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Timber decking done right

By Peter Bissett

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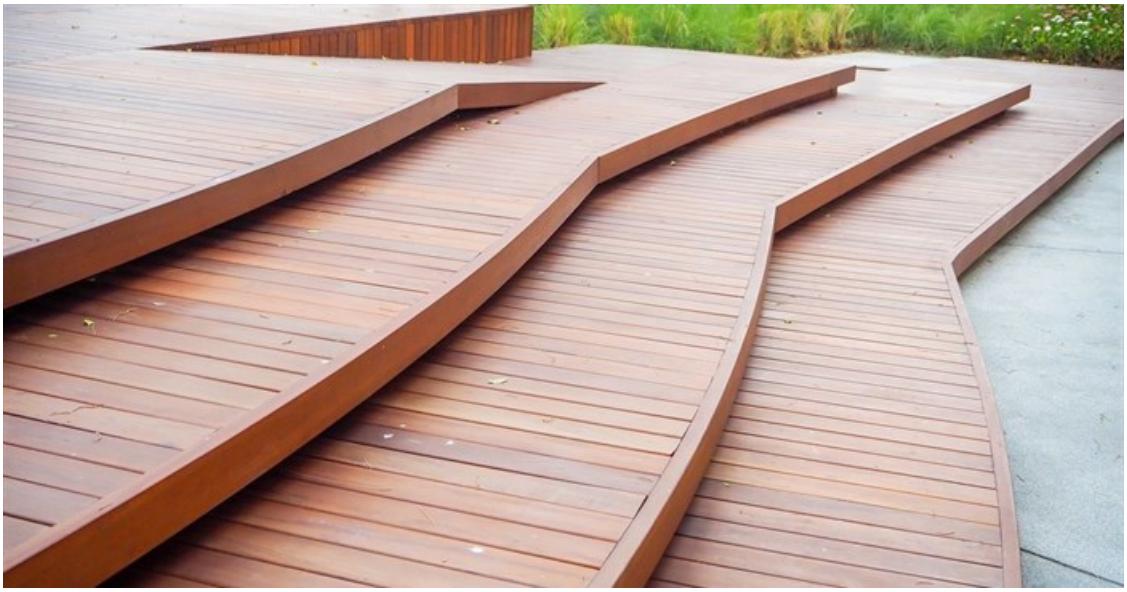
I am often told by prospective clients that other decking contractors have told them that they do not need plans or an engineered design for their timber deck, because, among other reasons, their deck will be located at a private home, will only be utilised by one or two people, or will not be high off the ground. This is simply not true and the general rule is that if anyone can get injured due to a structural failure, like a decking slat breaking, for example, then an engineer (a civil or structural engineer, who is qualified and competent to engineer timber structures) should be engaged to check the contractor's design.



Why should you have plans drawn up for your decking structure?

The local council usually has the final say and can ask to see any plans as well as an engineer’s certificate, even if the deck is almost on the ground. Anyone interested in having a deck built must be aware that if they do so without plans, when the time comes to sell their property, they may well end up having to submit plans, as most councils now require that plans are up to date prior to the release of rates clearance certificates.

Another important factor to keep in mind is that most deck collapses (and there are many every year in South Africa) usually occur when the deck is loaded, such as at a New Year’s party or when heavy rains wash out one of the supports. Many timber decks that have not been designed properly can even be lifted off their posts during storms or strong winds.

The homeowner will be liable for any damage, injuries or death resulting from such failures if an engineer has not been engaged to certify the design and construction. Engineers must carry indemnity insurance which will cover most of these types of incidents.

Legislation governing timber deck construction

Timber structures must be designed and built in accordance with the South African National Standards (SANS) 10163, which governs the structural use of timber and SANS 10082 Timber Frame Buildings. An engineer would make use of SANS 10163 on a timber decking project.

SANS 10082 is the code of practice for timber structures and your decking contractor should have a copy of this document as well as SANS 10043 (Solid Wood Decking) on hand. The National Building Regulations must also be strictly adhered to when constructing a deck – or any other structure for that matter – and will refer the designer, builder and engineer to the relevant code or regulation for correct execution of the project.

Decks which are more than 1.5m off the ground should be designed by an engineer with experience in timber construction. The ITC-SA can help source an engineer with the relevant experience.

Treated structural timber for decking

Deck sub-structures (the framework or 'skeleton' of the deck which is not usually visible) are usually built with CCA-treated Pine due to the high cost of naturally durable hardwoods. Pine that is exposed to the elements should be CCA treated to hazard class three if above ground and hazard class five if in contact with the ground (mostly poles). This treatment is done in a pressure vessel, usually at the sawmill and is not something that can be painted on. Any cutting or planing of the timber on site should be touched up with a suitable remedial timber preservative, like 'Enseal' or CuGard 20 or similar. Refer to www.sawpa.co.za for any queries relating to timber treatment and preservation.

Many decking contractors do not coat the sub-structure, especially if it is not visible. This is a short-sighted approach, as the wood below the deck often remains damp for extended periods after heavy rains, making for an ideal environment for the growth of fungi, which can eat or erode the timber.

Timber poles should not be encased in concrete and should rather be supported on a pre-cured concrete foundation pad on firm ground or erected with a concrete 'collar' to allow for sufficient water drainage at the base of the pole. Support posts should not be supported on fill at the edge of a new embankment which will subside with time.

