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Developed by the Australian forest and wood products industry for design and building professionals, WoodSolutions is a non-proprietary source of information from industry bodies, manufacturers and suppliers.

EDITOR & PUBLISHER
Tony Neilson – tony@neilsonpromotions.com
Tel: +61 0408 166 543

SUB-EDITOR
Michael Smith

ADVERTISING ENQUIRIES
Australia
Kay Phillips – kayp@optionsnet.com.au
Tel: +61 0443 393 343

New Zealand
Don Wilson – don wilson@xtra.co.nz
Tel: 09 535 7275

DESIGN
Bill & Jo Paynter, PixDesign

PRINTER
MHP Print

SUBSCRIPTIONS
subs@neilsonpromotions.com

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SEE YOU ON THE OTHER SIDE

We stand at the crossroads – but with a clear vision of the way ahead.

Readers, one and all: in case it had slipped your notice, you are in possession of the very last printed edition of timber+DESIGN magazine. From this day forth, and till death do us part, we will be 100% digital – as an app for iPads and androids, or as a fully downloadable pdf.

Many of you will know we released the first tablet edition as a free sample in February. But if you missed it, please go to our home page at www.timberdesignmag.com and open the appropriate link to the app or pdf versions.

The move is motivated by the fundamentals of any successful business: adapting to change before it is too late, and avoiding Mr Micawber’s malaise in Dickens, whereby expenditure exceeds income. Paper-based publishers everywhere are grappling with falling advertising revenues and rising production and distribution costs (particularly the latter). At the same time, the digital age has arrived like a lightning bolt, and will quickly destroy many who choose not to go along for the ride.

We have decided to go the whole hog and turn timber+DESIGN into a fully-fledged app-based publication because we want to deliver a unique and fresh experience to our readers and advertisers – and to a much wider audience.

Digital also makes it viable to increase frequency from four to six issues annually, and to add bonus editions like our Specifiers’ Guide to Sustainable Timbers, coming later this year. Circulation is already above 16,000 emails per issue (more than three times the print number).

We’ve retained the magazine’s core design template and adapted it to the horizontal tablet format – you swipe across to view individual articles/ads, and up and down to read the content of each feature. Body copy is large and very easy to read, and the images absolutely pop on the screen. (The pdf version for non-tablet owners doesn’t offer the full range of interactive benefits, but it is still a crisp, clear and downloadable read.)

For advertisers, we believe there is simply no contest: tablet advertising combines the best of print, television and the web. Animating text and images with slideshows, video and 3D effects comes as standard and will guarantee greater impact. We are also offering free web-links with every full-page.

After nearly seven years in print – and with a substantial international following among design and build professionals – we had anticipated some negative reaction, but to date the response has been overwhelmingly positive. Even some of those who regretted the passing of the printed page have said they like the magazine so much they will switch to the tablet.

The following from an Australian engineer is typical of the mail so far. “Just to say how much I enjoyed reading the digital edition on my iPad – linking through to product information, being able to enjoy great photos and zoom in, etc. I do hope your readership expands as people realise how well presented the digital magazine is.”

So there you have it. And just to be sure we are able to ‘see you on the other side’ we REALLY DO NEED YOUR EMAIL ADDRESS. So please look for the special promotion on the inside back page and send us your email. You could win a free iPad Mini.

For comment or information about any aspect of this edition, please email us at: info@timberdesignmag.com
We gratefully acknowledge the special assistance of the following organisations with the distribution of timberDESIGN to leading design and build professionals throughout Australia and New Zealand:

- Forest & Wood Products Australia – a not-for-profit company increasing awareness of the many advantages of wood.
- New Zealand Timber Design Society – fostering the designed use of timber.

Wood is the ultimate ‘green’ building material, but is not always acknowledged as such by environmental impact schemes. Now, even sustainability as a marketing advantage is being questioned.

The Malaysian International Furniture Fair (MIF) has traditionally been more for retail buyers than interior designers – but that is changing, as was evident at this year’s event in Kuala Lumpur.

The new UK headquarters of one of the world’s most recognised conservation organisations will open this year with timber playing a big role in the sustainable design.

The roof has been described as one of the UK’s most outstanding timber structures – an iconic form designed using award-winning software. The roof is known as the ‘Pyramid Scheme’. It is located in a botanical garden, and its design was inspired by the organic forms and natural systems of a native orchid.

