



Outlast Timber Supplies
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OUTLAST TIMBER AUSTRALIAN DECKING INSTALLATION RECOMMENDATIONS

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1.0 PRODUCT

Outlast Timber Supplies retails a large range of Australian Hardwood and Softwood timber decking's in a range of species and profiles.

Boardwalk Deck is typically 135mm wide x 32mm thick, and is often used in commercial applications.

Pencil Round Deck is a standard dried and dressed product that has pencil round edges and comes in a range of widths and is typically 19mm thick.

Random Deck is an economical bevelled edge *Green Rough Sawn* product that is machined from Class 2 durable Victorian hardwoods and is installed tight against other boards in an alternating wide/narrow pattern. As the timber naturally dries and shrinks it creates drainage gaps between the boards.

Radially sawn NEW DECK™ is a totally new concept in Australian hardwood decking. NEW DECK™ is profiled from *back sawn* bevelled edge boards and incorporates a number of exciting new features which includes a domed upper face for shedding water. Sloping sides prevent debris buildup and a concave lower face reduces moisture build-up at the joist interface.

Radially back sawn boards can be identified by the alignment of growth rings, which are basically parallel to the broad face of the board. NEW DECK™ is supplied seasoned (ie. dry) and is available in a range of widths. NEW DECK™ boards are typically sawn from naturally durable regrowth hardwoods.

➤ Sketch/Sections for Radial New Deck™:



Figure 1 (NEW DECK boards in cross section)

2.0 SPECIFICATIONS

2.1 Profiles

Decking boards may vary in thickness between profiles and species. Typically the standard decking size is 19mm thick, but may vary in thickness such as 20mm, 21mm and 32mm (But not limited to).

It is typically supplied in a smooth dressed and Seasoned (ie. dry) or Unseasoned width of 55mm, 70mm, 80mm, 86mm, 90mm, 100mm, 120mm and 136mm profile and may or may not have reeding on one side.

Reeded decking is recommended to be laid with the reed side facing down. If the reed side is facing up it may create a moisture trap that could become a slipping hazard safety issue and may increase the chance of water born mould/fungi on the top face surface.



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2.2 Species

Australian decking that is sold by Outlast Timber may include the following Species, but is not limited to:

- Cypress – Durability Class 1 Above Ground*
- Ironbark – Durability Class 1 Above Ground*
- Red Gum – Durability Class 1 Above Ground*
- Silvertop Ash – Durability Class 2 Above Ground*
- Southern Mahogany – Durability Class 2 Above Ground*
- Spotted Gum – Durability Class 1 Above Ground*
- Yellow Stringybark – Durability Class 2 Above Ground*

*** AS 5604-2005: Timber—Natural durability ratings**

Note: Australian Standard Durability ratings are dependent on particular botanical species and may differ between botanical species with the same common name.

Both Class 1 & 2 timbers are deemed suitable for use as decking in Australian Standard:

- Australian Standard AS5604-2005: Timber—Natural durability ratings
 - AS1684-2010: Residential Timber Framing.
- Durability Class 1 above ground life span estimate 40+ years
- Durability Class 2 above ground life span estimate 15 - 40 years

Note: Timber Durability and lifespan is dependent on several different factors and may exceed or be reduced by aspects such as:

- Environmental factors, local climate and moisture conditions
- Exposure conditions: Such as if the decking is sheltered by a verandah or similar
- If a decking oil has been applied and regular maintenance and re-application coats are applied
- Sub-floor ventilation

2.3 Lengths & Availability

Due to sustainable timber sourcing criteria, most decking is supplied in random lengths of between 0.9 and 5.4m but usually will have an average pack length of between 2.4 - 2.7m.

NEW DECK™ is generally kept in stock and the boards are supplied in random lengths of between 1.5 and 5.4m (av. lengths approx. 3 to 4m but wider profiles will contain more shorts).

Certain species and profiles may also be able to be selected from packs in a specified natural set length (Not ESL) however this incurs a for an additional handling/wastage factor surcharge.

