

# Ted's News

## February 2021

[Covered Bridge Restoration](#)  
[A deck Built as it should Be](#)  
[Vandal Resistant Fasteners](#)  
[New newsletter on Concrete Durability](#)  
[Timber Consultant](#)

[Covered Bridge Restoration](#)



Our Australian hardwoods, or at least some of them, are incredibly durable and for a good number of years they will forgive the silly things we do to them. I'm sure it made us lazy when it came to adopting best practice and it is easier to blame the timber, not the design. But when you only have untreated softwoods you need to learn good practice very quickly and the Bayswater Covered bridge in New Brunswick is now just over 100 years old. Build the same thing in Australia in untreated pine and, without a roof, you will be looking at 0-5 years.



Over the bridge's 100-year-life, it has patch repairs but the truss connections were loose and it had started to sag and its capacity was reduced to only 5 tonne. My friends at Wood Research and Development (WRD) stepped in to assess the 100-year-old bridge using Non-Destructive Testing (NDT). Partner company *Timber Restoration Services* (TRS) is doing the restoration which involves upgrading it to 30 tonne capacity, more than double what it was when new. The restoration design included the use of high strength fibre reinforcement (FiRP and shear panels), timber laminations and new tension hanger rods. The project should be done over the next month. [Read a more in-depth report here.](#)

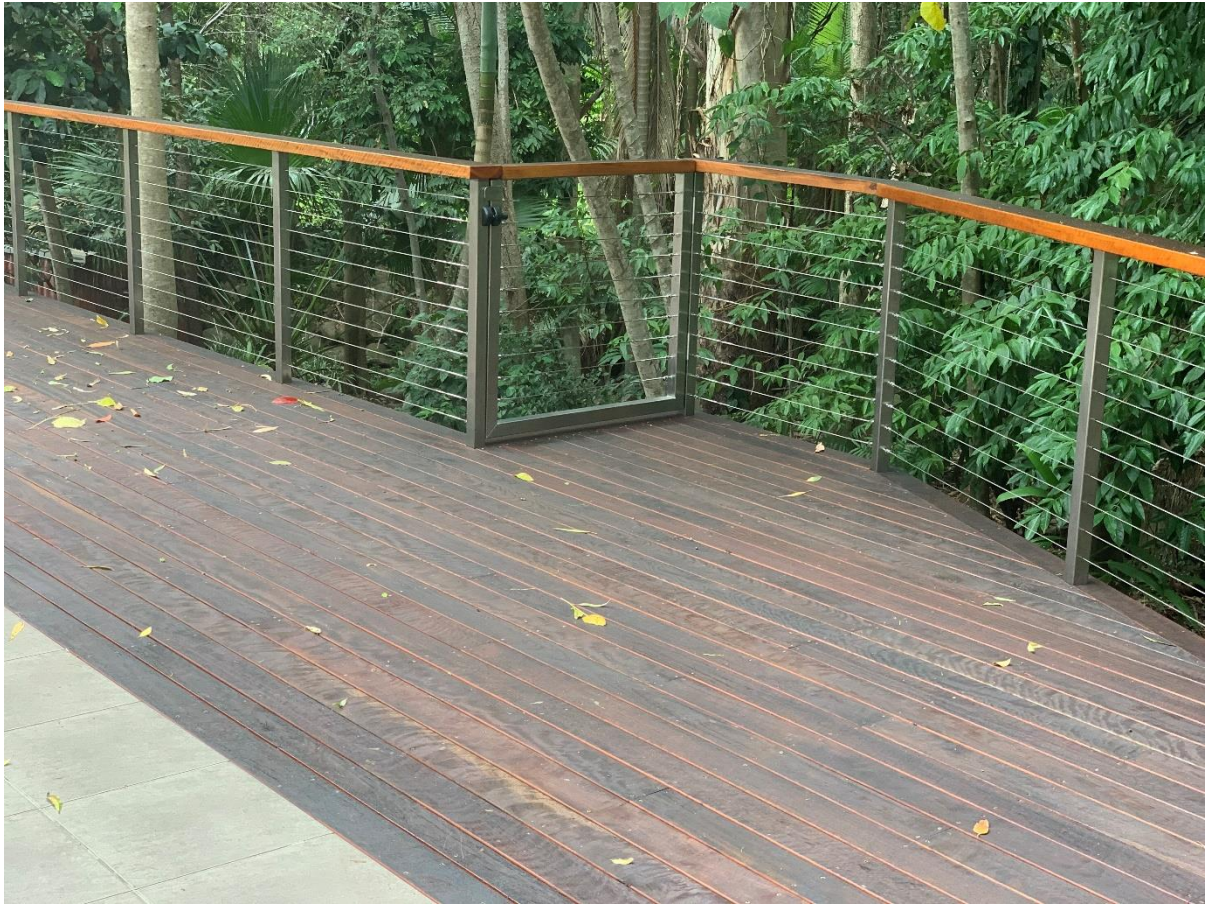
Here is an impressive video on the restoration: <https://youtu.be/D7yAocWnuXA>

For more on this, please visit the TRS Facebook page: [www.facebook.com/timberrss](http://www.facebook.com/timberrss)

[Here is an article on the only covered bridge I know of in the country that we were involved in and supplied](#)

