



# The Good Wood

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## *Building Termites Out*

I was recently called over to a client's house to take a look at a pool deck that was installed a year previous using reclaimed wood that the supplier had advised was Ulin (Kalimantan ironwood). The deck was literally crumbling and on the surface showed evidence of rot and termite infestation. The installation had all the classic signs of bad building practices and what NOT to do in exterior wood applications!

When building with timbers outside there are 3 main things that we must protect against: 1) Solar degradation, 2) Rot and 3) Termites. I will talk more about sun and rain in forthcoming newsletters, but for the moment let's focus on termites.

There is a myth that some timbers are termite proof, this is simply not true. Certainly some timbers like Ulin (*Eusideroxylon zwageri*) are less attractive to termites as their heartwood contains specific extractives that have anti decay and insect resistant characteristics. Untreated Ulin heartwood posts are expected to last 50 years in ground contact, giving this timber the distinction of being one of the most durable timbers in the world. For sure this timber is particularly unattractive to termites, but it is not true to say that it is immune to an eventual attack from termites.

The best way to stop termite infestation is by understanding how termites like to live and build things that don't suit their lifestyle. Although termites need water, they can't actually drink, instead they absorb it either through the food they eat, or through a waxy layer on their outer skin. Hence if you design your building so all timber is separated by a visual barrier from any water source, you will at least be able to see them coming and going from water to food and stop them in their tracks. A good example of visual barriers are:

- reinforced concrete slab with an exposed slab edge (that's a slab with no cracks greater than 1.2mm (the width of a skinny termite). Termites will have to crawl over and around the slab, to go from water to food, hence you can just check your slab edge regularly.
- Steel stirrups or shoes on the bottom of posts, so the steel enters the ground and not the timber
- flat metal sheet caps on top of the brick columns under your house. (known as Ant Caps).
- All of these measures are environmentally friendly work forever at no running cost and all you have to do is a regular inspection.

Most of the termites that attack buildings are subterranean termites, living underground, then coming up inside trees and houses to eat dead wood, getting their water from moist ground contact. Subterranean termites can't crawl about in the open and will have to build mud tunnels to protect them from the sun, making their intrusion into your house much easier to detect and treat. In the tropics we also have arboreal and air born termites that can fly into your home. Again though as before the golden rule is that they all need to gain access to water.

A common practice in Indonesia is to install timber decks and stairs directly onto concrete slabs. This builder had closed the edges of the steps with a small wall of concrete, which had the dual impact of not letting light and air in, and trapping water under the timber boards. This is a big no-no if you want to increase the life of your timber and avoid termites. Exterior timber really needs to be kept dry and be installed in a way that allows good airflow and access. This is particularly important in the tropics, where there is a relatively higher decay and inherent termite hazard than in the temperate zones. In this case, the termites had simply tunneled up from the slab and into the boards.

Remember it's the combination of water and timber that cause most trouble, so design your house so the timber stays nice and dry and preferably out of the sun. And build your house so it's comfortable for you to live in but not for termites. Darrin who runs termite web, one of the best information hubs on termites around (<http://www.termiteweb.com>) advises that we can learn a lot from traditional house building practices in the villages in Southeast Asia, as these communities have co-existed with termites for hundreds and thousands of years. He reckons stilt building prevents 90% of common termite problems (subterranean termites), because it controls the entry points for termites very well.

Throughout the world there are many agents selling complicated systems for termite protection, including a great range of toxic chemicals and the like. These systems vary from outright stupid to outright dangerous, with a fair amount of crossover in between. Fancy visual barriers i.e. things that termites can't crawl through but must crawl round do work, but are often expensive and often a complex solution to a simple problem. When in doubt fall back on the good old fashioned three step rule:

1. separate timber from water (including ground) with a visual barrier
2. regularly check the visual barrier
3. if there is an infestation, bait the termites with a nice soft piece of timber soaked in an accumulative poison that they can take back home and feed the queen to kill off the hive. As killing off 1 or even 1 million termites won't stop them, killing off their one queen will.

Another small eco-tip... world timber supplies would be much healthier if we simply used the right timber for the right application. So build that one off hand made guitar out of some amazing beautiful rainforest timber, but don't waste that timber making wood pulp for paper or packing crates! And use a good quality, preferable second hand exterior grade timber in an exterior application and try not to waste it on interior uses where a less resistant more common and perhaps even prettier timber will do.

By the way, we checked the termite infested timber that my client had installed and it turned out it was NOT ulin... it was a less-resistant Shorea species completely unsuitable for external applications!

For more information read "Building out Termites" by Robert Verkerk

*Thanks to Dave Hodgkin and Darrin from Termite Web for help with this article*