November 2013 Newsletter

Written by Ted Stubbersfield

For Infrastrucxion Pty Ltd

An unsolicited comment on Hardwood Grading Book

I ran my book on Hardwood Grading past Standards Australia to ensure my references to AS2082 fell under the Fair Dealings provision of the copyright legislation. It was fine. But I received this comment: "On a personal note – I found your writing style turned a somewhat dryish topic into an enjoyable and informative read, especially the section on 'Gum Pockets' in decking!!" Have you ordered your copy of an informative and enjoyable read yet?

What will we do with our Hardwood Plantations?

I am about to start my last timber book which will show how to utilise small diameter natural round timber. For some time I have been collecting images and getting information which I intend to use in the book and, in this newsletter, I will share some of them with you. These international projects from as far away as the UK, Netherlands and Africa are stunning and I hope they will inspire you to consider using more natural rounds in your designs. But why write this book in the first place?

In 1999 the South East Queensland Forests Agreement was signed giving peace in the timber industry in Queensland. This was a remarkable agreement between government, industry and environmental groups which gave the blueprint for the transition from native forests to plantations. It is coming time to think about what we will do with the smaller diameter and younger resource from the plantations. The easy thing would be to chip it for no value, send it to China and import them back as paper to print out plans for brick, steel and concrete green star rated buildings. Somehow that doesn't seem right. A true environmentally friendly answer would be to use them in Architecture but Australia is lagging behind the rest of the world when it comes to the innovative use of this resource.

How much of this resource is there? Well, from Queensland plantations its too early to tell but worldwide it is potentially enormous.

If my interstate readers ever questioned whether Queensland was indeed the "Smart State" read the last third of the July 2000 article from the National Geographic entitled **Australia—A Harsh Awakening.** Unfortunately the on line version is truncated.

