

Ted's News

June 2020

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The Seven Deadly Sins of External Timber Design, which explains how to avoid many of the common problems that beset timber design, has just gone up on the eClassroom website. You will be surprised how easy it is to design timber structures and landscaping that ages gracefully. There is still time to earn CPD points with this very popular course. Face to face training is going to be difficult for a while yet but the three courses now on [eClassroom](#) which include [Outdoor Timber: Design and Specification](#), and [Architectural Timber Batten](#) can be undertaken in the safety of your home. Coming soon to eClassroom will be two additional new courses - *Timber Joints*. and *Designing for Durability*.

Another Great Project from Architects of Arcadia



Original 1930's cottage



After



Completed Project



During Construction



During Construction

One of the greatest blessings I have had from my life in timber is the friendships I have developed. One such friendship is with Rolfe Chrystal of [Architects of Arcadia](#) and his wife Fiona Robbe of [Fiona Robbe Landscape Architecture](#). We have assisted with and supplied some remarkable work for them. Rolfe recently sent me some images of a project he recently completed using large member sizes and traditional carpentry. I asked him if he would put some words to the images so over to you Rolfe:

"A small dilapidated timber cottage (circa 1930), on the semi-rural northern outskirts of Sydney was purchased in 2012 by a young couple keen to renovate and extend. They had set their hearts on an extension consisting of an open plan family/living/dining room with a kitchen and pantry. The 4 bedrooms (2 with en suites) and a redesigned bathroom would be renovated/extended in the existing cottage.

They were adamant that their new extension should express traditional timber exposed post & beam framing. With this in mind they had looked at the website of Chris Nance, who runs a specialised carpentry business, [Traditional Timber Frames](#) in the southern highlands of NSW. In 2007 Chris travelled to Wales to learn the timber dowelled traditional post & beam craft from a Master Carpenter and then returned to Australia to commence his timber framing career.

Architects of Arcadia working with their client and Chris prepared sketch plans which reflected not only the Brief but also referenced meticulous medieval techniques such as curved braces and knees.

An enormous Port Jackson fig filled the rear of the existing cottage site together with an existing brick beehive capped, underground excavated sandstone well 5m deep and 5m diameter. The well is located under the extension and is used to store rainwater. The existing badly dilapidated rear and side extensions were demolished, and a new face brick base and timber floor constructed to support the new 12m square hardwood construction.

Chris cut and assembled the hardwood frame in his open-air workshop (a paddock with shed), then dismantled and transported it to Sydney. Within a matter of days, the numbered timber elements were erected on site and pinned with hardwood dowels. There are NO metal fixings in the structure, apart from the galvanised hold down plates.

The timber dowels, left projecting, are a signature of this method of construction. The mortise and tenon dowelled joints are crafted to allow for both longitudinal and transverse shrinkage over time, as the 200x200 posts and main rafters, 250x200 transverse beams are still mainly unseasoned on installation."

[Click here for more project images](#)

Note: Want to know more about traditional carpentry? I recommend that you purchase the 1880 edition of *The Carpenter and Joiners Assistant* by James Newlands. An original is expensive but reprints were done and are available at a reasonable price if you hunt the net. It will frighten you when you see what carpenters and joiners were expected to have in their repertoire. Not a piece of chipboard or LVL in site either!

[Another Deck Fatality before the Coroner](#)

Sorry, no pictures due to copyright, do a web search on Doncaster deck collapse.

Tragically, in December 2017, at a staff Christmas party at a private residence in Doncaster East, it was decided to take a selfie of the group on the deck. The group heard a crack and 6.1x2.7m section of deck collapsed and two women were killed. The hearing before the coroner's court in Victoria started this month. News reports from the coroner's court hearings say that the beam was undersize but the real problem is that it was Douglas fir (Oregon), a Durability 4 Above Ground timber, totally unsuited for the application. As a consequence, it was weathered, rot had been painted over and was split. Incidentally Oregon does not treat properly so it would have been untreated.

It appears that 28 people were on the affected part plus "The deck was holding hundreds of kilograms of furniture and other items, including a fridge weighing 123kg when empty, a barbecue and gas bottle weighing 82kg and a 50kg pizza oven." With the average woman weighing 71 kg that put a total load on the deck at about 2.25 tonne. A deck that size should be designed to carry that load but nothing can compensate for ignorance on someone's part. The designer, builder and building inspector all should have known better than to use or pass timber of the lowest durability rating when used externally.