2.4 Engineered Set Lengths (ESL)

Engineered Set Lengths are mechanical joined and glued boards produced to specified lengths and may be available for certain profiles where long lengths such as 5.4m. or longer or multiples of the same length are required.



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3.0 SEASONING & STORAGE

Some surface checking may occur if timber is exposed to the weather but these non structural cracks are typical in most Australian hardwoods. It is also normal for hardwoods to leach red/brown extractives during heavy rain periods. Extractives tend to be less prominent in lighter species but it is advisable to cover or protect walls and paving until all extractives have leached (This can vary depending on rainfall and climatic moisture conditions but will generally continue for up to 6 months). Extractives can be removed from concrete and render by using a 20% solution of household bleach. This bleach solution is not recommended for use on areas with coloured surfaces and should be pressure cleaned of concrete shortly after application usually about 20mins or so.

Packs should be stored up off the ground and under cover or protected with an additional tarp to prevent swelling. If wetting does occur, allow a min. of 24 hours for timber to dry before fixing.

4.0 FINISHING

All exposed, externally fixed decking will tend to fade to a silver grey colour if left uncoated. The degree of greying will vary depending on the amount of exposure to sun, wind and rain. The timber used in this above ground product has natural durability and when used in conjunction with good building practices, should generally not require additional treatment against decay, but may naturally weather with age.

All timbers can be offered some weather protection while acclimatising to local conditions. Outlast Timber recommends the application of an oil based sealer or decking finish on external timber (Especially if being fixed during extreme weather conditions). There are a variety of treatments, stains and coatings available and most can be applied prior to or shortly after fixing. Outlast Timber uses and recommends the **Preschem** (www.preschem.com) range of decking oils, timber preservatives and decking cleaners.

Initial coating times vary between several different factors such as:

- Physical location - In relation to local climatic conditions and seasonal conditions
- Installation location - Depending if the decking is covered by a physical structure such as a verandah

It is recommended to allow decks to weather for 2-3 months to allow for leaching of extractives before applying a decking oil treatment. The deck should be thoroughly washed clean and dry before any finish is applied. The initial coating will absorb the oil with a second coat applied between 48-96 hours of the first initial coat. The easiest method of application is with a lamb's wool applicator. Subsequent coating is recommended no more than annually, dependent on seasonal and exposure conditions.

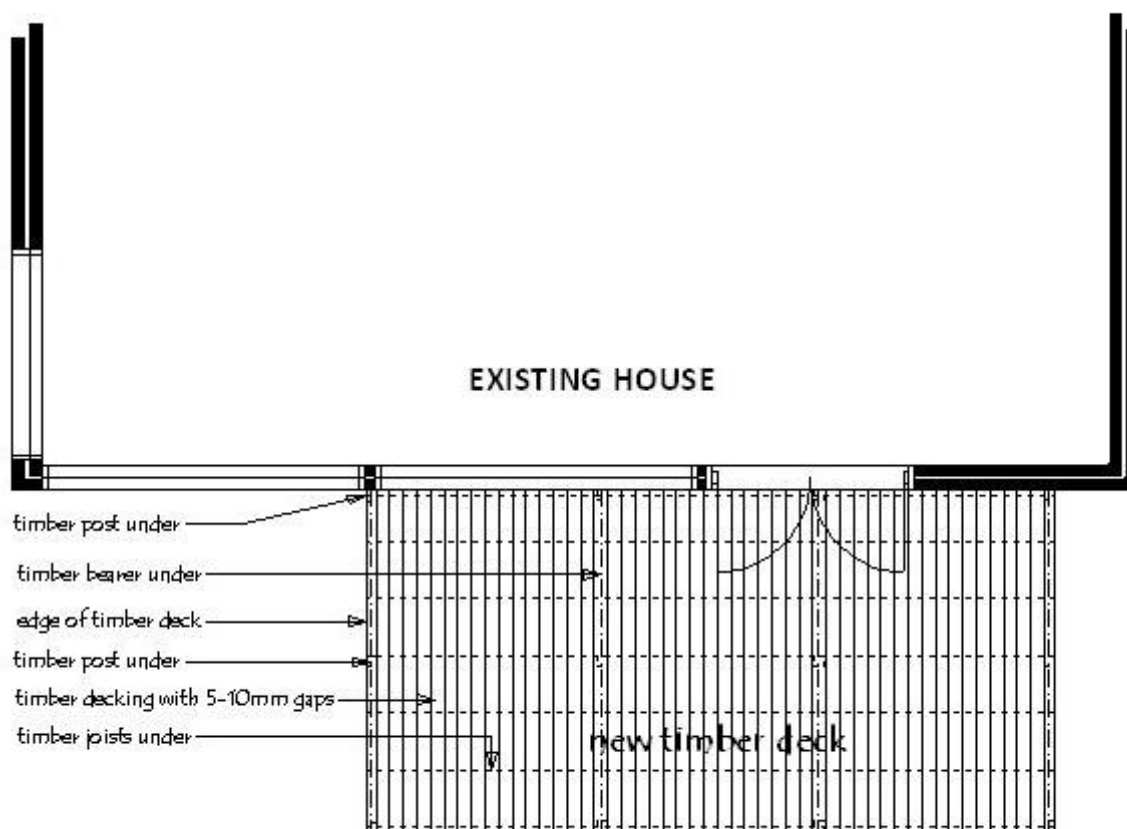
Disclaimer:

Please note that all information contained within this document are recommendations. Outlast Timber Supplies recommends that all relevant legislation, building codes and Australian Standards are referenced and adhered to. Outlast Timber Supplies accepts no responsibility for issues relating to recommendations contained herein.

5.0 INSTALLATION RECOMMENDATIONS

5.1 Design

You are now ready to design your deck. Draw an initial plan of your deck onto a copy of your house plan. Note door and window locations and any easements and set-backs.



Your plans need to show the following:

- Two scale dimensions of vertical and horizontal elements
- Vertical levels of balustrades, floor levels and ground levels
- Drawing detail including balustrading, steps, supporting post locations or built-in seating
- Balustrades are only required for decks with floor levels over 1000mm above ground level.
- Avoid adding stairs to your deck unless you are up for a challenge

Design a deck is something you could undertake yourself or you could engage a drafts person to draw it for you. If you don't engage a drafts person you will need to consult an engineer to specify the size of the timber members required for the job. Don't panic - this should not be expensive for a basic deck.



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5.2 Calculation Of Materials Required

For calculation of materials required for the project such as: Decking quantity, joists, screws required and volume of Aussie Clear™ decking oil please visit our calculator at www.outlast.com.au.

5.3. Site Preparation & Permits

Take note if there are any significant trees species or trees over 3 metres high. These may need to be preserved because of council restrictions. If you are unsure about this, check with your local council

The majority of local councils also require a building permit for decking over a 800mm from ground level so please refer to your local council or the Victorian government planning website:
<http://www.dpcd.vic.gov.au/planning>.

➤ SECTION 60 GENERAL PROVISIONS (Victorian Planning Schemes Online) Uses, Buildings, Works, Subdivisions And Demolition Not Requiring A Permit

Buildings and works not requiring a permit unless specifically required by the planning scheme

- A deck to a dwelling with a finished floor level not more than 800 mm above ground level.
- A disabled access ramp.

Once you have a clear plan you will need to prepare the site. Clear the site of trees, bushes, roots, structures and mow or remove grass. Clearing the site makes set-out and construction easier.