The Malaysian International Furniture Fair (MIF) has traditionally been more for retail buyers than interior designers – but that is changing, as was evident at this year’s event in Kuala Lumpur.

The designers of this modest looking structure spanning a stream in New Zealand believe it demonstrates “enormous opportunities” for the future of timber traffic bridges.

The Sustainable Service Station is an innovative, climate-neutral petrol station combining the poetry of a reclaimed landscape with a utilitarian and robust character.

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The Sustainable Service Station is an innovative, climate-neutral petrol station combining the poetry of a reclaimed landscape with a utilitarian and robust character.
Wood is unquestionably the ultimate ‘green’ building material, but is not always acknowledged as such by environmental impact schemes. Now, as Philip Hopkins reports, even sustainability as a marketing advantage is being questioned. Timber has fought hard to be officially recognised by schemes that assess how its environmental impact is measured in houses and commercial buildings.

Now, with the rise of advanced engineered wood products like cross-laminated timber (CLT), it seems there is no sustainability rating system that can do it justice. The new kid on the block – life cycle assessment (LCA) – could push the sustainability boundaries for timber. LCA estimates the overall environmental impact of materials or products during their lifetime.

“Timber hopes ride on life cycle assessment”

Timber hopes ride on life cycle assessment

Dr Alastair Woodard, a Melbourne structural engineer specialising in wood. “But there is a lot of devil in the detail.”

Assessment criteria for sustainability can be confusing. In Australia all house-building materials must comply with the national construction code, which has thermal performance built in. All construction systems, including wood, must deliver a level of performance specified in the code. This is measured using AccuRate software developed by the CSIRO.

As for commercial buildings, the Green Building Council of Australia’s ‘Green Star’ system evaluates the environmental design and construction of commercial buildings and multi-residential units, allocating 4, 5 or 6 Stars. Materials are rated according to their sustainability. Certified timber gains one ‘green’ point. (There is no GBCA rating tool for homes.)

The actual environmental performance of commercial buildings (energy and water use) is measured by the National Australian Built Environment Rating System (NABERS).

Furore subsides

The initial furore that greeted the introduction a few years ago of software that measures the thermal performance of timber in homes has subsided. But some architects and designers still maintain it restricts the

“...you’re expected to do the right thing, but other properties associated with timber... create much better sustainable building outcomes than just building materials.”

– Ric Sinclair
use of timber in houses and, along with other sustainability demands, adds to the cost of housing and restricts design flexibility.

However, Wayne Floyd, a former chairman of the Association of Building Sustainability Assessors, says the use of insulation has largely eliminated the disadvantages of timber sub-floors. They perform at virtually the same thermal level as concrete slabs, while timber windows clearly outperform their aluminium counterparts.

Floyd says new-generation software coming this year will potentially extend the boundaries for timber. Instead of only measuring timber floors and windows, it will include wood features such as walls and rafters – allowing, for example, a timber stud wall frame to be compared with its steel equivalent. Floyd says new-generation software coming this year will potentially extend the boundaries for timber. Instead of only measuring timber floors and windows, it will include wood features such as walls and rafters – allowing, for example, a timber stud wall frame to be compared with its steel equivalent.

Greg Nolan, associate professor at the University of Tasmania’s School of Architecture, says thermal performance criteria have improved the overall quality of houses. A study he led in 2000 showed lightweight timber homes could easily meet five and six-star thermal performance standards – notably through improved design and room placement, increased insulation and better sealing. “But thermal requirements are a blunt instrument,” he says. “Timber’s temperature performance depends on location, aspect and climate conditions.”

Australia’s stock of timber houses is estimated to store almost 500 million tonnes of carbon – about two million tonnes of carbon dioxide equivalent added annually as new homes are built. But the extra carbon stocks have actually been falling for 20 years as more bricks, concrete, metal and plastics are used.

The extra point

Australia’s native hardwood sector – largely certified under the PEFC-credited Australian Forestry Standard (AFS) – gained a significant victory when the GBCA recognised it alongside FSC in its Green Star scheme in 2008. Timber certified by both schemes receives one point under the GBCA’s ‘essential’ criteria, with the possibility of extra points under the scheme’s ‘significant’ criteria, which aims to compare and assess forest certification schemes.

GBCA’s executive director, advocacy and business services, Robin Mellon, told timber+DESIGN the Primary Industries Ministerial Council had moved in April 2010 to develop a discussion paper on sustainable forest management principles for Australia. “We still await the outcomes before proceeding with the full implementation of the ‘significant’ criteria component of the credit,” he told us in March. “We...are committed to full implementation of the criteria.”

