

Decking Installation Checklist



HURFORD'S

Now that's a nice looking deck! To have a deck that catches the eye and performs well, it needs to have been designed correctly, installed correctly, and with the right timbers, fixings and coating used. The design of the support structure is often undertaken by a designer or builder, and publications such as ATFA's Industry Standard – Residential Timber Decks provide further comprehensive information. This checklist covers the installation of the decking boards and those aspects that can affect the ongoing appearance and performance of the boards.

Hurford's decking products

Hurford's decking products include Australian Hardwoods, Micropro H3 treated Radiata Pine and seasoned Cypress. Visit <https://hurfords.com.au/> to see the range of board widths, thicknesses and grades available.

Keys to success

Design aspects

The subfloor structure supporting the decking has design requirements that need to be met. This includes decks that are elevated, decks fixed to external building walls and decks in bushfire-prone areas. Many of the requirements are contained in the National Construction Code, AS 1684 – Timber – Residential timber framed construction and AS 3959 Construction of Buildings in Bushfire Prone Areas. Other requirements regarding termite protection and slip resistance may also need to be considered, and in Queensland, compliance with 'Construction Timbers in Queensland'. Installation also needs to comply with applicable building regulations and may therefore require council approval.

Have these been attended to? Yes ☐ No ☐

Transport and site storage

Decking is a kiln-dried product, so it is to be kept dry during transport and stored under cover before installation. The plastic pack wrapping is not suitable for external storage.

Has the decking been kept dry and protected from the elements before installation? Yes ☐ No ☐

Board expansion and shrinkage – When decking boards become wet or are placed in a high-humidity (moist) environment, they absorb moisture, and the boards will expand in their width. Conversely, when decking boards are placed in a low-humidity (dry) environment, the boards release moisture to the air and shrink in width. Due to board expansion, decks must be spaced with gaps between them on installation. Note that boards do not swell or shrink appreciably in their length.

Conditions beneath the deck

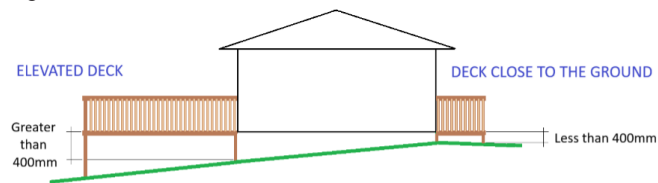
The closer a deck is to the ground, the greater the care that is needed to ensure the space beneath the deck is adequately drained and ventilated. This necessitates that the ground beneath is graded away from building structures to permit water, which penetrates between boards, to drain freely to beyond the perimeter of the deck. A drainage system that collects water beneath the deck, or any discharge of water to the space beneath a deck, is to be avoided. What is being sought is that the ground beneath the deck dries as quickly as possible. Hence, water can also not be allowed to pond beneath the deck. To aid the drying, high levels of crossflow ventilation through the space beneath the decking is required for all decks. This requirement cannot be achieved if the perimeter of the deck is closed off by boards, densely planted gardens, fences or other building structures.

Is the site clean, graded to prevent ponding and with the necessary ventilation? Yes ☐ No ☐

Deck environment

Where is your deck to be located, as this affects board width selection, the durability requirements of the subfloor framing timbers, and the type of fixings to be used? Decks are designated as being either close to the ground or elevated, as shown in Figure 1.

Figure 1



Elevated decks

As shown in Figure 1, a deck is said to be elevated if there is at least 400mm between the natural ground and the underside of the decking boards. With most elevated decks, there are fewer constraints than when a deck is close to the ground, enabling both narrower or wider boards to be used, narrower gaps between boards on installation and treatment of the subfloor framing members, provided posts are in stirrups, only needing to be suitable for an H3 hazard.