Get the tools you will need:

- String line
- Short timber stakes (1200mm long) – Used for setting out in conjunction with the string line
- Tape measure (At least 8000mm long)
- Hammer
- Thick and dark pencil
- Spirit level
- Spray Paint

Other materials that you will need are:

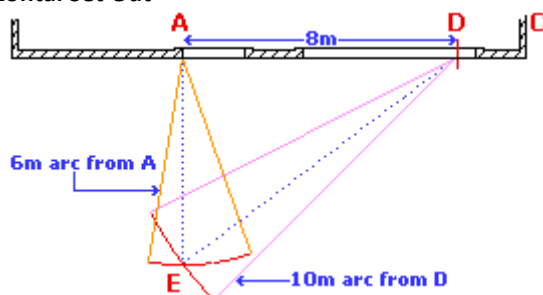
- One long piece of straight timber (90x45mm x 6000mm) for creating straight lines
- Electric saw
- Nails or screws
- Shovel
- Timber decking boards.
- Timber joists– Refer to Span Tables AS1684
- Joist & bearer connector plates
- Timber bearers – Refer to Span Tables AS1684
- Timber posts (For Stumps) – Refer to Span Tables AS1684
- Ready mix concrete.

5.4 SETTING OUT THE AREA

5.4.1 Location Set Out

Mark the length and position of the deck on the wall of your house with a pencil. You will need to mark the finished level of the deck floor on the house cladding. The deck floor level should step down from the internal floor level by at least 75mm to avoid waterproofing problems that may occur due to driving rain. There are ways to construct a deck floor level the same internal floor level, offering a seamless entry, but this is best left to the professionals.

5.4.2 Horizontal Set Out



- To set out the shape of your deck, measure the depth of the deck off the house wall with a string line and locate a timber stake in the ground for all corners of the deck. Wrap the string around each stake.
- Now check that the deck is square. For a simple square deck you will only need to make one trigonometric calculation (<http://www.pagetutor.com/trigcalc/trig.html>). This is to ensure that your deck runs off the house at a 90 degree angle. Using the calculator enter in the length and depth of the deck. This will calculate the hypotenuse. Use the length, depth and hypotenuse as noted in the image above and confirm the position of the corner set-out stakes.