Meanwhile, Nolan believes the differences between AFS and FSC are increasingly unimportant in the Australian market. “The issue facing builders and designers is whether timber is certified to an international standard.”

In the UK, PEFC and FSC were assessed in terms of the legality of the material and whether it was sustainably managed. The UK investigation found that both schemes satisfied both benchmarks. “It can be pedantic to argue that one scheme is better than the other. But in the Australian context, there is some political ‘grey-bargy’, taking up the differences.”

Although FSC has been in Australia for some time, there is still no Australian FSC standard. It operates using two interim standards. On the other hand, AFS/PEFC is in its second revision by Standards Australia and has been in the public domain for eight to 10 years, says Nolan.

The single star is having some effect, he says, not as much as he would have thought, given the emotion that went into gaining the credit.

Forest and Wood Products Australia (FWPA) managing director Ric Sinclair believes the issue of sustainability has moved beyond just building materials. “To a certain extent, expectations have become mainstream. ‘You’re expected to do the right thing, but other properties associated with timber – for example, it is lighter and can be pre-fabricated – create much greater sustainable building outcomes than just building materials.’

He believes sustainability as a marketing advantage is on the wane. “All [materials] are struggling, but it is unclear whether this is part of a cycle and will rebound.”

Advanced engineered wood products have added a new dimension to timber’s role in sustainability. Lend Lease got the ball rolling in Australia with its 10-storey all-wood Forte building opened recently in Melbourne. Using CLT imported from Europe, it is believed to be the tallest of its type in the world.

However, Stanton says many benefits of CLT are not recognised properly in the Green Star system – including speed of construction and the lack of excavation. “It does not fit the formula,” he says. Consequently developers have to promote the benefits of CLT themselves.

A Lend Lease spokesman says the company targeted the timber credit at Forte. “We continually try to achieve this credit on projects, especially those that may potentially use CLT.”

Grocon environmental sustainability development manager Byron Davy says it is hard to know how many Green Star points a CLT building could gain. “The benefits of CLT are currently outside [its] scope, but this will change when new tools mature to take into consideration the full life cycle costs of materials used within a project.”

The new frontier

Life Cycle Assessment is the new environmental frontier for timber, and the GBCA is focusing on it. The council released an LCA assessment paper last year and received many submissions. “We are collating feedback and compiling a stakeholder report, which will be released in the first half of this year,” says Mellon. That will be followed by a second discussion paper, which would specifically show how LCA could be incorporated into Green Star rating tools.

Stanton welcomes the move: “People should get to points for using only timber, given its life cycle benefits, and not just an extra point for using certified timber. To some extent, the discussion of cross-laminated timber, the stored carbon in timber and its other benefits, have ‘leapfrogged’ the GBCA,” he says. “Have they got their heads around the issue? They should have been doing more to encourage that.”

Nolan says the complexity of LCA makes it hard to use and regulate in design. “LCA...provides a lot of guidance, but how you can use it to allocate [green] points is difficult. GBCA assessments were done on a spreadsheet and it is difficult to use credible full life cycle results in that format.”

Woodard warns that because the LCA paper includes environmental impact categories, such as land use and water depletion, it could potentially disadvantage timber if badly handled.

He says previous studies had penalised timber by making incorrect claims about the water use of growing trees. LCA could ignore some of forests’ environmental advantages, such as improving water quality by acting as a natural filter, mitigating dry-land salinity, helping to stop erosion and creating biodiversity.

“Phil Hopkins is a former senior journalist with The Age newspaper in Melbourne where he specialised in forestry and wood-related issues. Now writing regularly for timber+DESIGN)”

LCA will bring threats and opportunities for timber construction

Photo: Courtesy Lend Lease

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At the time of writing, Tasmania’s A$500-million-a-year wooden boat industry was threatened by the Tasmanian Forest Agreement Bill with its attendant lock-up of another 544,000 ha of native forest. Amendments being debated in the Legislative Council in late March were testing the bill’s robustness, and troubling people like Andy Gamlin, who runs the internationally important Wooden Boat Centre Tasmania (WBC) at Franklin.

“Preservation of our cultural heritage is strongly linked to the ongoing supply of our world-class native timbers for the construction and maintenance of wooden boats. Loss of access will effectively signal the loss of a traditional skill and culture important to the very founding and development of Tasmania,” he told timber+DESIGN.

