

Ted's News

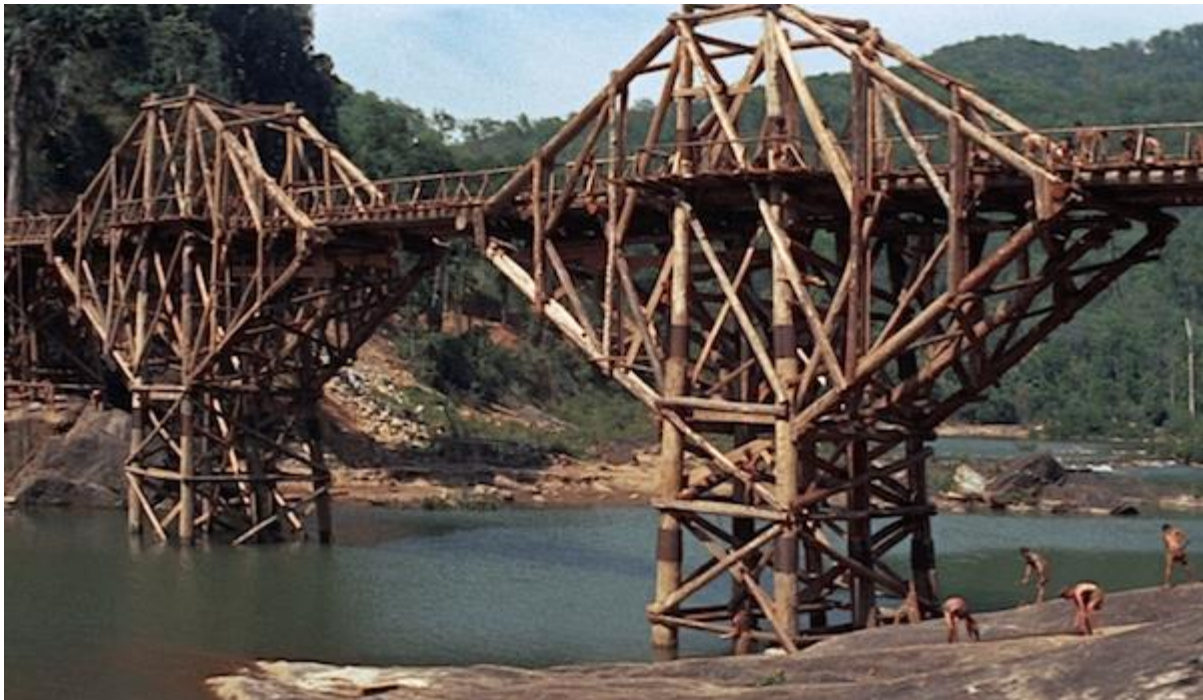
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[You Too Can Build an Oscar Worthy Timber Bridge](#)

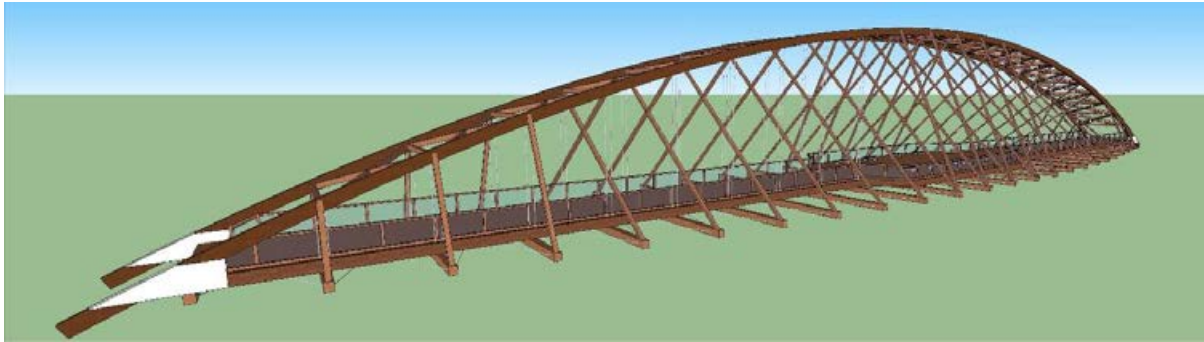
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[You Too Can Build an Oscar Worthy Timber Bridge](#)



A recent visit to the railway bridge over the River Kwai in Thailand took me way back to 1970 when I took lunch at the guesthouse at Kitagula, in Ceylon. The guesthouse overlooked the Kelani River, and my hosts told me that the dummies from the train that went over the bridge at the end of the film, *Bridge on the River Kwai* were retrieved at that location. My faith in Hollywood was shattered, here was I thinking the bridge film, with seven Oscars to its credit was actually made in Thailand on the River Kwai! [It is a great movie](#), one of the best ever made, but its storyline is, ultimately, almost all fiction. For my Engineer readers the film is an interesting study of [engineering ethics](#).



