

Ted's News

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[Coming Soon - My New Book on Timber Joints.](#)



The Tamedia building in Switzerland by [Shigeru Ban Architects](#) in Japan clearly demonstrates that here in Australia we are only paddling around the edges of what is possible with timber [Click here for more images.](#) The images of the joints in the Tamedia building shows that there is potentially no limit when discussing timber joints. I have finished the chapters on split rings and shear plates and the relationship of F grads to joint group so far. Split rings and shear plates, which are still common in the US, are very important in the scheme of things as they allowed reliable design of joints for the first time.

I would love any images you have of joints and suggestions for content.

Non Durable Timber Has Lasted More Than 100 years



The heritage listed headrig from the Sons of Gwalia mine in WA utilising 300x300 Oregon pine was constructed between 1896-8, so it is roughly 120 years old. It was built by the mining engineer Herbert Hoover who went on to great fame but not by inventing the vacuum cleaner but instead by becoming the 31st president of the US. He protected the headrig from termite attack but could not protect it from the weather and being Oregon you would have expected it last one tenth the time that it has. About one third has been replaced with karri which is not a vast improvement on Oregon (Durability 3 in ground) but otherwise it is still sound. The secret is the very dry environment. [Here is another newsletter covering oregon in a dry environment.](#) Sons of Gwalia? The original backer of the project was Welch and Gwalia is an old name for Wales. My advice has been to design as if you are in a harsh environment and it will reward you in a less demanding climate.

Timber Bollards That Have Not aged Gracefully





I covered how to make a success of sawn timber bollards in my [October 2015 newsletter](#) now it is time to look at natural rounds. If you have done my CPD session on using "heart in" hardwood you would have seen the image in the top slide which I took in 2005. (If you haven't done it, why not?) This slide is used to show how not to use heart in timber. The natural rounds are Ironbark and someone would have looked up a book and saw that it was Durability Class 1 and thought it was a good idea to use them. "Be there for 50 years", was probably the thought. But the durability rating refers to heartwood and untreated sapwood is always durability 4. That means the sapwood of ironbark is basically the same durability as the sapwood of pine. Now, 11 years later they are in a very sad state, as indeed they had to be. You can see from the loose ring on the bollard on the lower left hand image just how much of the cross section has been lost as the sapwood decayed.

The other issues I highlighted with the bollard were the sharp corners on the strap, hopelessly light screws on the saddles (since replaced) and no protection of the heart. What was not evident when new was that the bollards were not installed deep enough. They only went in 450 mm whereas 600 mm should be the minimum. Many have a considerable lean because of this. Now, what is left of these bollards will probably last another 20 years but they look so frightful that many have already been replaced. Tragically the asset owner has used plastic which, in my opinion, is an even worse solution. I will bring you a image when as I expect, someone with a bull bar on his 4WD mows over 50 of them in one hit.



The best thing that a designer can have is a supplier that will say to you, "Please don't do this" but they are few and far between. Conversely, a responsible supplier has to find someone who will listen. Think how many thousands of dollars could have been saved by engaging me for just one hour. It wasn't hard to make them a success. These natural round bollards were supplied by me in the late 70's or very early 80's. They are treated so the sapwood has not decayed.



These bollards are not capped and it is only when they get some age on them that the need for caps becomes obvious. The band of treated sapwood is in good shape but the centre, which will not accept treatment is deteriorating.



This row of treated sawn bollards is literally just around the corner from the untreated rounds. They are as good as the bollards we produced. It is not hard to get it right but it is not hard to get it entirely wrong also. The bollards in the link to the [october 15 newsletter](#) have the same asset owner as these.

The State of Timber Research in Australia

Part 1 of 2





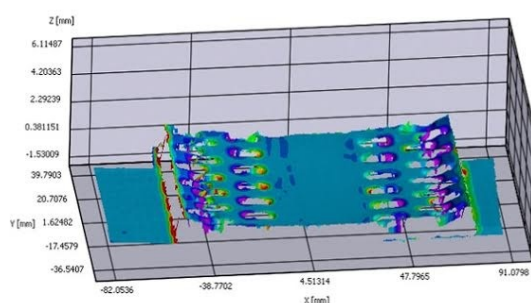
The strength in forest product research in Australia can be summarised in one word, “Queensland”. Forgive me a brief quote from Hansard "In the early 1950s, some of the great inventions of the world—the hi-fi, the colour photocopier or whatever—were all invented here, in Australia. In fact, one of the scientists was a guy called Alwyn Clements, who lived in my electorate. He was a very smart man. Did we develop those inventions? No. Under the years of Menzies, all those sorts of things went offshore. Menzies was supposed to have said to Clements, ‘**Your transistor will never replace the valve**’. We have done it yet again, this time with timber.