Figure 2

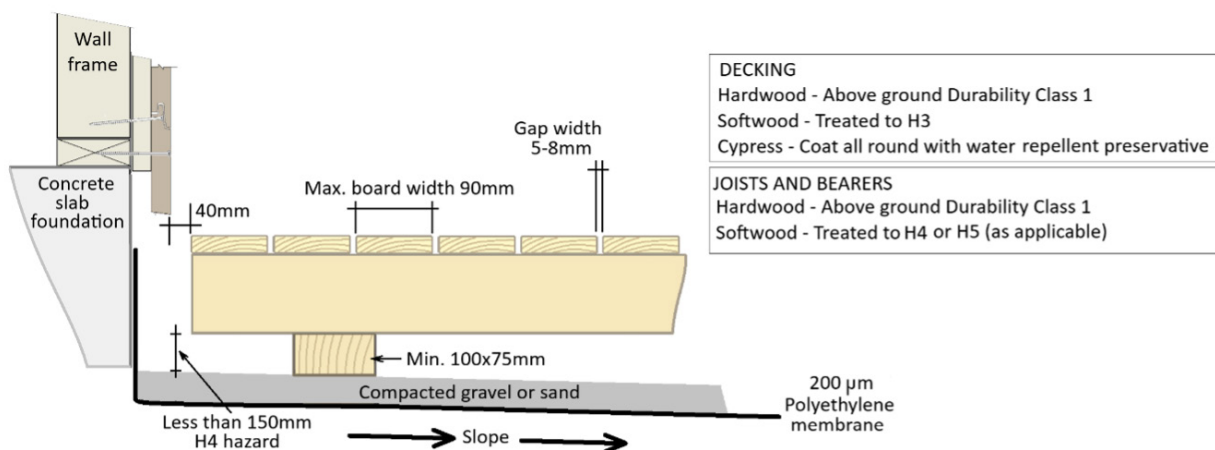
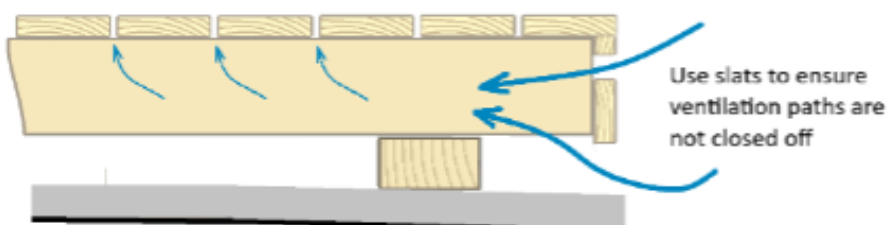


Figure 3



Decks close to the ground (including over concrete)

By definition, decks close to the ground are where there is less than 400mm from the underside of the decking boards to the ground or concrete beneath.

- With natural ground beneath, it should be covered with plastic and have compacted sand or gravel above. The ground is to be sloped to provide good drainage, thereby preventing ponding of water. Stones may also be used to cover the plastic (refer to Figure 2).
- Over concrete, there remains a need for good drainage and prevention of ponding beneath. Note that there is often ponding on 'flat' concrete.
- In both instances above, a deck needs crossflow ventilation so the edges of the deck cannot be closed off or have obstructions that severely inhibit crossflow ventilation beneath. Slats 60mm wide to the deck perimeter spaced to provide 20mm wide gaps between would provide sufficient ventilation (refer to Figure 3).
- When the framing timbers are less than 150mm above ground, they need to be of higher durability due to the higher decay hazard (Above ground durability class 1 hardwoods and treated softwoods to H4 or H5, depending on state requirements).
- Wider 130mm boards are not recommended for decks close to the ground, and gaps between board edges need to be wider than for elevated decks.

Near swimming pools or the sea

- Just being near salt water is enough to result in steel corroding, even when galvanised. So, the main consideration here is that when within 1 km of the sea or when your timber deck may get swimming pool water on it (within 1m of the pool), stainless steel fixings need to be used.
- Again, consider the board width used in relation to the degree of ventilation beneath the deck. Where closer to the ground or with reduced ventilation, narrower boards and wider gaps between boards are needed.
- The fixings in the framing timbers also need to be suitable for the more corrosive environment.

High-humidity sites

- At times, sites with decks will have tall trees around, or the site may be in a gully where it receives minimal sunlight. Due to the surrounding trees, the average humidity remains higher.
- Locations in more tropical areas or the hinterland and coastal areas of NSW and Queensland are often high humidity sites. In colder localities, conditions over winter on some sites may cause boards to remain 'wet' for long periods and therefore be similar to a high-humidity site.
- Persistent higher humidity conditions and decks remaining damp for longer periods mean that boards will remain with higher moisture contents, therefore narrower boards and wider gaps between boards are needed.

