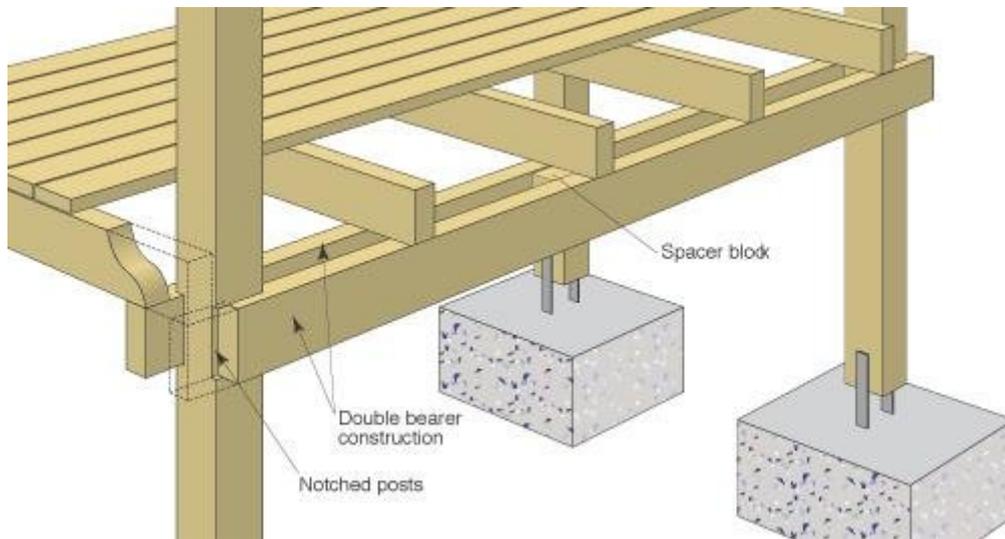


Timber Deck Fixing Guide:



Generally a deck and its supporting structure will be exposed to the weather; therefore it is essential that a suitable type of timber is chosen for the decking boards and supporting timbers. Those timbers that will be in-ground contact should have a Natural Durability rating of 1 or 2 in-ground contact or be preservative treated to H4. Those timbers that will be above ground should have a Natural Durability rating of 1 or 2 outside above ground or be preservative treated to H3. Appropriate commercially available species include Blackbutt, Spotted gum, Ironbark, Turpentine, Tallowwood, River red gum, Blue gum, Merbau, Treated pine and Cypress.

Timber Posts

Timber posts should be placed on stirrups rather than in the ground where possible. The stirrups will provide the required termite barrier to protect the deck and will prevent the deck being a bridge for termites to the house. Even if preservative treated posts are used, a termite barrier is recommended.

Decking profiles

There are a number of decking profiles used. Common varieties are plain, pencil round and reeded. Some decking is supplied with one face having a reeded finish. Despite the urban myths (which always sound very logical), it doesn't matter whether you fix the reeded face up or down. The choice is yours. Even though your choice will greatly affect the appearance of the deck, it will not affect the life span of the deck.



Decking Board Spacing

It is important to provide an appropriate spacing between the decking boards. Decking boards (treated or untreated) which are exposed to the weather will take up and lose moisture from or to the atmosphere as the environment around the timber changes on a seasonal basis, even when sealed or coated. The gap or spacing between the decking boards must be sufficient to accommodate any expansion in the width of the boards.