Dr Henri Bailleres heads up the Forest Product Innovation Team, a team of enthusiastic scientists, technicians and operational staff at Australia's only dedicated forest product research facilities, the Salisbury Research Facility. The team and facility sit under the banner of the Queensland Government's Department of Agriculture and Fisheries. This research team and facility combine enabling research and development activities for direct benefit to the forest, forest products and construction industries. The team have comprehensive skills and experience in forest resource assessments, processing and seasoning systems, engineered wood product design and prototyping, performance assessments, adhesives/adhesion development and protection systems.

This research facility is not just boffins in lab coats, and they have these, but it incorporates semi industrial scale processing equipment (more on this next month). The work being carried out at Salisbury is amazing. Here are some instances:



Henri is holding a piece of timber joined with nail plates ready to be tested to destruction. In my research for the book on joints I have been looking at nail plates. Originally they had short teeth and were held in by ancillary nailing, then the breakthrough was straight but longer teeth and through constant innovation and testing the tooth design, depth and layout has evolved and is still evolving. The Salisbury Research Facility has some sophisticated equipment that allows it to further improve the performance of a range of timber jointing systems.



[Here is a video](#) taken by the high tech recording equipment in the lab showing in 3D a plate failing.



This sheet is an original attempt to produce a prototype building panel manufactured from agri-fibre, in this case sorghum stalks. Similar experiments with sugarcane bagasse performed by FPI crew showed boards could be produced with better properties than standard particleboard. Utilisation of these by-product fibres could become very important in the future.

The Salisbury people have demonstrated that plantations originally intended for loo rolls will give a better return as veneer-based engineered wood products such as plywood. They have introduced spindleless veneer lathe technology to Australia and used this relatively low-cost processing technology to recover valuable wood at rates many times higher than achieved using conventional processing approaches such as sawmilling. Their research has demonstrated that much higher value can be recovered from young fast growing hardwoods.



.Engineered Wood Products (EWPs) are where a lot of effort has been placed. For example, until now, developing adhesive systems and the manufacturing protocols for products like plywood has been a time consuming process where panels are made and then split with chisels to see how good the adhesion was. Henri has taken a scientific approach. An Automatic Bonding Evaluation System (ABES) enables the team to fast-track this process. The ABES can control the temperature, pressure and time on small specimens with which the two veneers are joined, as well as the climatic conditions. It will then measure in one operation the force that is needed for the bond to break, all within a few minutes. This system provides a

very fast way to determine the optimum parameters for high quality adhesion. If you have a timber related research question you may wish to contact Henri. His details are:

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An Accountant That Really Helped Us
Not a paid commercial



For three months I ran information on a mortgage broker that really helped us when our bank was being very difficult. I kept running it because people kept contacting him. There must be a lot of hurting people out there. Part of our solution was getting a very good accountant that went the extra mile. Brett Garmeister, a partner in OBT Financial Group had been a friend for a long time but I had been using one of those expensive higher profile city companies for over 30 years. With Brett I received what was, in my opinion, better advice without the gold plated invoice. I recommend him to you if you are unhappy with your present arrangement. Who knows, if things keep going in the right direction I may have to call on OBT's considerable financial planning expertise. His contact details are

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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 any of your timber needs.

Design - I have seen what works and what doesn't and have a good library of CAD drawings and images to back up what I say, which can often be contrary to common practice.

Inspection - I have written the books on the subject and can assess construction and material as to its suitability for the application.

Reports - I can drive a word processor with ease and can give you a well reasoned reply.

Bridge Quote Requests

Call me on 0414 770 261 to discuss your needs. We built brilliant bridges in both timber and timber and steel. My Timber Footbridge book has an excellent checklist in the back by which to assess quotes. It is also ideal as a tender specification. I find it frightening how many corners can be cut when it comes to footbridges.