

OUTDOOR STRUCTURES

Outlasts and outperforms

March 2013 Special Issue Newsletter DISCUSSION FORUM ON PLASTIC DECKING Interim Document pending finalisation

Written by Ralph Bailey

Introduction



When operating Outdoor Structures Australia I was fortunate to have dealings with some remarkable people. I was even more fortunate for some of these supplier/customer relationships to evolve into continuing friendships. One of these is with Ralph Bailey, who along with Tim Guymer was the founders of a leading firm of Brisbane Architects, Guymer Bailey Architects. Ralph and I share a passion for doing things well. If you don't know Ralph here is a link to his page on the Guymey Bailey website

http://www.guymeybailey.com.au/PDF/CV_RALPH1pg.pdf

At Christmas, Ralph observed a deck with plastic decking that was not performing well. Many designers are adopting plastic and other alternatives as they are trying to avoid the well known problems of timber decking. In so doing they take on a completely different set of problems. These are problems they are generally not aware of. In an attempt to assist professional designers Ralph has kindly agreed to write his observations on hardwood decking and the alternatives. This is intended to be the start of a discussion which will result in an "authoritative" document to guide professional designers. This discussion is not saying - do not use plastic, rather make an informed choice. **Over to you Ralph**

REAL TIMBER DECKING OR SYNTHETIC TIMBER DECKING

The verandahs, decks and steps on the Australian home have traditionally been constructed with shot edge or bull nosed boarding of hardwoods of durability Class 1 for the structural members and decking, especially in roofed verandah situations, durability of the verandahs has been excellent as evidenced in the traditional Queensland home. Some of the timbers used were Ironbark, Satinay, Turpentine, Tallowood to name a few.

In recent times hardwood has become harder to source and more expensive. Hardwood species of less durability and possible younger trees are now being used. Often decks and boardwalks are fully exposed to the weather i.e. not roofed. Construction methods and materials are not always appropriate for the situation and verandah and deck failures (in full or part) due to rot are not uncommon. Also quality of workmanship has deteriorated in some circumstances.

With issues of sustainability rightly being pursued by architects, designers and builders in recent times, the option of using one of the many synthetic timber decking products is more frequently being exercised.

Investigation of some of these synthetic timber products has led to a questioning of the sense in using these products.

Some observations on these products include:

- Sagging between joists
- Cracking at fixings
- Very hot to walk or lie on especially dark brown colours
- Fading
- Can be permanently scratched by dragging furniture or other heavy items across it without lifting
- “tracking” wear in heavy use zones
- Questionable for use with commercial loadings i.e. bridges & boardwalks
- What do you do with offcuts? Landfill? Burn them?
- What will long term durability be like? How will it fail in the long term? Go brittle, erode or soften?

There are numerous brands of synthetic timber being offered to the market and they vary in composition i.e. some are ground up hardwood particles mixed in, others are rice husks and recycled milk bottles and babies nappies, etc, have all been mentioned.

The manufacturers offer various colours and even imitation wood grain texture and all of them push that synthetic wood is a sustainable alternative to real timber decking.

It is interesting also that prefinished bamboo tongue and groove flooring is being promoted as a sustainable option to hardwood tongue and groove flooring. In regard to this bamboo product, one would need to be sure the laminated bamboo pieces in their resin (plastic) embedment have come from renewable bamboo groves and that the user understands exactly what the resin and prefinished components are and can justify shipping container loads of this flooring travelling around the globe if local hardwood can do the job. The other question is also what do you do with the offcuts? Landfill, burn them? They cannot breakdown and return naturally to the soil as will all the offcuts, sanding, waste, etc, of the natural hardwood tongue and groove flooring and decking. This latter objection is also applicable to the synthetic timber decking.

In discussions on the use of real wood versus synthetic wood we should state that all real wood used in construction ideally would be certified by the Forest Stewardship Council or its Australian equivalent – not always possible however at this time.

It is worth listing some of the for and against of real wood versus synthetic wood.

Real Wood

FOR

- Real with a natural warmth
- Pleasant odour
- Aesthetically pleasing appearance
- Some pressure treated softwood decking can be quite inexpensive and is usually readily available (CCA pressure treatment has been discontinued in favour of arsenic-free alternatives)
- Not unreasonably hot to walk on barefoot
- Hardwood offcuts can be safely disposed of in landfill to rot or be consumed by termites
- Hardwood can be safely burnt

AGAINST

- Some hardwoods can be quite expensive
- Unmaintained wood can split, crack and will fade to a grey colour
- Availability and price depends on source and region
- Certification of source needs to be documented
- Pressure treated softwoods dent and damage easily. They can warp or bend and contain chemical preservatives that may leak out
- Pressure treated offcuts should not be burnt or put in landfill

Synthetic Wood, Composite Wood, Plastic Wood

FOR

- Less expensive than real wood?
- Weather resistant
- Some are stain resistant
- Some are light weight
- Won't splinter or rot
- Said to be low maintenance i.e. no staining or re-oiling required
- Some have integral colour
- Claimed to be eco, sustainable due to recycled component materials
- Claimed to be easily cleaned with hose or mop

AGAINST

- Some look obviously fake or cheap i.e. texture and/or colour doesn't really resemble wood
- Some are slippery when wet
- Some are not resistant to mould or mildew especially in the shade
- Some will show signs of age and wear/decay/fade
- Some tend to sag and bend more than real wood
- Dark colours very hot to walk on barefoot
- Some will require more substructure than real wood decking
- How do you dispose of off cuts? Burn? Toxic? Landfill?

Aluminium Decking

FOR

- Tough and strong
- Slip resistant if surface textured finish used
- Anodised colour or clear anodised does not fade
- Will not stain
- Can be totally maintenance-free if properly specified and installation is appropriate
- Stays cool under barefoot
- Won't rot, split, splinter or warp
- Fireproof
- Off cuts recyclable to new aluminium products
- Does not try to resemble wood decking unless painted with fake wood grain

AGAINST

- Most expensive decking material
- Can be slippery when wet if texture unidirectional
- The correct aluminium alloy for decking and fixings must be used or corrosion can occur

An architect would choose to use real hardwood for decks, verandahs and boardwalks rather than synthetic imitation wood and accepts that the design and detailing of the installation, the selection of the correct timber species and strength characteristics need to be properly assessed and a maintenance regime established so that the long term performance is not compromised.

The matter of using synthetic timber as a lookalike for real timber decking raises the question of whether these manufacturers might be better to produce a decking product that has its own identity and look, just as aluminium decking has done and has found a place as decking for fire lookout towers or elevated rainforest walks or coastal verandahs, etc.

The decision to use synthetic timber for decking, etc, in lieu of real timber is perhaps based on ready availability, less maintenance and hype at the moment more than price.

To start the discussion:

Back to Ted

I offer the following extra observations

1. Composite decking manufactured in the northern hemisphere will probably not have the extra UV protection needed as our UV is 40% higher
2. There are no Australian Standards to govern its production, testing, design and installation. Apparently there are 35 Standards for timber.

3. Most are very unsuitable for public applications, e.g. what happens when someone rides a horse on it. I know of a case
4. A direct comparison between hardwood decking and some composites can be found at <http://www.outdoorstructures.com.au/pdf/deck-plank-testing-report-v2-03-13.pdf>
5. Double the carbon is locked up and no petrochemicals involved with hardwood

What are your Contributions?

If you have anything to add to Ralph's excellent assessment we would be glad to hear from you.

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