Earthcentre, Doncaster, South Yorkshire

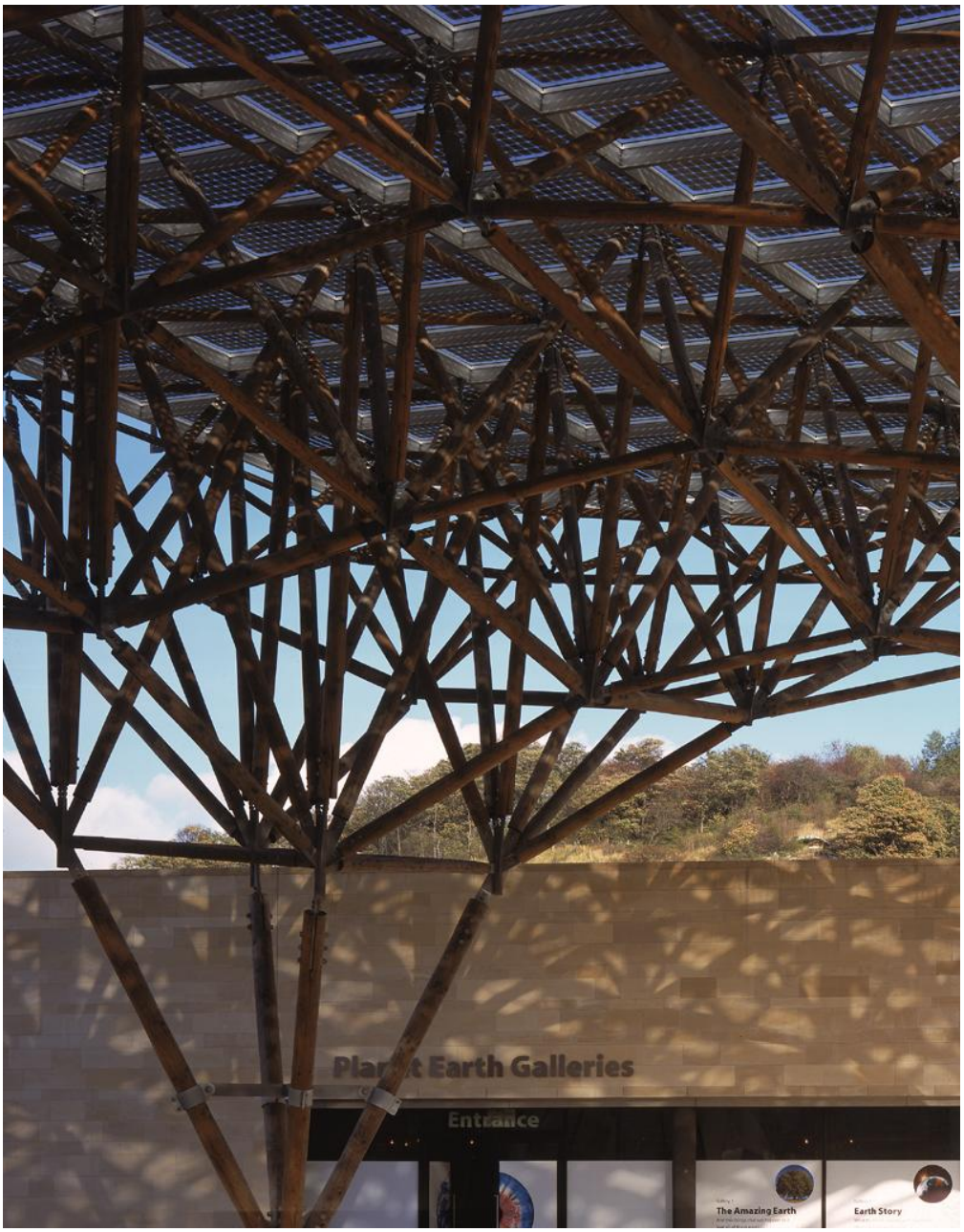


Image courtesy of the architects, Feilden Clegg Bradley Studio. Engineers Atelier One

The Earthcentre in Doncaster, South Yorkshire was one of the Millennium Commissions landmark projects in the UK. A disused colliery covering 400 Ha. was rehabilitated and in its place was built "a world centre for sustainable development promoting the best environmental and sustainable practice" Construction started in 1996 with the Solar Canopy (illustrated) commencing in 2000 but sadly visitor numbers were not reached and the doors were closed in 2004.

The Solar Canopy, carrying 925 m2 of photovoltaic cells, is a geometrically complex space frame constructed of larch poles joined by steel nodes, of which no two nodes are identical.

The whole structure seems to be supported almost implausibly on four delicate feet. There are 800 members of between 125 mm to 250 mm in diameter needed to make 221 nodes. These natural rounds have been turned much like a Koppers log so they are regular and easier to work with. An article on the canopy at the time stated "Various contractors, including Bovis, argued that it was neither realistic, nor economic, and exerted considerable pressure for a steel frame. Feilden Clegg, with sympathetic nods from the Earth Centre management withstood this, and eventually the timber version was approved, and the "sustainability-friendly Taylor Woodrow replaced Bovis. In winning this argument, Feilden Clegg, and Atelier One have proved a point – that the costs of the structure were only marginally above the probable costs of a steel frame. Coming in at £225 000, this is, as Atelier One's Thomas states – cheap".

For a very detailed article on the solar Canopy's design and construction see http://www.fourthdoor.org/annular/?page_id=445

House of the Five Senses, The Netherlands

The House of the Five Senses is the main entrance to the Efteling amusement park in the Netherlands. It was designed by Ton van de Ven and opened in 1996. The building, with natural round timber as its main framing material is 52 metres high and is said the have the largest thatched roof in the world (4,500 m2). The design is based on a traditional design from Sumatra in Indonesia called Rumah Gadang. The building incorporates five peaks, each representing one of the five senses. Thanks go to my friend William Blake in the Netherlands for arranging high resolution images of the timber construction of the inside of this building.


These two images show the remarkable use of natural round timber on the inside of the House of the Five Senses. Unlike the Earthcentre the round timber has not been "regularised". Connections can be the most difficult part of design with round timber and here we get some idea of how it was achieved. I am trying to learn more about this building but can find out very little at this stage (despite writing in Dutch to the architect). Readers that would like to know more about this building can contact me for the full collection of images. Again there was nothing limiting about the use of natural round timber.

Service Station, South Africa

Service Station at Ingwelala Share Block in the Timbavati Game Reserve, South Africa (next to Kruger National park). Images courtesy of David Hoffman of Hoffman's Thatching Specialists, This building was the winner of the 2013 "Most Aesthetic Structure" at the Thatching Association of South Africa Annual Conference. Design and construction by Hoffman's Thatching Specialists.

This structure is built from CCA treated Sydney blue gum. The timbers were lightly sanded and coated with a brown wood sealer. The roof is low down on one side to keep out the afternoon sun and the front open to allow easy access to the bowsers.