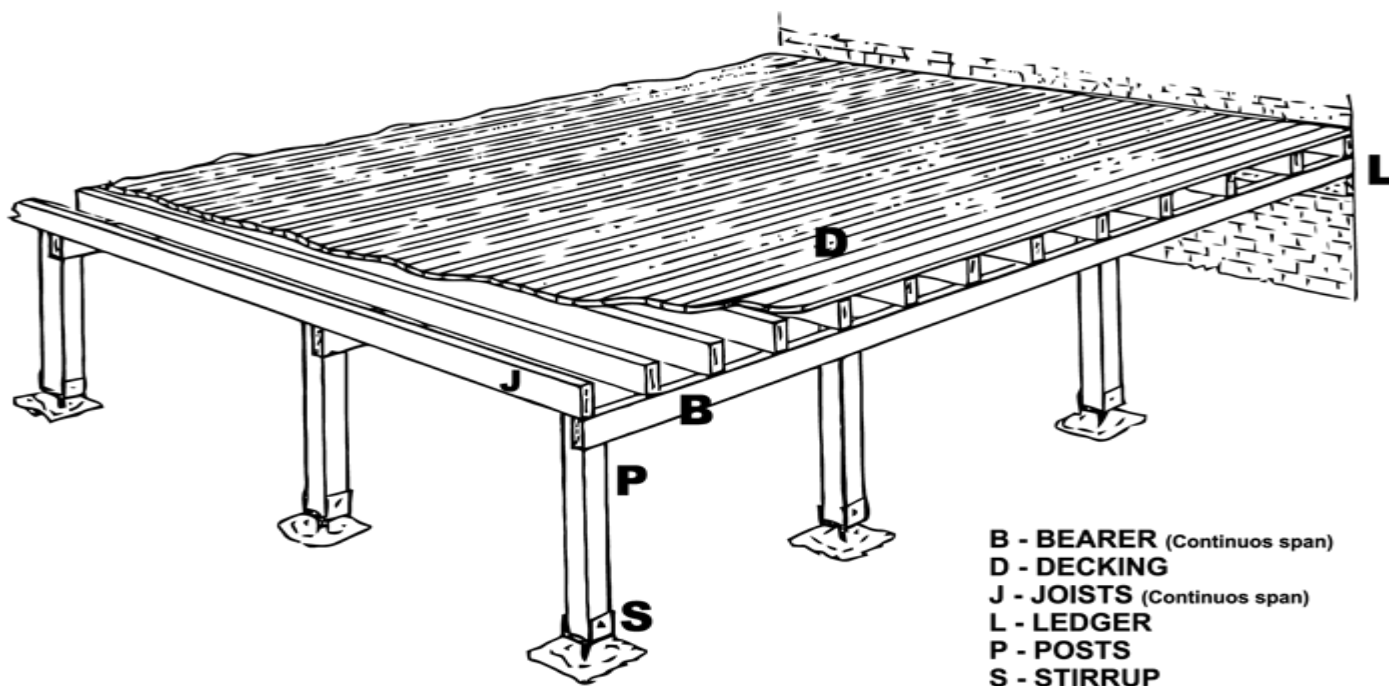
5.4.3 Vertical Set Out

- Once the horizontal set-out is complete, the vertical finished deck level can be set-out. Vertical set-out is important to ensure the step down from the house to the deck is sufficient. It acts as our starting level. The height of all other deck members including decking joists, whaling board (or ledger - it attaches the house to deck), bearers and posts will all be governed by this vertical level.
- Take the long straight piece of timber and prop-up it against the house at a 90 degree angle along the string line, with the long piece of straight timber (90mm end) sitting vertically. Ensure the top of the timber is lined up with the deck floor level marked on the house cladding. Hold the other end of the timber out from the house 90 degrees, place a spirit level on top of the timber and move it up and down until it is horizontal (the bubble in the level is in the centre). Adjust the string line on this corner post to this correct level.
- Do the same with the opposite string line. Now you have a set-out of your finished deck level. Anything you now construct will need to stay within the confines of this set-out area.

5.4.4 Mark Out The Locations Of Your Posts

- Now mark out the locations of your posts, centre to centre. Use spray paint for this.

6.0 CONSTRUCTION



An alternative method of setting & bracing a post

6.1 Footing Construction & Footing Holes

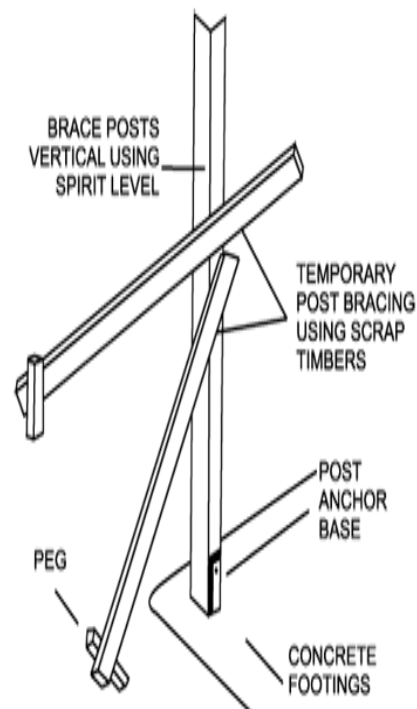
The simplest types of footings are concrete pad footings. Dig holes and empty enough dry concrete mix into the hole to fill it. Add water slowly as per the instruction on the concrete pack. Mix the water and concrete together quickly with a shovel until all the dry concrete mix is a wet but not sloppy.

Once you can see the concrete start to thicken place the post in the hole, push them down as far as they will go and hold the post until it stands on its own. Now you must work fast, for your concrete will start to set quickly.

Check that your post is completely vertical by holding your spirit level vertically on all four sides of your post. Move the post a bit until all sides of your posts are perfectly straight (with the spirit level bubble in middle). During the placement of each post ensure that your posts stay lined up with each other by checking their position with a string line or the straight piece of timber. The use of metal termite shields are also required and are placed directly on top of the stump (Between the bearer and stump).

