



## Timber Decks in Residential Building

There is a lot of advice available nowadays on building decks, selection of decking materials and decking treatments that is usually sound - but can be outdated or slanted by a commercial bias. Decks have historically conformed to the same rules of construction that governed elevated timber floors regarding ground clearance, ventilation and subfloor and footing construction.

In recent decades there has been a big shift in deck construction from being an addition to a house, to forming part of the architecture of the landscape - and in the transition, some basic rules of construction have been left behind.

Decks are like most elements of building. When problems occur, they do not usually fall apart -but they can partially fail. And they can visually fail in line and proportion. The extent of partial failure is as expensive to remedy as replacement in most cases. I believe that

- \* 60% of failures are due to deck design
- \* 20% to incorrect fixing and gapping
- \* 20% to unsuitable materials and sizes of timbers

### **Decks as extension of a house**

Decks should be designed to last 25 years - the anticipated minimum life of a residential building. Subfloor bearers should have ground clearance of 450mm. Joists require capping with waterproof plastic or malthoid. If the ground beneath deck is subject to wetting, it should be well ventilated on two or three sides for cross-breezes and sloped for drainage. Fixings should be hot-dipped galvanised steel or stainless steel.

### **Decks as part of the landscape - or as extension of a slab footing**

These decks usually bypass the rules on ground clearance laid down under the BCA (Building Code of Australia) - and may be exempt from the code because of extent and character. Some of these decks may only have a service life of 10-20 years depending on design. The rules on ventilation and fixings should apply here wherever possible.

If decking boards are close to ground (less than 300mm) or if there is little cross-ventilation,

- Always use a DC1 - Durability Class 1 timber - Ironbark, Tallowwood, White Mahogany, Darwin Stringybark, or Spotted Gum.
- Do not use 135x19mm boards in this application. 86x19mm size (and narrower) is more stable and offers more ventilation gaps per square metre of deck.
- Paint the underside with black/charcoal fence paint to reduce absorption of moisture. Set 19mm boards at a minimum 6mm apart; 32mm board at a minimum 10mm apart. During winter or wet seasons, these boards will grow slightly in width and it is vital they continue to drain rainwater and never touch. Oil upper face immediately and then regularly in dry weather.

### **Drainage of base**

Excavate the footprint of the landscape deck so that it drains naturally - then top with sand or scoria. On flat ground lay drainage pipe in the scoria/sand base to take water away and prevent pooling. Then build the deck subfloor with H4 resistant timbers that allow as much airflow as possible. Paint joists black as well. Make sure ends of timber decking boards and joists are clear of contact with soil. Use end-grain sealant on all cut ends.

### **Decks fixed to battens over concrete slab**

Many decks are installed on slabs where no fall is allowed for - or where battens are laid across the fall to prevent water run-off. Even with well-gapped decking boards, moisture problems will develop quickly in this type of installation. Design this carefully with drainage as a primary consideration.

### **Boxed sides to low decks**

The boxed design has been popular now for almost 20 years and if you tried to think of a better way to reduce sub-frame ventilation - you just couldn't. If you absolutely must have timbers boxing the deck perimeter - allow as a minimum a 12mm gap between boards and 50mm of ground clearance. But at the early design stage - why not find a new deck perimeter aesthetic that allows better frontal and side airflow?

### **Pots and deck furniture**

Pot plants and permanent clutter needs to be moved regularly and decks cleaned beneath to prevent mould and compost build-up atop joists between decking boards.

### **Cleaning of decks**

High-pressure cleaning on its own will restore most decks to clean. Avoid alkaline deck cleaners unless the condition of the deck is so bad the pressure wash by itself does not work. Try warm water with a bit of detergent and a broom first - and the caustic cleaner only as a last resort. Remember - you are just cleaning the deck so you can re-oil to protect the timber - not trying to restore colour. Alkaline cleaners are a way of accelerating the weathering process. You take years off the life of a deck every time you use one. A worst-case scenario is when your metal fixings are not quite the correct ones. If your installer has used a zinc-nickel plated fixing or a cheap import, then the alkaline cleaner destroys the protective case and initiates rusting of the screws and fixings. The rusty stains will then seep into the timber around fixings.

### **Oiling Your Deck**

Pressure wash timber decking annually and reapply topcoat of decking oil. The oiling of decks is not high science and you do not need to buy expensive cans of the very latest thing in decking oil. If it has an organic oil base - such as linseed, lanolin, or Tung oil then it needs to be biologically-inert (boiled linseed base is OK) - not a raw organic oil that is a food source for precursor mould. The oil should super-saturate the outer case of hardwood to minimise take-up of moisture. If water beads on the surface of the deck after application, then the treatment is working. No suitable product seems to last longer than 12 months - so clean the deck with a high-pressure washer and re-oil annually.

### **Polished Decks**

Glossy magazines and TV reality shows suggest that oiling a deck is much the same thing as a polished floor. Consequently, many owner-builders harbour a fervent wish to have a polished jewel of a deck. The wish will only ever be partially fulfilled in covered areas. You will not maintain the polished look outdoors in full sun. All clear film finishes that come out of a can break down under UV light. They look nothing like the brochure six months in. Here are three elementary proofs

- Have you ever seen a photo of a deck in a glossy mag that was not either brand new or wet from hosing down and shot at dusk to provide artificial gloss?
- Why do they put colour tints in decking lacquers if real colour does not disappear? It's called colour replacement therapy. The therapy benefits the client - not the deck.
- Look at any brand-new deck - then take another look 12 months in.

You can spend lots of money on a product that promises you the polished look in full sun - or you can spend far less on an oil that will benefit the timber and then watch over time as it mellows to a natural silver-grey just like a real tree in the bush.