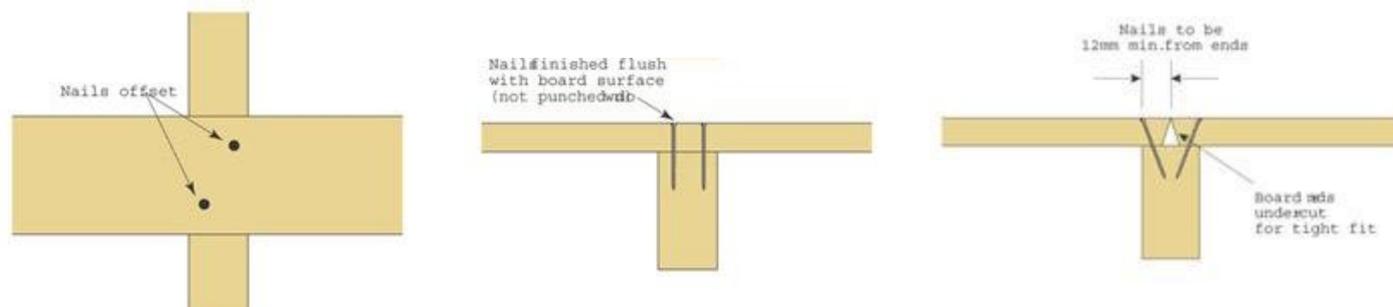
Recommended spacing for decking depends on the width of the boards, whether they are hardwood or softwood and whether they are seasoned or unseasoned at the time of fixing. The Table summarises the recommended spacings for decking boards less than 100 mm in width.

	Softwood	Hardwood
Seasoned	4 to 5 mm	Seasoned 3 to 4 mm
Unseasoned	3 to 4 mm	Unseasoned 3 to 4 mm

Fixings the decking boards to Timber Joists

For a weather exposed deck, all fixings such as bolts and nails should be hot dipped galvanised, stainless steel or similar.

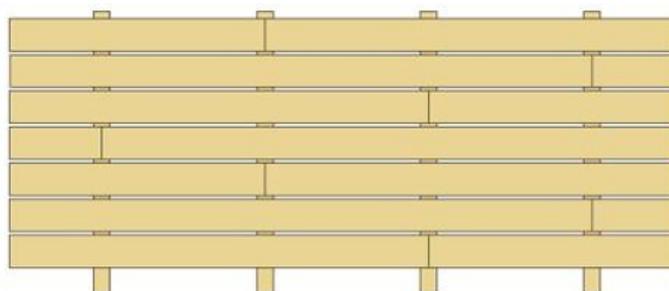
Generally speaking, the two nails in a board at any joist should not form a single line with the nails in the other boards on that joist. It is best to stagger the nails so that there are two lines of nails along the joist. This lessens the chance of a single line of nails creating (over time) a split in the top surface of the joist. Each of the two nails in a board should be driven at an opposing angle to increase the holding capacity of the nails.



Some decking nails are designed to be fixed so that the nail head remains proud of the surface of the board but in an attractive way. Other nails are designed to be fixed so that the nail head is driven below the surface of the board. This creates a void in the surface of the board which should be filled with an appropriate filler. The filler reduces the moisture collecting in the void and the subsequent staining of the timber that may occur.

To reduce the possibility of splitting, nails should not be too near the edge of the board. Pre drill the board when nailing the ends of the boards to the joists.

In most decks there will be some butt joints. Care should be taken to ensure these butt joints are randomly spaced to avoid butt joints in adjacent boards being next to each other.



There are two methods of protecting the top surface of the joists. A brush on timber preservative can be applied to the top surface of the joists prior to fixing the decking boards to the joists. Alternatively, an appropriate protective strip can be fixed to the top surface of the joists. Specially made protective strips are available.

AS 1684 Residential Timber Frame Construction Standard provides the minimum requirements for the spacing, size and grade of bearers and joists and the minimum requirements for the thickness, span, grade and fastenings for decking boards.