The WBC is the only surviving traditional wooden boat school in Australia, and the only one worldwide at which certificate students – many of them ‘chronologically mature’ – build a full-size, seagoing cruising vessel in solid timber as their major learning project. The school includes interpretive displays, and the opportunity for visitors to watch the processes.

Our visit was well timed, with several nationally significant boats in various stages of construction or recent restoration, including two of Gamlin’s all-time favourites.

Pipe Dream – a 7 m strip-planked day sailing and camping boat – features recovered king billy pine, previously used as staves for a 2-km-long hydro pipeline, and acquired for just a dollar a metre. “Using this old wood was a risk, but one that’s paid off. It was degraded on the outside and had been immersed in fresh water for 80 years – but when we cut into it, we were relieved to see it was nearly perfect. It truly is beautiful timber: close grain, no knots – all the things you want for boatbuilding.”

It has to be said that Georgina – Gamlin’s other ‘love’ – looked nothing like the 80-year-old that she certainly is: sitting patiently in a corner of the WBC workshop – make-over almost complete; all elegance and Riviera style.

“She is a special boat to me, and owes her ‘second chance’ to the careful way in which she was built all those years ago,” he says. “Made almost entirely of huon pine in the traditional manner, Georgina has been restored to expose her simple, clean lines, and to honour the skill of her original builders.”

In her reincarnation, Georgina will transport up to seven passengers on local rivers and protected waters – fitted out with a bank of lithium iron phosphate batteries to provide sustained electric power output. (Her first major public reappearance was at the Australian Wooden Boat Festival (AWBF) in February.)

Canoe-like countenance

On an adjacent frame at the boat school is the canoe-like countenance of a Rangeley guide boat. ‘Naked’ as she is, it is easy to identify the beautifully grained, light pink of the king billy planking – dark patches here and there indicating its previous use.

The Rangeley is a replica of a type of fishing boat built in considerable numbers in the late 19th century for use on fishing lakes out of New York. They had to be light so the guide and his customer could carry them easily to the lake’s shore. They also had to be stable and large enough for the fisherman’s purpose.
The Rangeley was rowed rather than paddled – allowing the guide to manoeuvre the boat for the benefit of his client. “Although necessarily light, the thin planking requires great care during construction and in use,” says Gamlin. “And to ensure hull strength the steam-bent frames are closely spaced. The resulting hull is an exacting process to complete and our version includes over 1800 handmade copper rivets.”

On another cradle was one of the Huon River’s extraordinary survivors – the 120-year-old ‘Clara’. Built as a racing yacht, converted to power and now being restored to her original glory by skilled people at the WBC, the hull has been totally replaced and the kauri planking strengthened and splined to ensure she is tight and strong for sailing. (We believe Clara was relaunched in time for the AWBF in Hobart.)

Less salubrious:

The immediate neighbour of the WBC beside the black waters of the Huon is the much less salubrious building of the Living Boat Trust (LBT) – an incorporated society dedicated to maintaining traditional boatbuilding, repairing, rowing and sailing skills in the area. When we approached there was a man outside painting the hull of a newly restored sailing dinghy – perhaps optimistically considering the distinct chill. Inside, there was a palpable sense of community and enthusiasm.

Several times a week, volunteers run workshops at the LBT, and the members maintain a fleet of working wooden boats. The hull of a retro-style plywood cabin cruiser was face down on one side of the shed, and on the other were the sensuous lines of a new Ian Oughtred-designed St Ayles skiff. Being built for Franklin’s ‘rowing women of a certain age’ – known collectively as the Women on Water (WOW) – the skiff lacked only a name and a few more coats of paint before being launched.

Aptly exuberant WOW person Jilly Archer explains while giving the skiff a vigorous rub-down that the group has been rowing Grebe dinghies on the Huon twice a week for several years as part of a community health and fitness effort. “The skiff will also link Franklin to an exciting international movement from Scotland to the US and now down to Tasmania,” she says.

Odd pieces

Further downstream at the stylish Kermandie Marina is the boatbuilding business of Dean Marks who swapped Sydney for the Huon Valley because he wanted to work with Tasmania’s unique timbers.

