made for potential movement.

**Example: For a species with a UTM of 0.37, a 190 mm wide board could be expected to expand or shrink approximately  $0.37 \times 190 / 100 = 0.7$  mm per 1% change in moisture content. For a 5% change in MC = 3.5 mm.**

## Storage

Prior to installation, Pentarch Forestry F27 seasoned hardwood should be stored in a dry environment free from direct exposure to all weather conditions.

Once the installation is complete, a suitable finish should be applied which will reduce movement from moisture uptake and loss and will also reduce the effects of weathering. Dark coloured paints and stains should be avoided as they heat timber to elevated temperatures which cause greater loss of moisture and subsequent shrinkage and checking. Decay is also more active at higher temperatures. End grain and surfaces within joints should be sealed with an oil based primer, stain or water repellent to maximise service life. Application and maintenance of finishes should not be considered as a substitute for ensuring that the inherent durability (natural or by treatment) of the underlying timber is appropriate to the service life required for the applicable hazard level. Finishes do not provide a complete moisture seal, but a suitable finish will reduce movement from moisture uptake and loss and will also reduce the effects of weathering.



## Weather Protection, Finishing and Maintenance

Timber finishes are constantly being improved and new options developed. Further information can be found in the WoodSolutions Design Guides 13 and 14.

## Tannin Stains

All hardwoods contain extractives such as tannin. When subjected to moisture and wetness, the tannins in hardwood can become mobilised and leach out of the timber which can result in unwanted dark staining occurring on surfaces impacted by the leachate.

Some species such as blackbutt have been reported to be less problematic than others but the best way to try and minimise leaching of tannins is to protect the timber from moisture by priming it all round as given above, including joints, notches, holes, etc. The use of hot dipped galvanised or stainless steel fasteners in weather exposed applications will also minimise iron tannate staining.

## Safe Working

Working with timber produces dust particles. Protection of the eyes, nose, mouth and hearing when sanding, sawing and planing is highly recommended. Refer to tool manufacturers for safe working recommendations for particular items of equipment.

A material safety data sheet (MSDS) for Pentarch Forestry F27 seasoned hardwood can be accessed at:

[www.pentarch.com.au/timberproducts.html](http://www.pentarch.com.au/timberproducts.html)

## Disposal of Offcuts and Waste

For any treated timber, do not burn offcuts or sawdust. Preservative treated offcuts and sawdust should be disposed of by approved local authority methods.



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Note: Variations within a timber species are normal, therefore photographs, samples and displays can only be indicative of colour and should not be used for final selection. It is normal for natural timber products to react to changes in atmospheric and environmental conditions such as humidity and temperature.

[pentarchforestry.com.au](http://pentarchforestry.com.au)

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