Allow your posts to sit untouched overnight or until the concrete has cured. For footing hole size appropriate to local soil type and decking construction, please refer to:

- AS1684 Timber Framing Standard
- AS2870 Residential Slabs & Footings



AS1684.2 TIMBER FRAMING STANDARD

**TABLE 3.3
FOOTING CLASSIFICATION**

Footing type	Minimum bearing area m ²	Bearing capacity kN	Minimum size of unreinforced concrete pad footing mm	Nominal unseasoned size of timber soleplates mm
1	0.045	4.5	230 × 230 × 100 deep or 250 dia. × 100 deep	200 × 225 × 38 thick
2	0.090	9.0	300 × 300 × 150 deep or 350 dia. × 150 deep	250 × 360 × 75 thick
3	0.120	12	350 × 350 × 200 deep or 400 dia. × 200 deep	300 × 400 × 75 thick
4	0.180	18	430 × 430 × 250 deep or 500 dia. × 200 deep	300 × 600 × 100 thick
5	0.180	22	430 × 430 × 250 deep or 500 dia. × 200 deep	300 × 600 × 100 thick

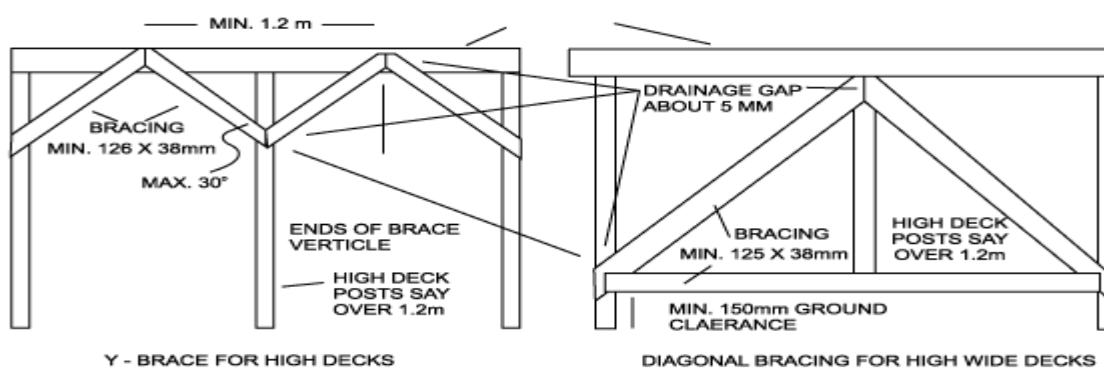
NOTE: Specifications for stumps or posts in material other than timber are given in the BCA.

**TABLE 3.4
STUMP/POST SIZES**

Footing type (see Table 3.3)	Stress grade					
	F4	F5	F7	F8	F11	F14
	Nominal unseasoned timber stump/post size, mm					
1	100 × 100 or 110 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.
2	125 × 125 or 125 dia.	125 × 125 or 120 dia.	100 × 100 or 115 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.
3	125 × 125 or 135 dia.	125 × 125 or 130 dia.	125 × 125 or 120 dia.	100 × 100 or 115 dia.	100 × 100 or 110 dia.	100 × 100 or 110 dia.
4	150 × 150 or 150 dia.	125 × 125 or 145 dia.	125 × 125 or 135 dia.	125 × 125 or 125 dia.	125 × 125 or 120 dia.	100 × 100 or 115 dia.
5	As approved					

NOTES:

- 1 Stump or post size is also dependent upon height above ground (see Clause 3.7.3(b)).
- 2 Timber durability/preservative treatment should be appropriate for the expected service conditions



Bracing techniques for high decks



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6.2 Installation of Bearers

There are two ways of laying bearers. The bearers can be attached directly onto the side of the posts using structural bolts, or the bearers can be notched into the posts using a chisel, then bolted into the post. The first method is easier, it just costs a little more (for the bolts) and is fine for a deck that's only 300mm off ground level. Most professional builders will use the notching method because it produces a better quality deck.