I do not imagine we here in Australia could put a thatched roof over petrol pumps. We are so bound by regulations that this open shelter would have had a battery powered exit sign! The simplicity of this structure is impressive. The designer has nothing to apologise for, despite using such basic materials. The big issue for Australian designers is how do you put the posts in the ground so as not to have premature degrade. - see the March 2011 newsletter which shows our practice

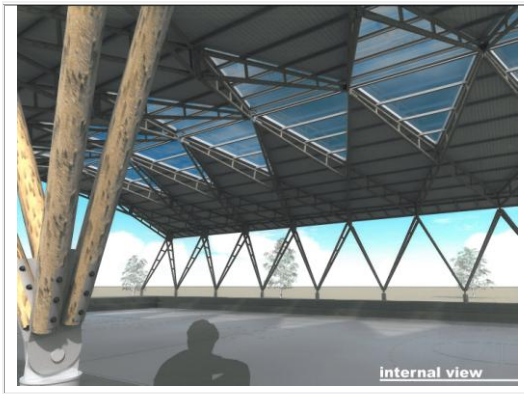
I have seen many thatched rooves in the UK and they really do look good. Even in this simple structure it is a work of art. Unfortunately, with our bushfire problems, I cannot see them gaining acceptance in Australia.

Ol Tukai Lodge. Amboselli National Park, Kenya

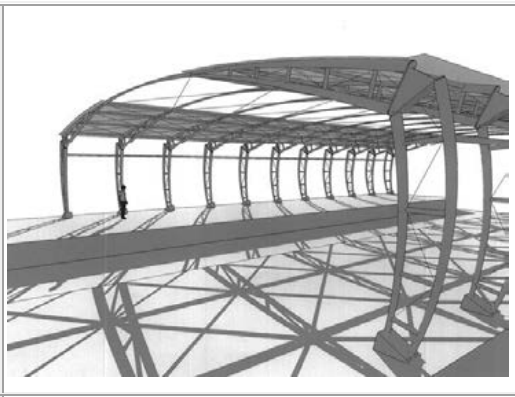
Ol Tukai Lodge was designed by Chema Katua of Dimension Studio. Further project information when available will be included in the book.

A few years ago I visited Kenya on a tour of the game parks. Unlike the big game hunters of the past who lived in tents, we stayed in opulence in the middle of nowhere. Our guide knew of my interest in timber and took me to see this particular lodge. I was impressed. Again it is very basic material but the end result is remarkable. Looking out from the lodge was a magnificent view of the snows of Kilimanjaro.

Market Assessment and Evaluation



Sports hall designed by Jeremy Slater



Building by Will Downes

In 2009, Michael Dickson, a lecturer with the School of Architecture at the University of Queensland in conjunction with others completed a study for Forests and Wood Products Australia entitled "A market assessment and evaluation of structural roundwood products from hardwood pulp plantations"

Senior Architecture students from the University of Queensland were presented background information on hardwood plantations, principals of wood science and elements of timber design. Using this information and with support from their lecturer they worked individually and in teams to produce designs and models for roundwood structures. Above are shown just two of their amazingly creative ideas for using roundwood. Notice the members are curved. Steam bending was a big part of this project.

The results from the survey which was part of this project provided an optimistic view for the potential of small, roundwood structures with 87% of respondents indicating that they liked the overall impression of the designs and concepts, versus 13% who were neutral. No respondents disliked the overall impression based on the concepts supplied.

The full report can be found at
http://www.fwpa.com.au/sites/default/files/FINAL_Report_Roundwood_pre-study_20091214.pdf

Pioneer Post Tames a 200x200

So what if you don't like round timber? A piece of 200x200 can be sawn from a log only 300 mm in diameter, a seemingly excellent application for small diameter logs but should you? Look at the image on the right. Before pen was put to paper for that project I received a deputation of 4 people to ask me how to make it a success. It is an application where replacement would be extremely difficult. Simple, durability 1 in ground timber, an expansion groove, cap on top and set in no fines concrete. Come the tender none of this was done and suppliers fell over themselves to price the job, (except us as we would not put our name to them). Three months down the track the Mayor rang me, "Ted, you were

right, will you sell us the caps now"? That experience led me to develop the Pioneer Post which completely tamed large section timber cut from small diameter trees. The picture below shows the same problem in an expensive recycled 200x200 cut from a CCA treated power pole. Incidentally, the defect is called a "star shake".

We know of a project where a large quantity of capped Pioneer posts were specified by the landscape architect but the landscaper got the ear of the developer and said, "Why waste your money, just use ordinary 200x200". Well money spoke and the nod was given to the standard product. Of course the bollards did what it had to do and there was a very unhappy developer. This was completely unnecessary as the LA had done the right thing. Unfortunately the landscaper appears to have got away with it and the developer will resist using timber next time. The point is, these small diameter logs can be used in sawn timber but with extreme care. To avoid disappointment talk to Chris or myself about your large section bollards.

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 issues,

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