Has the installation environment been adequately considered? Yes ☐ No ☐

Installation of the decking boards

The effect of board width – Boards will tend to cup a little simply due to the sun drying the upper surface of the boards. The wider the board, the more that this will be visually apparent, and it can be pronounced if inappropriate wet conditions remain for extended periods beneath a deck. Under prolonged humid or moist conditions, the gaps between wider boards will also close more than if narrower boards had been used. It needs to be considered that the gaps between boards also allow ventilation with air moving from beneath the deck up through the gaps between the boards. With wider boards, there are fewer gaps across the width of the deck than with narrower boards. So, with wider boards, wider

gaps are needed. As a guide, the following gap size between boards on installation is recommended.

Board width	Elevated and with good ventilation	Closer to the ground, humid locations and reduced ventilation
Up to 90mm	3mm	5mm - 8mm
130mm	5mm	Use a narrower board

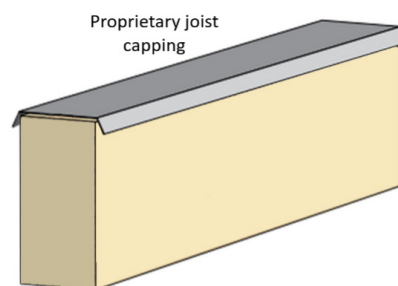
Has an appropriate board width and spacing gap been chosen? Yes ☐ No ☐

Safe work practices – Safe work practices must be followed, with this including sawing, sanding, planing and routing equipment that should be fitted with dust extraction. When machining timber, gloves, hearing and eye protection should be worn. Wood for external applications is usually treated, and so washing hands and skin thoroughly with soap and water, along with regular washing of clothes, should be undertaken. Do not burn any treated sawdust or offcuts, but dispose of them as required by the local authority.

Are safe work practices and disposal methods being used? Yes ☐ No ☐

Joist and board end joint protection – Wherever water can become trapped between timber surfaces, it increases the risk of premature decay. One location is between the bottom of the board and the top surface of the joist. Proprietary rubber joist capping and malthoid strip provide a high level of protection, and an oil-based paint to the top surface of the joist will also effectively reduce the decay risk. Similarly, the durability of board ends at butt joints can be improved by coating board ends with a water repellent preservative or penetrating oil (check compatibility with the finish coating).

Figure 4



Is additional protection being provided to surfaces prone to early decay? Yes ☐ No ☐

Joist width and spacing – As decking is butt joined over the joists, a minimum joist width of 45mm is generally needed. The maximum joist spacing is dependent on whether the decking is hardwood, cypress or softwood. However, 19mm thick standard and feature-grade hardwood, 21mm thick Grade 1 Cypress, and 22mm thick Standard Grade Softwood are all permitted to have a joist spacing of 450mm.

Are the joists appropriately spaced for the decking species being used? Yes ☐ No ☐

Fixing boards – In accordance with AS 1684, boards may be fixed with nails or screws, and fixings of the correct durability are also required. That is, if near the sea or a swimming pool, or in a very wet humid location, stainless steel is to be used, otherwise nail fixings are to be hot-dip galvanised and screws with an appropriate proprietary treatment for decking. Screws have much greater holding capability than nails and are often preferred. For boards up to 22mm thick, the minimum screw size is 10g x 50mm long. Note that dome head nails can be problematic with future deck refurbishment.

Provided below is the nailing table from AS1684.

Decking	Joists	Nailing ^a			
		Machine-driven		Hand-driven	
Hardwood and cypress	Hardwood and cypress	50 × 2.5 flat-head or dome-head		50 × 2.8 bullet-head	
	Treated softwood	50 × 2.5 flat-head deformed shank	65 × 2.5 flat-head or dome-head	50 × 2.8 bullet-head deformed shank	65 × 2.8 bullet-head
Treated softwood	Hardwood and cypress	50 × 2.5 flat-head or dome-head		50 × 2.8 flat-head 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

There are also requirements that boards span two joist spacings and that the fixing of board ends into joists does not cause splitting (within 12 months of installation), hence with harder timber, holes will generally need to be drilled for the fixings and not closer than 12mm from board ends. Nails may be offset or skew fixed, and joints are to be staggered. Refer to Figures 5 and 6.

