

## Advice on Timber Decking

### Timber Decks in Residential Building

There is a lot of commercial advice available nowadays on building decks, on selection of decking materials, and on timber decking treatments that appears sound – but can be just plain wrong or slanted with a strong commercial bias. Decks attached to elevated houses with a timber subfloor have historically conformed to the same rules of construction that governed the whole structure regarding ground clearance, ventilation and subfloor and footing materials.

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

Decks are like most elements of residential building. They do not usually fail catastrophically – but they fail frequently in a partial way. For the most part, they fail visibly in line and proportion (gapping, cupping). Other decks slowly develop permanent and incurable problems because of poor design. The extent of partial failure can be as expensive to remedy as replacement in most cases – which requires us to get things right in the planning stages. From my observations, decks fail due to the following hierarchy of causes.

- Deck design
- Unsuitable materials and sizes of timbers
- Incorrect fixing and gapping

#### Decks as extension of a house

Decks should be designed to last 25 years – the 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. These 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, Forest Red Gum, White Mahogany, Darwin Stringybark, or treated Spotted Gum.
- Do not use 135x19mm boards in this application. This dimension will cup significantly. 86x19mm or narrower widths are more stable (4:1 ratio of width to thickness as maximum) 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 important they continue to drain rainwater and never close the gapping and touch. Oil upper face immediately and then regularly in dry weather.



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## 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 or \*Eco-Protecta 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 installation type carefully with drainage and ventilation 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 and airflow from three sides. But - at the earlier design stage – why not find a new deck perimeter aesthetic that allows much better frontal and side airflow for the subframe? It may even celebrate the elements of visible structure – the fundamental Arts & Crafts principle.

## Pots and deck furniture

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

## Cleaning Your 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. Obsessions with timber colour in the great outdoors are just silly and will lead you into poor decisions.

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 a topcoat of decking oil. The practice of oiling decks is not high-science and you do not need to buy expensive cans of the very latest thing in decking oil. Avoid products with an organic oil base – such as linseed or Tung oil. The decking product needs to be biologically-inert – not a raw organic oil that is a food source for precursor mould. When possible, choose an oil with a moldicide component or consider adding one to the can.

Also avoid decking products that form a hard transparent film. They can act as a moisture trap and always flake off in patches – making annual maintenance difficult.

The oil you use should penetrate the surface of the timber and 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.