[Here is a link to a book, Covered Bridges and the Birth of American Engineering](#)

[A Deck Built as it Should Be](#)



Private residence, Stephen Lord at The Gap

Architect: Ralph Bailey

Builder: [Doug Fahey, Fahey Constructions](#)

Decking: [Outdoor Structures Australia 110x21 "Restaurateur" decking](#)

Framing: Wilson timbers DPR Royal

Decking Oil: [Tanacoat](#) by Outdoor Structures Australia

Handrail: Custom product by Outdoor Structures Australia

Stainless posts and rigging: [Harry Schults, Simply Stainless.](#)

My good friend, Ralph Bailey (a founding Director of Guymer Bailey Architects) and I have been talking best practice in timber decking for 20 years and we are completely on the same page when it comes to weather exposed timber decks. So when he designed a deck for his friend it was only natural that he used OSA's *Restaurateur* decking ([It is a little wider than LifePlus which is 88 mm](#)). The rough sawn sanded face make it and LifePlus the only domestic decking intended for use in full sun. The handrail is made from spotted gum with a rough sawn select sanded face, thickened underside and edges and a pencil round on the edges. The rail is installed at a slight angle to ensure moisture does not sit on it. The framing is dressed pencil round royal species. The posts are 316 stainless. Good job Ralph and congratulations to all the contractors and suppliers involved.

[Want to see more project images and an expanded report, follow this link.](#)

## Vandal Resistant Fasteners

(Not a paid advertisement)

The guide to playground timber is well advanced and hopefully getting its first dry run soon on a real playground. When I was writing on vandal resistant fasteners I was given a lot of assistance by [Lionel Shepherd](#) of [Sentinel Group Australia](#). When writing a book like this not everyone is helpful, so it was appreciated. Here is an extract from the new guide.

While appropriate vandal resistant fasteners may initially add significant cost, their value to the asset owner through reduced harm to the public cannot be quantified. As well, vandal resistant fasteners would be expected to deliver significant benefit over the structure's life even if the reduced maintenance and park closures was the only consideration. One manufacturer of security fasteners noted that property damage itself fosters an environment that encourages "further crime and decay. Safe, functional spaces help maintain civil order."[\[1\]](#)

Vandal resistance will also be mentioned in discussion of the broad categories of fasteners but not all fasteners offer the same protection. One manufacturer recognises three levels of protection:

- **Level 1.** Protection is offered against opportunistic vandalism, but fasteners can still be removed with commonly available tools.
- **Level 2.** Fasteners can only be removed using special tools, the distribution of which can be controlled.
- **Level 3.** Once fasteners have been installed there is no tool for removing them.[\[2\]](#)

The normal stainless batten screw with a hexagon drive would be classed as a Level 1 fastener but after they have been installed in hardwood at least, they are very hard to remove. These screws would not usually be subject to opportunistic vandalism but a bolt with a countersunk head is extremely easy to remove with a simple socket set. Probably the most common fastener used on playgrounds is an internal Torx drive incorporating an internal pin (Figure 1). Strictly this only offers Level 1 resistance but is popular because of its lower cost. At the other end of the scale, some Level 3 fasteners may be unsuitable for playgrounds as they may either be too light[\[3\]](#) or may leave a protruding thread as with the conical nut. The use of these nuts would be restricted to applications such as a "double nut" used on an attachment point well above the reach of children. So, apart from batten screws in hardwood, the playground designer, while mindful of the additional cost, would be advised to concentrate on fasteners that provide Level 2 protection."



Figure 1. Level 1 vandal resistant fasteners using internal Torx drive with a centre pin



Figure 2. Level 2 vandal resistant fasteners require restricted tools



Figure 3. Level 3 vandal resistant fasteners cannot be undone once tightened

[1] Sentinel Group. n.d. *Fastener Safety Levels and Why They're Vital to Public Safety*. Accessed February 10, 2021. <https://blog.sentinelgrp.com.au/fastener-security-levels-and-why-theyre-vital-to-public-safety/>.

[2] Sentinel. *Fastener ...*,

[3] Ted used 8# screws with one-way heads to attach the stainless caps to his bollards but in reality, they could be easily sheared off using a screwdriver and hammer.

### [New Newsletter from BCRC](#)

While I have a number of longstanding clients here in Queensland, all my expert witness reports and out of state work is done through the durability specialists, [BCRC](#). They have just started a new newsletter, not much timber in it yet but many of my readers are heavily involved in concrete. [Here is a link to the first edition.](#) The subjects are

- DESIGN FOR CRACK CONTROL - EXPERT OPINION by **Frank Papworth** – Director, BCRC
- INVESTIGATION AND REMEDIATION OF CONSTRUCTION DEFECTS by **Faiz Khan** – VIC Manager, BCRC
- THERMAL MODELLING OF MASS CONCRETE ELEMENTS by **Inam Khan** – QLD Manager, BCRC
- FIVE DIFFERENT CONFERENCE PAPERS RELATING TO CONCRETE.

To subscribe to this useful newsletter, [click here to send through your contact details](#)

### [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](http://www.bcrc.com.au)

Edgar Stubbersfield

Mail: [edgarstubbersfield@gmail.com](mailto:edgarstubbersfield@gmail.com)

Web: [www.deckwood.com.au](http://www.deckwood.com.au)

Phone: 0414770261