



OUTDOOR STRUCTURES

Outlasts and outperforms

July 2013 Newsletter

Written by Ted Stubbersfield

For Infrastrucxion Pty Ltd

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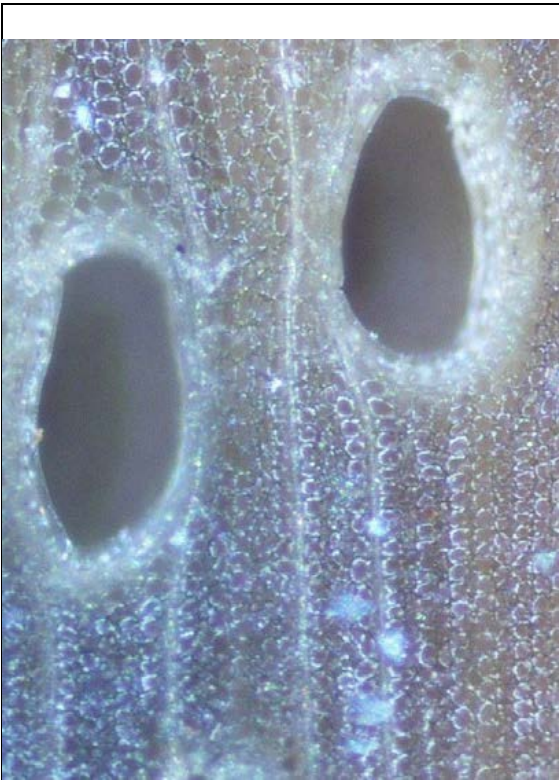
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Empty sapwood vessels

Photo: Gary Hopewell, DAFF

Closed heartwood vessels

Photo: Gary Hopewell, DAFF

Dear Reader

Many people have trouble getting their mind around timber treatment. It really is quite simple, if it wasn't I could not understand it in my advancing years. Once you comprehend the images above it all drops into place. The image on the left shows a piece of tallwood sapwood as viewed under a microscope. The cells are open which allows a conduit for the preservative to flow and disperse through the

sapwood. The right hand image shows tallowwood truewood and the once open cells are plugged. These occlusions are called tyloses. The treatment chemical easily penetrates the sapwood to its full depth but stops dead at the heartwood boundary. In our Australian hardwood you need a pressure of about 6900 kPA (1,000 PSI) to penetrate beyond that point. It is simply not going to happen.

Now imagine a bush pole where there is a full band of sapwood around the inner heartwood. Preservation is effective because of envelope of chemical surrounding the inner heartwood. But sawn timber is entirely different as you do not have this protective envelope. You cannot preserve heartwood which is why specifying the correct natural durability is critical. All you can do is stabilise the sapwood which generally is not enough to be a structural issue on larger sizes such as 75 mm thick. You can specify what you will but you are never going to get anything better than H3 by chemical means. You must rely on natural durability.

All this and more is discussed in my book on timber preservation. It is not a big book, you will finish it in one night but it is important that all designers understand the strengths and limitations of timber preservation. As I have said many times, a specification that says **F14, treated to H3, Joist Group 2** is a meaningless specification. Our Deckwood and Joistwood specification protects you from all this until somebody with little understanding starts substituting lower priced material.

Chris treats here in Gatton using Tanalith E. Call us about your treatment needs.

Further reading

A reminder of why we treat

http://www.outdoorstructures.com.au/pdf/osa_newsletter_05_13.pdf

Timber Preservation Guide - Ring Ted on 0414 770 261

A Product Opportunity Identified, The "Sleep Easy" Sleeper





A friend told me recently that he was talking to a concrete goods manufacturer who said to him that he would have gone broke if it wasn't for the work he was getting replacing timber retaining walls. It's probably true. The bottom image of the three above shows a retaining wall that is only 6 years old!

Timber Queensland have published very good material on how to build these walls well but substitution with lower specification timber and not following critical but seemingly unimportant details is rampant (see my 7 Deadly Sins of Timber Design).

It does not have to be that way. What follows is part of a paper I gave at an international treater's conference on "improved Technologies in the Timber Treatment Industry". There is a real opportunity for a much needed product for a timber producer out there with some imagination. If you are not a sawmiller or engineer, what follows is not likely not be of interest.

"Consider the needs of an engineer designing a timber retaining wall. He/she needs to have a product of known durability, known strength and a means of validating that conforming material has been used. His professional reputation and liability and responsibility towards his/her client depend on these issues. The reality may well be that, because the engineer has been trained almost exclusively in steel and concrete, that there is an inadequate understanding of importance of the issues involved with timber. As well he/she may not design these structures often may not have the confidence he/she would like to have. If the engineer is to design the wall well, it may take a long time, giving a return not commensurate with the effort and risk involved.

The risk to professional and client is significant when it is considered what timber may possibly be used in this structure. If the sleepers are pine they may be half heart with negligible penetration and no known strength. If hardwood is chosen, the species may be durability 3, with only 5 -10% of its volume treated to H4 and cut full on the heart and already splitting. The only thing known is that contractor could not purchase a similarly dimensioned sleeper elsewhere at a lower price. In Victoria, part of this cost cutting can extend to purchasing untreated spotted gum sleepers. When the wall fails and fail it will if such material is used, the only comments will be "Well what do you expect, it is only timber". Unfortunately

for the owner of the wall, it will probably last beyond the period normally associated with warranties and he/she will not be aware of his legal rights to seek compensation.

