

September 2015 Newsletter

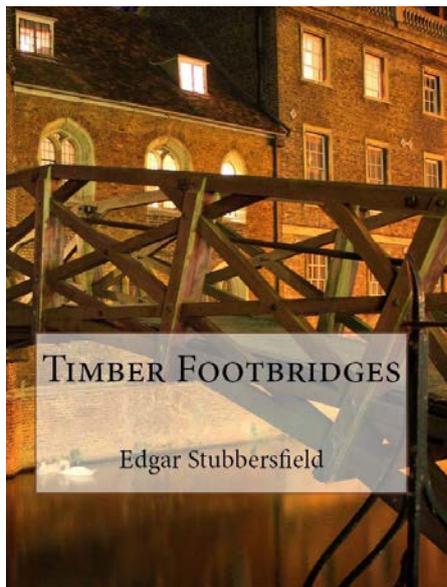
[New Publication Being Finalised](#)

[Fence Images Sought](#)

[Using Laminated beams externally](#)

[Using LVL beams externally](#)

New Publication Being Finalised



I have been working on the latest book in my Timber Design Files series, *Timber Footbridges*. Do you have any images that might help? There are over 140 images so far. Despite being a much bigger book than the last one, *Architectural Timber Battens*, this has been much easier. With the footbridge book I have had experience from 1984, and an embarrassment of riches when it came to images and other information. If you are designing a bridge now, the book can be used in its present form. Incidentally, the cover image is from the Mathematical Bridge in Cambridge. For more on this famous bridge see the [April 2012 newsletter](#)

This is one of the images from the book. A log girder Finke truss bridge near Yamba over Alligator Creek which spanned 36 m and was in service for 70 years. For those of you who love concrete and steel, consider, what material other than timber can give a ten fold increase in its design load and continue to give good service.



Fence Images Sought

The next book might be on fences. This fence fell over due to the posts being set in concrete and the decaying. So there probably is a call for this book as well. Do you have any images you would like to share with me. I am looking for images showing good practice, bad practice and remarkable fences. In the meanwhile, if you want to do a good job with your fence, talk to me.



Using Laminated Beams Externally



Image used with permission

When you use a Tasmanian oak laminated beam externally there can be only one possible outcome and it is not a good one. You can only scratch your head and wonder how a building designer, building certifier and an alleged specialist deck builder could see no problem using a durability 3 above ground timber in an exposed application,

laminated beam or not. But it did have a strength rating and, far too often, people think that if it has a strength rating it must therefore be durable. They also confuse quality products with appropriate products. Because of this you end up with expensive rectification as this job will require. This beam would have been a premium product if used internally. But how do you use a laminated beam externally?

The first image shows the consequence of using non durable timbers externally, This image shows the danger of using glues that are not cyclic delamination resistant externally - there are straps holding it together. How can you tell what glue you have? It is very easy, to my knowledge all the beams with the better glue are imported. However [Hyne give good guidance on how to make the standard beam work](#) if you have to use them.



Obviously you must choose the most durable timbers but that is just the start. further requirements are:

1. The use of arrised or round edges on beams to reduce the likelihood of coating failures on sharp edges.
2. The use of drip edges or other devices which provide a path for free moisture flow away from the timber beam.
3. Shielding of the beam from free moisture or direct sun. The use of metal, fibro or plastic shields on the exposed faces or ends of beams is required to help maintain the beam in an unstressed dry condition. Refer to their TDS for a diagram.
4. Joists and Bearers in weather exposed (above ground) decks shall be installed and protected. Refer to their TDS for a diagram
5. The use of damp proof membranes is also required where the beam may be in contact with moisture through porous masonry or concrete.
6. All beams shall be provided with adequate ventilation so that moisture content within beams will not exceed 15% and moisture gradients across the beam will not occur.

JOINT DETAILING SHOULD, WHEREVER POSSIBLE, COMPLY WITH THE FOLLOWING:

- Keep horizontal contact areas to a minimum, in favour of self draining vertical surfaces.
- Ventilate joint surfaces by using spacers, wherever possible.
- Always use compatible fasteners which have adequate corrosion protection and do not cause splitting during installation eg. hot dipped galvanic coatings or stainless steel.
- Ensure any moisture entering a joint is not trapped but can adequately drain away from the joint. Refer to their TDS for a diagram
- Allow for thermal expansion/contraction in the joint design.
- The use of building overhangs and other structures which protect the beams from excessive moisture movement and sun exposure

It is probably easier to wait for the mill to cut a piece of solid timber in spotted gum or ironbark and design for the shrinkage.

Using LVL Joists Externally



Image courtesy of Alex Fleri of Original Decking

The H3 treated LVL verandah joist in the image above was only 18 months old when it was replaced with solid treated pine. The fasteners split the joist, moisture enters and it is all over. The less expensive beams are treated after laminating meaning the moisture is going directly into what can be untreated pine. The more expensive beams are laminated after treating which should take longer to decay but the outcome is likely to be the same.

The same technical data sheet from Hyne is very clear.

It is an unsuitable use of their product if the " LVL if surface is exposed horizontally to the weather and water entrapment can occur." The same can be said about any brand. Unsuitable = don't do it. It gets back to the same issue of a quality product not always being an appropriate product. (Hyne information is used with permission).