On the hard outside, looking very much like a fish out of water, and sprouting odd pieces of wood, clamps and obvious signs of recent alterations, sat Australia’s oldest registered commercial vessel – the Olive May – a gaff-rigged cutter launched in 1884. It, too, was destined to make a grand re-entrance at this year’s AWBF.

“It started life as a fishing boat and was converted to scallops, which is when they cut five feet off the back to more easily work the dredges,” says Marks. “Then legal and the new owners want it restored to the original design.”

The Olive May was first planked with huon pine and Marks believes the timber could easily be 1500 years old. “We still get huon boards 1200 mm wide, and at a growth rate of a millimetre a year, that is 1200 years. And the actual tree could be anything up to 2000 years old.”

Although good boat grade is much harder to source, Marks says supply is well managed by Forestry Tasmania. “They reclaim a lot from when the old guys used to row up stream with an axe and block-and-tackle. Many logs get stuck as they slid into the creeks, and they were left behind. But they get dislodged when other trees fall, and by floods, and they are salvaged by a small group with the rights to extract them.”

The Olive May now operates as a charter vessel – rear end fully restored in huon pine and with new celery top pine decking.

Story and images, Tony Neilson

“We still get huon boards 1200 mm wide, and at a growth rate of a millimetre a year, that is 1200 years.”
When the Advanced Engineering Building (AEB) at the University of Queensland’s St Lucia campus in Brisbane opens this year it will immediately become part of the curriculum.

The design by Richard Kirk Architect (RKA), in association with Hassell, won a limited competition that called for a new benchmark in sustainability.

“From an early stage, we took the view that sustainability initiatives are often limited to ticking a series of boxes, and for us, merely addressing those criteria was inadequate,” says Kirk. “Our proposition was to yield a deeper and more significant sustainable outcome for the project.

“Central to that was the use of local, inherently sustainable industries and building processes – often neglected by an overly risk-averse construction industry.

“Although the competition period was extremely brief – and at the time we had not fully resolved how this would play out – we felt that the goal of using materials from local, sustainable industries would be achievable.”

The AEB design for the 22,000 m2 building favours a primarily passive response to sustainability and embraces new methods of training young engineers through hands-on learning. Its most dramatic feature is a huge roof structure of Australian hardwood glulam.

The structure is conceived as a ‘living building’ – allowing real-time monitoring of its performance in climatic and structural terms, and to a fine level. “In this way, the building becomes a lifelong learning tool, which is part of the curriculum,” says Kirk.

The design also challenges the traditional concept of the university workplace, with fewer closed cellular spaces and a central atrium for better cross ventilation and daylight.

Timber is used extensively for the structural systems, facades and roofs, and reflects the architect’s deep interest in developing related construction methods and material knowledge. “In this case, application of small project skills on larger projects has resulted in a grander scale for timber,” says Kirk.

“There should also be greater utilisation of existing sustainable industries, previously denied access to these larger sectors because of entrenched conservatism. It is critical that architects act in this way to develop sustainable approaches that can be adopted widely and immediately."

Timber structure

The AEB features almost certainly the largest timber-framed auditorium in Australia, and one of the longest wooden spans. “But that wasn’t the drive,” Kirk emphasises. “We wanted to express the structure and timber was selected for its sustainability credentials and for spaces that required an acoustic quality or ‘colour’.

The ambition for the space was to allow the spoken word without amplification – an idea that promotes a more intimate teaching and learning experience.”

Glulam was used for the main 500-seat auditorium – comprising a three-storey facade and roof structure. The trusses were produced by Hyne Timber at the company’s Maryborough, Queensland plant.

“The purpose was to demonstrate the functional and aesthetic potential of timber. Our goal had always been to develop sustainability initiatives beyond the singular energy strategies typically targeted in large projects. The use of timber became central to this,” says Kirk. “It also allowed us to identify a more sustainable industry that the project could support and contribute to. The fact that the supplier was local was incredibly important to us and the industry that the project could support and contribute to. The fact that the supplier was local was incredibly important to us and the support of industry in regional Queensland was greatly valued by our client.”

To express the auditorium externally and achieve greater structural capacity, the roof was formed as a series of folded plates – comprising a three-storey facade and roof structure. The trusses were produced by Hyne Timber at the company’s Maryborough, Queensland plant.

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Above: The Hive’s mission is to promote lifelong learning, engender social inclusion and raise aspirations for the whole community.

The Hive is an integrated public/university library in England and its mission is to promote lifelong learning, engender social inclusion and raise aspirations for the whole community.