Most treaters will continue producing a commodity where the only consideration is how the cost of production can be cut. An alternative would be to distance your company from the rest by producing what is required. This product, the Sleep Easy sleeper would be as follows

- proof tested or strength graded so it can be used in a designed structure
- incised to ensure effective treatment of heartwood
- face branded with the logo to allow identification
- supported by technical literature so comprehensive and technically correct that the engineer hardly has to stop to think
- Treated with a non-chrome, non-arsenic treatment

The engineer's responsibility to his/her client and his own peace of mind demands that he specify the Sleep Easy sleeper "or approved equivalent" once he/she becomes aware of the dangers. It is not a particularly difficult marketing exercise to target engineers, drawing their attention to the risks and at the same time supply them with all the information they need to do the job correctly. Immediately you, and you only, are recognized as "the people who know" and your substantially dearer product is the only responsible one to use. The tell-tale face brand ensures that the contractor cannot ignore the specification. Where else can an approved equivalent be purchased for some time?

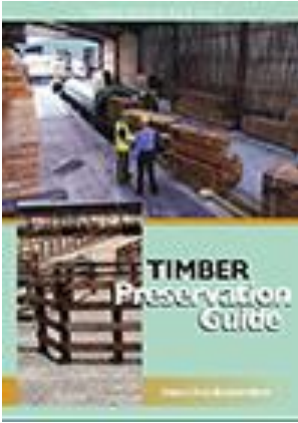
Incising alone, or proof testing alone is inadequate. Your competitor can easily purchase the same machinery. The product must be seen as a whole system, not individual components that can easily be supplied by someone else. etc." Anybody out there prepared to make this product? Would anyone out there purchase this product. Would you be prepared to put all the time, cost and effort into developing the "sleep Easy" sleeper knowing that everyone will "copy" and no one will enforce a specification?

Chris can sell you appropriate product for your wall.

[The Parable of the Specification](#)

If you have been reading my newsletters you will be aware that I have been critical of specifications that, for all their many words, do not say anything meaningful. Some time ago I wrote the "Parable of the Specification", a rather tongue in cheek look at specifications. It also shows my weakness for Morgans, the only car company with a carpenters shop. I hope you enjoy it. Here is the link

<http://www.outdoorstructures.com.au/docs/parable-of-the-specification-07-13.pptx>



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There are four ways to purchase the Timber Preservation Guide.

Using a Credit Card:

1. As a [Amazon Kindle eBook](#) for US\$33.00
2. As a [Amazon Paperback](#) for US\$33.00 + postage from US.
3. Not a member of Amazon? Purchase from [Createspace Estore](#) for US\$33.00 + postage from US.

Direct Deposit:

4. Paperback posted from Australia for quicker delivery \$37.50 + \$10.00 Express Postage (within Australia). Email edgarstubbensfield@gmail.com or call 07 5462 5532 and we will advise payment details.

Already purchased a draft? Go to the Dropbox folder and download the latest file. Do not release the file outside of your office. I am only releasing the file to earlier customers.

The Deck and Boardwalk Design Essentials guide has had its final edit and is awaiting the professional formatting. I am fairly well advanced on "Understanding AS2082."

The 7 Deadly Sins of Timber Design	Deck and Boardwalk Design Essentials
The image shows the cover of the book 'THE SEVEN DEADLY SINS OF EXTERNAL TIMBER DESIGN' by Ted Stubbensfield. The cover features a photograph of a weathered wooden post in a grassy area. The title is in bold black text, and the author's name is at the bottom.	The image shows the cover of the book 'Deck and Boardwalk Design Essentials' by Ted Stubbensfield. The cover features a photograph of a wooden deck and boardwalk overlooking a body of water. The title is in bold black text, and the author's name is at the bottom.
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<u>Order Guide</u>	<u>Order Guide</u>

All our guides can be seen at http://www.outdoorstructures.com.au/timber_guides.php

Consultancy Services by Ted Stubbersfield

The stories I am now hearing about substandard material and performance are frightening. If you are looking for quality materials and good performance I can work with you from the design stage through to final completion. In our area of expertise, often it is the art that proves more important than the science. Weather exposed structures normally do not fail because of incorrect member size calculations, but because a myriad of small points of detail are not taken care of. to ensure you receive good performance from your next timber project.

As a timber design assistant we offer:

- The provision of high quality technical guides on timber design. (accessed from our website on a pay per view or membership basis)
- The review of professional drawings to identify potential timber design issues that may impact service life
- The preparation of proposed AutoCAD cross sections of structures
- To be a sounding board for ideas
- Lectures and presentations
- The assessment of best practice in construction.

As a grader I can assist with grading for confirmation to a nominated grade but more importantly I can assess whether timber is graded to an appropriate grade. Often these are not the same thing.

Contact me on 07 54625532 or by email (edgarstubbersfield@gmail.com) to discuss how I can be of assistance to your organisation

Bridge Quote Requests

If there is any doubt that OSA make the best kit bridges in the country look at the [Berrinba Wetlands Project](#) . Not all bridges are equal. After encountering three bridges in one month that did not meet the Bridge Code I wrote the [May 2012 newsletter](#). Refer to it when assessing the suitability of quotes.

[Steel bridge Quotation Request Form](#)

[Timber Bridge Quotation Request Form](#)

More information:

If you have timber road/rail/heritage bridge

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