If you know someone with a deck which incorporates Oregon, you would be doing them a very good turn if you advised them not to use it and have it replaced urgently. Below are links to some news reports.

News report from News.com.au

News report from ABC

Back in November 2017, I published an article from Geoff Stringer, the then Product Development Manager at Hyne who gave a presentation for Timber Queensland entitled *Reliably Durable Timber Structures from Treated Timber*. In it, he looks at the causes of deck failures and poses the question of whether decks should be load limited. I have known Geoff since 1984 when I was with Gattton Sawmilling Co. and he was with TRADAC. Anything Geoff says is worth listening to and if you have any involvement with decks you would be wise to follow the link and see what he has to say. [Click here for the presentation.](#)

The National Centre for Timber Durability and Design Life?

Ted Here: There must be something perverse about timber! If someone did something silly when designing with steel or concrete and the birds come home to roost, nobody says, "Let's stop using these materials and find something new." Failures are firmly seen as design issues, not material issues. But should a designer do something silly with timber e.g. forget to use a durable species as in the previous story, it is always the material not the design or the implementation that is at fault and the policy goes out, never use timber. The following article by Jeff Morrell, Director National Centre for Timber Durability & Design Life gives an update on the serious and long overdue steps that are being taken to rectify that.

Over to you Jeff.

The Durability Centre based at the University of the Sunshine Coast (USC) is a collaborative effort between the Queensland Department of Agriculture and Forestry (DAF) and the University of Queensland funded by Forest and Wood Products Australia (FWPA).

Australia was once a global leader in timber durability research, but this capacity was gradually depleted through retirements and retrenchments. The Centre is FWPA's effort to re-invigorate that research effort. FWPA has funded five years of initial support to establish the Durability Centre to address 12 over-arching objectives including helping to educate the next generation of durability researchers, developing data on new and emerging technologies that might be useful for Australia, advancing the service life prediction models developed more than 20 years ago by Dr. Robert Leicester at CSIRO, and working to establish collaborative linkages across the country.

The Centre commenced September 2018 and is based out of the DAF EcoSciences Precinct in Brisbane. Although we are still in the development phase, we have initiated a number of projects. Our DAF partners have worked to establish a large-scale field trial incorporating all of the treatments currently used in Australia for H3 (above ground decking) exposures at South Johnstone (Far North Queensland) and their new site near Nambour. This trial will assess the performance of over 20 different treatments on solid pine, plywood and laminated veneer lumber and the resulting data will help inform Australians about how some of the newer treatments perform while providing data to help improve the CSIRO models.



Figure 1. Poles in test at the new DAF Nambour test site

DAF has also restarted research on the durability of native forest and plantation Gympie messmate as part of their effort to characterize the hardwood resource and is working on moisture issues related to mass timber construction.

Our UQ partners are establishing research on fire performance of Australian timber species and exploring fire retardant treatments as well as examining the effects of moisture cycling and decay on connector behaviour.

Figure 2. DAF personnel Ms. Lesley Francis and Mr. Jack Norton inspect a long term I-joint trial.

We've also run some trials with a hand-held x-ray fluorescence unit for assessing preservative treatment, held one workshop on utility pole maintenance and a workshop on statistical process control, but we are always looking for better ways to reach out.



Figure 3. The handheld x-ray fluorescence unit used to evaluate quality of CCA treated timber.

So what can the Centre do for you? Good question. We are here to help answer questions, but we are also interested in any durability problems, issues or questions that we can help answer with our research. We invite you to check out our ever-evolving website, sign up for our newsletter, and contact us with questions or suggestions www.usc.edu.au/timber.durability).

We look forward to helping revive durability research and to your active participation in our efforts.

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Need a Timber Consultant or Expert Witness?

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

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. I have recently completed inspections on boardwalks, bollards, support beams and external timber furniture.

Grading - Quite literally, I have written the book on the subject. Recent experience has shown that up to 30% of timber supplied may not be to grade.

Design - I can provide detailed technical drawings and advice. I can also review already prepared drawings.

Reports - I have authored many books on timber and can prepare a report providing recommendations and practical instructions on to how to rectify issues.

Please note as I am now employed a Senior Timber Consultant with the firm BCRC all large and complex consultancies and requirements for an expert witness will be handled in conjunction with them. Existing consulting arrangements remain unchanged and I am also available to assist on small projects. For more information see www.bcrc.com.au



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