The roof has been described as one of the UK’s most outstanding timber structures – an iconic form that was designed using award-winning software developed from Bentley’s Generative Components. This allowed the architects to incorporate structural and environmental parameters so seven structurally independent pyramidal roofs could be constructed in solid laminated timber, whilst providing the optimum level of daylight and natural ventilation.

The span of the biggest roof exceeds 25 m and required the development of a new and unique system combining glue-laminated timber beams and cross-laminated timber panels. Because the two main components were sourced from different manufacturers, the production process had to be carefully programmed and organised. The PEFC-certified spruce CLT was manufactured in Austria and the European ash veneered panel wall linings, solid ash slats to atrium balustrades, treads and balustrade linings to the central stair were produced by the UK.

The exposed timber creates a series of distinct environments within the principal library floor level. A silent reading room sits within one cone at level 4, with inclined timber walls and roof lights giving spectacular views. Laminated timber is used to structure the large roof light; members are sized, spaced and oriented to provide shade and direct sunlight. Laminated timber also forms the structure of the central staircase. FSC-certified European ash lines the central atrium balustrade, drawing the character of the roof cones down through the three-storey volume. Ash battens mask acoustic insulation, extending beyond the line of the solid balustrades to create a filigree edge.

Solid laminated timber in the roof cones of this ground-breaking public building saved 2000 tonnes of CO2 compared with a steel and concrete structure – not to mention the extra warmth and tactility to the interior.

The Hive is an integrated public/university library in England and its mission is to promote lifelong learning, engender social inclusion and raise aspirations for the whole community.

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Timber provides a contrast of colour and texture with the concrete frame rising to eaves level. In combination with the extensive daylighting it generates tangible warmth in the heart of the building. Locally sourced biomass provides heating and hot water for the Hive. (More on this project in the next tablet edition of timber+DESIGN.)
The Malaysian International Furniture Fair (MIFF) has traditionally been more for retail buyers than interior designers – but that is changing, as was clearly evident at this year’s event in Kuala Lumpur.

“We sense a level of excitement we have not seen before,” says Thailand-based German design consultant Klaus Kummer in reference to the way more Malaysian manufacturers are adding good design to their business models. “Local designers are also showing greater understanding of what is expected from them.”

A real delight of MIFF, with its cornucopia of products from a diverse range of countries and producers spread over two venues, is that you never quite know what to expect. No, it certainly is not Milan, but it doesn’t pretend to be. Yes, there are lots of design-challenged, low-cost offerings, plonked in bare spaces like gravestones at a cemetery. (One Asian company didn’t even bother to bring products – sticking photographs around the walls instead. Not surprisingly, they weren’t very busy.)

As timber+DESIGN found again this year, MIFF is developing a stronger following from design-driven producers with the capability and range to compete on the international stage. The buyers also like MIFF because they are usually dealing directly with manufacturers, and not agents, as is increasingly the case at regional shows being dominated by Chinese exhibitors with only local sales representation.

Malaysia is the world’s eighth biggest furniture exporter, but M Gandhi, managing director ASEAN business for UBM (MIFF’s owner), says the country still needs to develop a furniture design identity. “Malaysia’s advantage lies in its ability to serve boutique buyers … and its design strategy should be headed in that direction.”

With more than 18,000 trade visitors from 140 countries and sales reported at a record US$854 million, MIFF is the biggest furniture fair outside China for UBM.

Interior designers

“We see more reasons this year for interior designers to consider MIFF as a source of good, well-finished designs across an impressive range of materials – notably more ash, birch, acacia and poplar (tulipwood). Although ash was generally allowed to express a natural, almost Scandinavian look, dark, flat finishes were the norm for more ‘receptive’ timbers.

From some 500 exhibitors, we selected just three to demonstrate the international flavour, design differentiation and product quality MIFF now represents.

Korea Tech & Art (KTA) claims to be that country’s leading producer of trendy wooden furniture (modern and ‘antique’). It was exhibiting its range of pine, ash, mahogany and rubberwood pieces at MIFF for the first time. And with a silver excellence award for a simple, nicely detailed Nordic-style chair in ash, and “potential clients from all around the world”, the company was more than satisfied.

Not shy about “a little copying”, they say the company’s key to success is a mix of price, design and quality – including only certified timber suppliers.