Are the joists appropriately spaced for the decking species being used? Yes ☐ No ☐

Are the joists appropriately spaced for the decking species being used? Yes ☐ No ☐

Figure 5

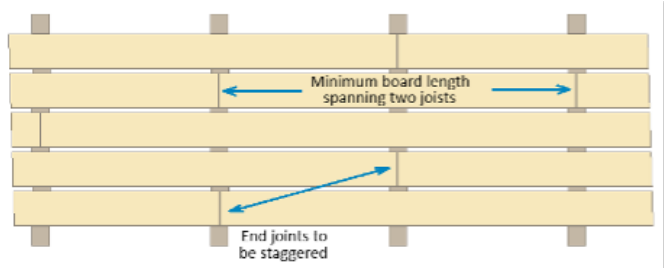
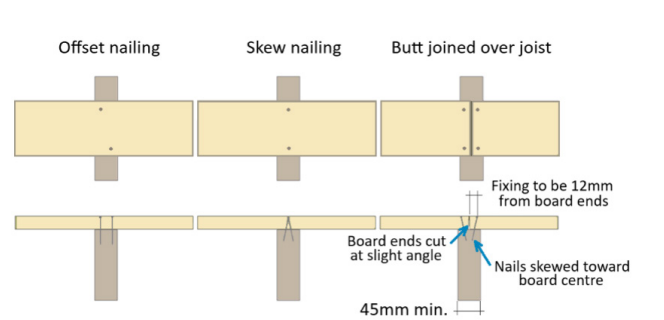


Figure 6



Oiling or staining the decking boards

Decking performs better when finishes are applied. A finish not only enhances or adds colour, but also helps protect the decking boards from the weathering effects of sun and rain exposure. Before applying a finish, there is a preparation stage with coating companies indicating to either leave the deck about 6 weeks before applying the finish, or if wanting to apply the finish earlier, to use a proprietary deck cleaning product. But also note that if the deck has some discolouration after being left for some weeks, a proprietary deck cleaning product should again be used. With tannin-rich hardwoods, including Spotted Gum, these processes also help by allowing the dark coloured tannins to be freed from the wood. Note that the dark coloured tannins can also discolour the concrete beneath a deck, and if not removed sufficiently from the wood, they can also discolour the wood after coating.

A decking oil, either solvent or water-based, penetrates into the wood and provides a natural timber look with both the grain and texture being visible. It is easy to apply and reapply. One benefit of water-based oils over solvent-based oils is that higher quality products last longer before reapplication is needed. However, the penetration of water-based oils into hardwoods is not as deep as solvent-based oils, and over time, they can peel. With a solvent-based oil, the first reapplication may be needed after 6 months and then yearly after that. The water-based oil can last 3 or so years before reapplication is necessary.

As an alternative, and usually requiring less ongoing maintenance, either solvent-based or water-based decking stains can be used. A stain is like a thin paint that contains a pigment or colour. They can either blend in with the colour tones of the wood or provide a distinct colour. As the pigment absorbs ultraviolet light, there is greater protection against weathering, and stains often contain mould inhibitors. The pigment or colour will tend to hide the grain, although the texture remains.

Has the decking been prepared and a finish applied? Yes ☐ No ☐

Ongoing care and maintenance

Routine maintenance usually involves attending to any fixings that may have moved and the reapplication of the coating. It is best to broom or use a blower vac to remove surface leaves and debris as opposed to water cleaning. The pots for any plants on the deck should also be on 'feet' so that air can pass beneath the pot. Annually, a safety check should be undertaken, considering possible decay, movement of boards or fixings, and both the corrosion and integrity of fixings. At this time, it is also prudent to undertake a termite check if the deck is fixed to a house wall. Inspection can be more easily facilitated if the decking is screw fixed, or at least the first few boards with nailed decking, enabling boards adjacent to the house to be lifted, so that inspection can be made.

Have you made a note in your diary to undertake an annual safety inspection? Yes ☐ No ☐