

Ted's News

February 2017

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[Using Heart In Timber](#)

Last month I featured a dangerous deck in Canberra that had finally been made safe. [Here is the link](#). There were a number of 300x300 mm heart in seats on the deck that were not a success either and could never be. They were not detailed in a way that accommodated the different properties of heart in timber to that which is heart free. Some of these seats are dangerous as poor detailing has allowed finger entrapments to develop. But heart in material is a great resource, you just have to work with its limitations. So how do you deal with this sort of material?





Firstly what is right with this design is that it is not bolted through the top allowing moisture into the heart. That can cause early degrade.

With these large sawn sizes, the outside is losing moisture and shrinking but the centre is retaining its moisture and so staying the same size. Something has to give so it tears down at least one of the faces. The seat on the right in the top image has the heart off centre and it has been placed with the shortest distance to

the heart uppermost and that is where it is splitting. The same with the image to the right, splitting is to the surface closest to the heart. Good practice would see the heart placed closest to the underside. There is no obligation under AS 2082 to cut the material with the heart in the centre but it is none the less poor sawing. But good practice alone is not going to ensure there will be no or very minimal splitting.

This image to the right shows that despite the heart being in the centre of the three pieces, splitting still occurred. Ultimately the only way you will stop it splitting is by the use of expansion grooves. On a 200 mm you only need one but on a 300 mm you may need two. my technique was to make the groove 25 mm deep and 3 mm wide. For the tops it is wise to also arris the top of the groove and also for all sides if used as posts. The gaps open and close as needs be and any tear is below the saw cut. These expansion grooves need to be cut very soon after milling - say one week and an absolute maximum of two weeks after.



Another important consideration with any heart in material is to keep the minimum size to 175 mm e.g. 300x175 mm (as was required under AS 2082 - 2000) but better still 200 mm.

Three faces was enough to groove on a 200x200, one was not enough as the post opened up too much. The next four images show each side of a 12 year old (approx) 300x200 mm bollard outside my old office. On three sides the gap, after initially opening, has closed tight and one side has opened a little. These expansion joints really do work.



So if we had to write a specification for a box heart seat I would say:

- xyz mm X xyz mm, heart centre hardwood,
- acceptable species are spotted gum, tallowwood and ironbark
- cut with the heart in the centre, not significantly to one side.
- Cut an expansion joint/s into each face within one week of milling. The expansion joint/s will be 3 mm wide and 25 mm deep.
- arris the edge of the expansion joint on the top face.
- Where timber is supplied with the heart significantly to one side acceptance is subject to the (insert profession)'s approval for use and give instructions as to placement.

Remember the number of expansion joints will depend on the width and also remember that 300x300 is hard to find in suitable species).



Of course when it comes to 200x200 and you don't want to be disappointed, just purchase the product I developed called the Pioneer Post. One size only 192x192. Caps are not an option if being used as bollards. Wilson Timbers are still manufacturing some of my products. Contact Tammy on T (07) 3277 1988 | F (07) 3277 6435 | M 0403 601 041E tammy@wilsontimbers.com

Pioneer Post Information

Sheet [Here is the brochure](#) Use the new contact details above.

Salt Storage Shed East Windsor, New Jersey, United States *(Not a paid advertisement)*

When I was writing about split rings and shearplates in my latest book, *Timber Joints*, I came to appreciate how good they were in distributing loads in timber connections. Unfortunately I could not see that they were available in Australia any longer. Nate Erde-Wollheim of Portland Bolt in the US who supplies these connectors was incredibly helpful so I am happy to give them a mention by showing this unusual 2016 project in a corrosive environment. Note that timber does not rust!!



The State of New Jersey required additional capacity to store salt which is used to clear snow from roadways during wintery weather. A new salt storage shed was proposed in order to increase the lane miles that could be accommodated by existing facilities. This specific salt storage facility is responsible for housing approximately 5,400 tons of salt as well as maintenance vehicles which distribute the salt. The arches on this building stand over 14' (4.26 m) above the concrete walls and the building extends approximately 150' (45.7 m) in length.

Portland Bolt supplied nearly 2,200 bolts and over 500 shear plates on this project and all of the items were hot dipped galvanised to provide corrosion resistance on the fasteners.

If you are considering using shear plates or split rings the contact is Nate Erde-Wollheim. Email: nate@portlandbolt.com and the phone from Australia is : 0011 1 855 739 0833.

In Australia we have not built structures in timber that approach the spans that were achieved during World War 2. Here are some links to what our forefathers achieved with shear plates.

[Largest timber structure in the world](#)

[Largest gable truss in Australia](#)

[Span Chart Software](#)

Timber Solutions is a design software package developed initially to generate tables for AS 1684 Residential Timber-framed Construction Standard. It is now available as a stand-alone package which complements the Standard. The software package can output generic tables or can be used to provide structural design solutions for individual houses. Outputs include timber sizes, tie-down loads and bracing loads as per AS 1684. [Here is the link](#)

[A Very Interesting Read for Carpenters](#)

When doing my research on timber joints I discovered a very interesting book by Spear and Jackson on the history of the saw. It was written in 1961 to celebrate their 200th anniversary of saw making. [Here is the link](#) While the discovery of the wheel revolutionised the world, someone had to invent the tools that made it possible to make the wheel in the first place.

[Continuing Professional Development Sessions](#)

You know you have to do CPD so why not avail yourself of an expert in the timber industry and a skilled public speaker?

The full range of subjects I have available are:

Timber Preservation.

Hardwood Grading.

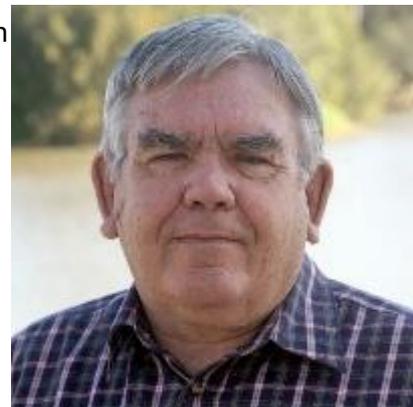
Timber Decks – Designing for Durability,

Utilising Small Diameter Hardwood.

The Seven Deadly Sins of Timber Design.

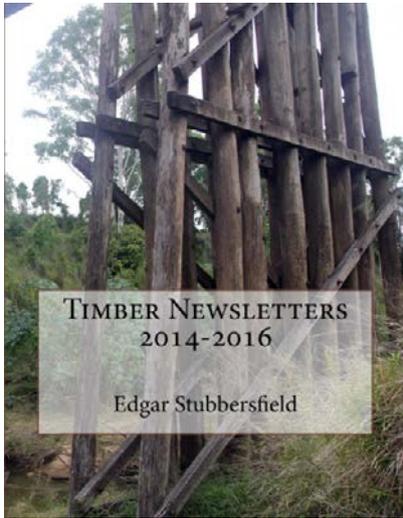
Joints and

Architectural Timber Battens



These are informative seminars with serious learning outcomes and, if required for CPD points, I can provide a test and a certificate. Call me on 0414770261 to arrange a convenient time for your personalised "Ted talk".

[Newsletters 2014 to 2016](#)



If you enjoy reading my newsletters and find them helpful you can now own a copy of all the newsletters from 2014-2016. Purchase a hardcopy from [Amazon](#) or download a Kindle version. Just search under “Edgar Stubbersfield”.

You can also purchase a PDF from me for only \$33.00. The PDF is searchable which makes it very easy to find something that you may have recalled reading years ago. Go to:- deckwood.com.au/timber-technical-design-guides

The first book of newsletters from 2010-2013 is also available.