A serious error made from time to time by decking re-furbishers is that when they remove the old decking slats, they immediately fix the new decking onto the old timber structure. The screw holes left behind are ideal catchment areas for water, which can help advance rot in the structure. These holes should be filled with a waterproof filler and the top of the joists should be coated with supplemental and remedial brush-on preservative. Once dry, at least two coats of a good quality exterior wood sealer should be applied prior to fixing the new decking slats.

Keep in mind that timber is an organic material and part of its charm is how every piece is different. Markings and small cracks and checks are fine, as long as they do not affect the safety or structural integrity of the deck. Large, unsightly cracks or those that collect water must be avoided wherever possible.

Metal fastening systems

All metal fixings should be galvanised or of stainless steel, if possible, and screws should be Kal coated or of stainless steel. Screws should be countersunk in hardwoods and the holes should be filled with wooden plugs, epoxy or a suitable waterproof wood filler. Do not use regular wood filler for this application as it will dissolve after the first heavy rain.

Popular timbers for non-structural timber decking elements

Components like the decking slats and balustrades on a deck are often misconceived as non-structural, but they must be installed in a structurally sound way to ensure that they don't fail when a load is applied onto or against them.

Popular timber choices for non-structural timber decking components include Balau, Massaranduba, Garappa, Saligna, Karri Gum and, more recently, Okan, a central African hardwood and Siberian Larch. Balau remains the most used timber for balustrading and decking slats, but due to high demand, trees are being harvested much younger, resulting in a decline in the quality of available timber. Young Balau used in a humid environment like Durban, could have up to half of the lifespan of the more mature Balau that was available previously.

Balau remains the most used timber for balustrading and decking slats, but the quality has declined over the last few years, which has seen an increasing demand for the other species. Massaranduba and Garappa are very popular in Cape Town, and Saligna and Karri Gum are also occasionally used for decking; if chosen and applied correctly, they can be as durable as the likes of Balau, Massaranduba and Garappa. Okan, while not yet well known, is a very durable timber that is growing in popularity along with another newcomer to the South African decking fraternity, Siberian Larch, which is reasonably priced and durable.

Properly treated SA Pine is probably one of the most underrated decking timbers. Correctly treated (H3) SA Pine decking slats will, under most conditions, outlast a hardwood if exposed to the elements. Some of the local treatment plants are currently offering a 25-year guarantee through timber merchants on treated Pine. Cost-wise, CCA treated Pine decking slats are not much cheaper than, say, Balau slats.

Case in point: The Gonubie Boardwalk just outside East London, was built with CCA-treated Pine in the early '90s. With almost no maintenance over the years, most of the slats are still original, despite having been used by thousands of sandy-footed beach-goers for more than 20 years.

Even with its excellent durability, Pine is still a softwood, and will not cope well under continuous high-heel and stiletto traffic.

Deck maintenance

The time between the completion of a new deck and its first round of maintenance depends on many factors, including location, extent of exposure to the elements, type of timber used and type of coating used. A deck should not be left for longer than 18 months before receiving routine maintenance; a 12-month maintenance cycle is preferable. If it is not weathering well before the 12-month mark, remedial action must be taken, otherwise the lifespan of the deck will be greatly reduced. Handrails endure the most wear and will usually need attention after a year.

It is best not to let the maintenance contractor sand down the deck with an industrial floor sander if it is not in a bad condition, as this reduces the number of times the deck can be sanded. This type of sanding should only be done if the deck has weathered significantly. Sanding with a big belt sander is sufficient for routine timber deck maintenance and if the deck is in fairly good condition, orbital sanders are sufficient.

All gaps should be filled with a waterproof filler prior to recoating. At least two coats of most products should be applied; if the deck has been sanded down to bare wood, then three coats will be required.

Many people enjoy the silvery grey weathered look which can be achieved in most timber species by leaving them uncoated, but the reality is that uncoated timber's lifespan will be reduced; timber coated with a good preservative or sealant will always outlast uncoated timber.

Hiring a timber decking contractor: points to consider

There are a number of individuals in the market who are not qualified or experienced in the field of timber decking. The best decision a homeowner or project manager can make in the case of having a timber deck built is to hire a reputable deck builder. Decks are worthwhile additions to any structure, but they are expensive; one mistake on the contractor's part can ruin the deck and be very costly to repair.

For complete peace of mind, hire a decking contractor who holds membership with the Institute for Timber Construction South Africa. Not only will the contractor be well versed in the construction regulations, the client will have a professional body to refer to should the workmanship or materials used not be up to standard.

Decking dos and don'ts

- Do not accept a deck that bounces when walked over. Your tea should remain in its cup and not spill out into the saucer or the deck.
- Balustrade posts should be bolted to the sub-structure and not nailed, as they will eventually come lose.
- The balustrade should not have any gaps through which a 100mm diameter ball would fit.
- Any part of the deck that is higher than 1m off the ground requires a balustrade.
- Timber structures should have space of at least 450mm below the decking for air to flow around the timber. Where this is not possible, try to keep the timber above soil.

A timber deck is an attractive addition to any structure and standalone (on a beach or a boardwalk, for example) makes for a durable, functional statement piece. However, timber decking, like all constructions, should be approached as an investment. The homeowner or project manager would do well to investigate the subject, ask for advice, engage the services of an accredited professional from design to final inspection, and ensure proper and regular maintenance is conducted; the yields on a well-built, well-taken-care-of timber deck are priceless and offer invaluable returns well into the future.

ABOUT THE AUTHOR

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