Attach your bearer to the posts with at least one bolt per post. (Your engineer will note this on his plans). Start with the post closest to the house. Ensure that the bearer is at the correct level so that there is enough space above for the joists and decking to meet the floor level that you have decided upon.

Now get your spirit level, place it on the top of the bearer, and move it up and down a little until it is horizontal. Once the bearer is level, attach it to the last post with the bolt. Now you are able to easily fix all the other bearers.

6.3 Installation of Joists

The engineering drawings will note how often and at what centres you must lay your joists on top of your bearers. Normally joists are laid across and on top of the bearers at 450mm centres and then fixed with a galvanised connector plates. Space and fix your joists as required then prepare for the laying of the decking boards.

It is recommended all treated pine sub-floor material are a minimum of **H3** rating for above ground use and **H4** rating for timber in contact with the ground and to install a waterproof membrane over the sub-floor joist material. This membrane will reduce the possibility of dry rot and also will help to ensure that timber remains dry and the joists will hold fixing nails/screws in place.

For most "typical" installations, the following spacing guide should be followed but also refer to relevant Australian Standards for site specific recommendations (E.g. In areas subject to high moisture such as south facing decks or in bush settings, it may be advisable to increase the spacing between boards to allow for additional swelling) (*Refer to section: Ventilation*).
(Refer to Australian Standard 1684:2010 for timber span tables).

6.4 Installation Of The Timber Deck

Laying the deck takes a great deal of patience. If using nails, consider hiring a nail gun.

The connection between your deck and entrance into the house should be scrutinized by a professional to ensure that waterproofing issues have been considered.

AS1684.2 TIMBER FRAMING STANDARD

5.8 DECKING

The maximum allowable spacing of joists for timber decking shall be in accordance with Table 5.4 (see also Clause 4.3.2).

For decking boards of nominal width up to 100 mm, the specifications in Tables 5.4 and 5.5 shall apply.

NOTE: Spacing of decking boards should allow for possible shrinkage and/or expansion in service.

**TABLE 5.4
DECKING BOARDS**

Decking	Grade	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

Decking board fixing requirements for decking up to 22 mm thickness shall be in accordance with Table 5.5.

**TABLE 5.5
DECKING BOARD FIXING REQUIREMENTS**

Decking	Joists	Nailing (hot-dip galvanized or stainless steel, 2 nails per board crossing)			
		Machine-driven		Hand-driven	
Hardwood and cypress	Hardwood and cypress	50 × 2.5 flat- or dome-head		50 × 2.8 bullet-head	
	Treated softwood	50 × 2.5 flat-head deformed shank	65 × 2.5 flat- or dome-head	50 × 2.8 bullet-head deformed shank	65 × 2.8 bullet-head
Treated softwood	Hardwood and cypress	50 × 2.5 flat- or dome-head		50 × 2.8 flat- or dome-head	
	Treated softwood	50 × 2.5 flat-head deformed shank	65 × 2.5 flat-head	50 × 2.8 flat-head deformed shank	65 × 2.8 flat-head

6.4.1 Fixing Length, Type & Gauge

All Timber decking is recommended to be screwed with Stainless Steel decking screws with a minimum 10G x 60mm length for 19mm boards and 12-14G x 80mm length for 32mm boards. It is recommended to use a screw fixing with a Torx driving fixture and the use of a square drive head is not recommended.

Stainless steel “Twisted Shank” or “Ring Shank” gun or hand nails may also be used, but care should be taken close to ends to avoid splitting (pre-drill all holes if hand nailing) and is recommended to be tested on a sample piece first to determine its suitability for applicable profile/species and should be hand nailed close to ends.

NEW DECK 55 can be fixed with one fixing per board per joist, however, two fixings at butt joints or ends is advisable (Position nails in the centre of boards).