Concept of a 120 m span timber footbridge courtesy Timber Restoration Systems

What is not fiction is that you can build an Oscar worthy bridge from timber. They won't look like the cantilever Forth railway bridge where they had to use steel because ironbark was not available. They come in all sizes, from my simple short span log bridges to behemoths made of very large laminated beams. Part of the bad reputation timber bridges have earned is that some of the main roads bridges are still being built to designs drawn up prior to the original timber Kwai bridge the POW's built. In some cases these designs have not been revised to reflect new technology, treatments and understanding of what causes bridges to fail prematurely.

I have two books that will help you design your "blockbuster", [Light Bridge Manual and Timber Footbridges](#). Also call and discuss your thoughts. I have seen most things that go wrong and right.

Sadly, what is not a fiction is the incredible suffering of those who built the railway and it is said that each railway sleeper cost the life of one of the forced labourers. If you want to know more, purchase the *War Diaries of Weary Dunlop* and prepare for a deeply troubling read.

Identifying Lyctus Attack



Lyctus emergent holes



Frass on the deck under

Last month I had a piece on how to determine if timber treatment is up to scratch but it is good to have a reminder of why we treat in the first place. In the sawn hardwood industry in Queensland and New South Wales treatment particularly centred around the lyctus beetle. It laid its eggs in the sapwood of diseased or dead trees that had starch in its sapwood, species like spotted gum and tallowwood. The eggs hatch into larvae which in turn eat the sapwood (which was never durable in the first place) and turn it to powder by the time the attack is finished. Lyctus attack can be easily identified by the emergent holes and frass on the ground.

In the balustrades illustrated above, it is not the end of the world but in an exposed beam or a feature floor, that is another matter. You control lyctus attack by treating to the appropriate hazard level soon after sawing. If you wait too long the eggs are laid and the treatment process does not stop them hatching and exiting. It does however stop reinfestation. Pest control can do nothing to stop this attack in its tracks. The affected pieces generally have to be replaced.

We did have timber marketing acts to protect end users from this problem but the state governments, in their wisdom, repealed them and left you to the mercy of the suppliers. You can take charge by ensuring all timber is treated if it is lyctus susceptible. Look for it also. the sapwood is generally a lighter colour than the heartwood and more moist. If in doubt, don't use it but get it checked out. Sawmillers cannot be that ignorant of what they supply so it just makes you wonder what is going on. [To read more about lyctus - click here.](#)

Limitations of Visual Stress Grading



Non-destructive technique used onsite to determine reduced strength due to decay and cavities

You will have gathered by now that I have been stressing the need to have independent quality assurance procedures in place for new timber builds. (Really, that is not just for timber, we can't even get hi-tech cladding right.) Visual stress grading is an important part of this assurance. When looking at a new piece of timber the grader can see both ends and the four sides so you can be certain you have the measure of a given piece of timber. Once you move away from sizes over 75 mm thick into very large members you could have a largely hidden termite gallery whose actual size is not ascertainable but, the termites are either entering from the end or the side, so its presence can be identified

and the piece rejected. Degrade at the ends can be clearly seen as well.

Put the same piece of timber into service and often you can no longer clearly see what is happening and, in very large members in particular, you can have decay at the ends - critical in historical trusses but can no longer be fully inspected and there could be completely hidden termite activity. Until recently all that an inspector could do was to tap with a hammer to see if it sounded normal, probe and take some core samples if suspicious. It was all very hit and miss. Now non-destructive technology exists to quickly and economically look inside timber. One system I have had experience with is the EPHOD System from Timber Restoration Systems but there are others. On larger in situ members I, personally, would not rely just on visual inspection but include supplementary testing.

[Need a Timber Consultant or Expert Witness?](#)

I have over 40 years' experience in the industry and can assist you with any of your timber needs.

Design - I can provide detailed technical drawings and advice.

Inspection – I can assess timber products on their performance, fitness for purpose or cause of failure. I also examine whether best practice was used in design and construction.

Reports - I have authored many books on timber and can prepare a report to meet your needs.



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