Decking	Joists	Nailing Hot-dip galvanised or stainless steel, 2 nails per board crossing			
		Machine Driven		Hand-Driven	
Hardwood and Cypress	Hardwood and Cypress	50 x 2.5 flat or dome-head		50 x 20.8 bullet head	
	Treated softwood	50 x 2.5 flat-head deformed shank	65 x 2.5 flat-or domed head	50 x 20.8 bullet head deformed shank	65 x 2.8 bullet-head
Treated softwood	Hardwood and Cypress	50 x 2.5 flat or dome-head		50 x 2.5 flat or dome-head	
	Treated softwood	50 x 2.5 flat-head deformed shank	65 x 2.5 flat-head	50 x 2.8 flat-head deformed shank	65 x 2.8 flat-head

Decking	Grade	Minimum Thickness (mm)	Maximum Joist Spacing (mm)
Hardwood	Standard Grade AS 2796.1	19	500
Cypress	Grade 1 AS 1810	19 21	400 450
Treated softwood	Standard grade AS 4785.1	19 22	400 450

Fixings the decking boards to Steel Joists

This practice is not always successful because the screws normally provided are not suitable for fixing timber to steel. During periods of higher humidity, the expanding timber may cause the screws to fail in shear. It is recommended that the decking boards be nailed or screwed to a timber batten affixed above or beside the steel joist.

Finishing the Decking

The industry recommends as a minimum, that a protective coating should be applied to all surfaces (including any freshly cut end) of each decking board, preferably before fixing to the joists. A protective coating includes products which penetrate the surface of the timber and products which provide a film or coating to the surface of the timber. This protective coating of the timber surface will minimise the effects of weathering of any timber (treated or untreated) in an exposed situation. The purpose of the protective coating is to slow down the rate at which the timber will take up or lose moisture. By slowing that rate down, the severity of any checking is considerably reduced. The coating should contain a fungicide to prevent mould growing on any sugars or starches that may be in the coating.

Tannin Bleed

Most timbers contain water-soluble extractives which provide colour and some decay resistance to the timber. Discolouration from these water-soluble extractives will be leached to the surface of the timber whenever moisture leaves the timber. Because the discolouration is water-soluble, it can be washed to other surfaces and leave an unsightly stain which can be difficult to remove from brickwork and concrete. To lesson the likelihood of such staining, use seasoned timber and apply a protective coating to all surfaces (including any freshly cut ends).

Avoid using any tools which may deposit fine iron filings on the timber surface. Any iron filings which are not cleaned from the surface are likely to create unsightly black staining of the timber. An angle grinder cutting bricks creates iron filings from the metal mesh which forms the base of the cutting disk.

Resin Bleed

Some softwood species such as radiata pine and slash pine can be prone to resin bleed. Only some boards are affected. If a board shows obvious signs of resin bleed then don't fix it in the deck. If it has to be fixed in the deck, fix it in a position where the resin bleed won't be a problem. Sometimes it may not be obvious that a board is prone to resin bleed until after the finished deck has been exposed to a period of hot weather. In such circumstances the resin can be cleaned up or the offending board replaced.

Bushfire Resisting Timber

AS 3959 – 1999 Construction in Bushfire Prone Areas, permits fire-retardant-treated-timber to be used in certain bushfire prone areas where the use of timber externally is otherwise not permitted. Included in the definition of fire-retardant-treated-timber are timber species which meet specified parameters without having to be subjected to a fire retardant treatment. A number of species have been tested.

Seven Hardwood species have been shown to meet the parameters. They are —Blackbutt, Spotted gum, Red ironbark, Turpentine, River red gum, Silvertop ash and Merbau.

This publication was produced by the Timber and Building Materials Association, in conjunction with the Timber Development Association (NSW).

Important notice: The information and advice provided in the publication is intended as a guide only. As successful design and construction depends upon numerous factors outside the scope of this publication, the Timber Development Association (NSW) accepts no responsibility for specifications in, nor work done or omitted to be done in reliance on this information sheet. Whilst all care has been taken to ensure the accuracy of the information contained in this publication, the Timber Development Association (NSW) disclaims, to the full extent permitted by law, all and any liability for any damage or loss, whether direct, indirect, special or consequential, arising directly or indirectly out of use of or reliance on this guide, whether as a result of the Timber Development Association (NSW) negligence or otherwise.

Version 1 - Dec 2008