6.4.2 Pre-Drilling & Countersink of fixings

Drill a pilot or countersink hole, and then drill the holes to facilitate the decking screws. This will help to harness the stress the decking will experience when there are the usual seasonal movement changes in the overall deck. These 2 operations should prevent the boards from cracking or splitting.

It is recommended to use a special countersink tool (With pilot hole drill bit) when using screw fixing to reduce the stress on the screw whilst installing. If a countersink tool is not used there may be a possibility of the screw shank breaking or the screw head stripping out. to be fixed with 2 fixings per board width per joist (Position fixings approx. 20mm in from edge of board).

Note: Decks near coastal regions should consider Marine grade 316 Stainless Steel.

It is recommended that decking sub-floor ventilation be constructed in accordance with the National Construction Code of Australia (NCC) and relevant Australian standards.

7.0 VENTILATION

Timber decking is no different to timber flooring it must have fresh air passing through underneath the deck. Commonly it is mistakenly thought that the gaps between the boards will service the deck, However it does not work that way and an allowance should be made to ensure fresh air can easily service the sub-deck cavity.

Timber has an increased chance to naturally swell, twist, warp and cup if not installed to minimum Legislative requirements and an allowance should be made to ensure that air can easily service the sub-deck cavity and reduce the chance of different moisture content on the underside of the board as compared to the top surface.

The main reason decking board's cup is from moisture from the surroundings with sub-floor ventilation of the deck being a contributing factor. If the deck is low to the ground and the ground water does not drain fast enough, the evaporating moisture rises and is trapped underneath the deck.

As the sun naturally dries out the top surface, the sun also heats the ground causing the ground moisture to rise and be naturally absorbed by the underside of the decking. The sunlight then dries out the decking top surface which has free air flow quicker than the underside, causing differential moisture content on alternate sides of the timber will may lead to the timber expanding and possible cupping.

This natural timber expansion is why it is **critical** to ensure that the correct gap spacing is used as the boards may expand widthways, if the gap is too small the boards will be naturally forced up causing cupping.

Skirting the lower sections and sides of the deck also enables moisture to be trapped under the deck and it is critical to also ensure minimum 20mm gap between each fascia decking board to ensure adequate cross ventilation airflow. This fascia timber gap is also dependant on the deck height from the ground and local moisture conditions and may be required to be larger than 20mm.

The ground beneath the deck should be graded away from adjacent buildings so the water does not pond (Above or beneath the deck) to reduce the severity of ground moisture evaporation and associated possible timber expansion/contraction.

Usually the growth (In moisture content) is about 4% to 6% on any timber decking board with boards of 130mm in width typically expanding by about half a millimetre for every 1% increase in moisture content. This increase in moisture may increase the board width about 2 to 3 millimetres, keeping in mind the adjacent boards are experiencing the same conditions.

This natural expansion may also be increased in areas with close proximity to coastal conditions, areas with poor drainage, higher foundation moisture content, decks enclosed or low to the ground and seasonal variation with high natural air/ground moisture such as winter and spring.

7.1 Decking Width CRITICAL Minimum Gap Spacing

- 55mm - 4 to 5mm minimum gap between boards
- 70mm - 5-6mm minimum gap between boards
- 80-90mm - 6mm minimum gap between boards
- 100mm - 6-7mm minimum gap between board
- 120-125mm - 7-8mm minimum gap between board
- 130-136mm - 8mm minimum gap between board

As per AS1684, ensure the decking gap is no larger than 10mm.

8.0 RECOMMENDED REFERENCE MATERIAL

- National Construction Code Of Australia (NCC): Volume 2 Residential
- AS 5604: Timber - Natural durability ratings
- AS 1684: Residential Timber Framing.
- AS 1657: Fixed Platforms, Walkways, Stairways And Ladders — Design, Construction And Installation
- AS 2878: Timber—Classification into strength groups
- AS 2858: Softwood Visually Stress Graded for Structural Purposes
- AS 2082: Hardwood Visually Stress Graded for Structural purposes
- AS 2870: Residential Slabs & Footings

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