By far the standout collection for us, and a magnet for any visiting interior designers, was the eclectic fusion of beautifully finished Asian styles exhibited by SJY Furniture. Claiming to be the world’s best wicker furniture manufacturer, it is also setting benchmarks with mahogany, mango wood, birch, water hyacinth, jute and banana leaf in all sorts of creative ways. SJY is based in Malaysia, with factories in Indonesia, the Philippines and China.

Brown is chic

And now for something completely different: the work of Luo Chiang, a high-flying financial consultant turned furniture designer/maker from Sarawak. There is nothing standard about this guy – even his company’s name, Brown Furniture, challenges convention. “What’s wrong with the name? Brown is the new chic. It also works because it identifies the colour of wood: chocolate.”

Chiang has two factories (Kuching and the Philippines), designs his entire range, and his clients include the Marriott Group and various...
upmarket restaurants. He describes the Brown range as, “Bali style you can take with you. A tropical living concept – very simple pieces; no rules in terms of display; weird is good.” (He should be writing advertising copy.)

So where did he learn furniture design? “I’m self-taught,” he says proudly. “If you go to design school you have to work within the limits of convention, and I don’t want to do that.”

Definitely outside the square is a dining setting Chiang nonchalantly calls Minimalist Table – a prototype shown at MIFF for the first time. Made with ‘raintree wood’ (from the mahogany family, aka suar and tiger wood) and featuring sliced teak branches on the chairs, he had already received strong interest from EU, Canadian and Indian buyers. The branches – some well over 100 years old – were going to waste, so he had them collected, sliced and set in natural resin.

All Brown furniture is handmade (no nails or screws) and the range includes ironwood (belian) from Borneo – a big seller in Australia. No longer harvestable legally, Chiang sources his ironwood from old bridges, longhouses, warehouses and boats.

Clear signs

There are clear signs that the London-listed UBM will strengthen the MIFF product, and expand its influence in South-East Asia. UBM has already announced a furniture and interiors import-export exhibition (SEAFIE) for KL for the ‘second buying season’ in September, aimed at mid-to high-end international brands. Expectations are for 300 exhibitors and 20,000 buyers over four days as a lead-in to the huge Furniture China show.

We also understand the Malaysian Timber Council is negotiating with UBM to link the council’s Global WoodMart architectural and wood trading show with SEAFIE. The fit is not obvious but it could save the government agency’s biannual event, which has struggled to attract sufficient buyers to keep exhibitors happy.

"Ball style you can take with you. A tropical living concept – very simple pieces; no rules in terms of display; weird is good.”

Stronger purchasing power from Europe, Middle East, India, Africa and South America
Ten years ago, if you wanted to use wood structurally, the common detail was two ugly metal brackets with through-bolts. – Kevin Hill

Banks, insurers and fire regulations are invariably cited as the major obstacles to more timber buildings in many parts of Asia. But high-profile, Singapore-based developer Kevin Hill says a bigger problem is specifier naivety about wood.

“Ten years ago, if you wanted to use wood structurally, the common detail was two ugly metal brackets with through-bolts,” he told timber+DESIGN.

“That is partly because the timber industry has not been doing a good job of shaming from the soapbox. Some trade bodies have helped quite a bit by rationalising the fact that cutting down trees can be a good thing, and by offering a wonderful palette of [timber] choices for designers. But more needs to be done,” says the entrepreneurial managing director of urban design and contracting company Venturer Pte Ltd.

He also points to gaps in the university curriculum about designing and building with wood. “Ten years ago, if you wanted to use wood structurally, the common detail was two ugly metal brackets with through-bolts. Hopefully we have changed the perception with a constantly evolving range of concealed fixing and joining methods.”

Despite the problems, Hill says timber elements are increasingly being incorporated in SEA design. (While speaking to us, he received a design for a timber gridshell pavilion at a new university in Singapore.) He credits some of the trend to greater regional interest in green issues, but says it is more about adding the warmth of timber to a traditionally cold palette. “A good example in Singapore is Terminal 3 and the upgrading of T1 and T2 at Changi International Airport. Timber features in the flooring, railings, benches and slatted screens [over glass].”

More prefabrication

Hill is nevertheless concerned about a lack of timber design awareness and craftsmanship. He told a recent Malaysian Timber Council-sponsored design and build seminar that timber durability was being short-changed by bad detailing, and that part of the answer was in more prefabrication.

“Traditional boatbuilding techniques are highly advanced and extremely well thought out ... On a traditional racing yacht, weight reduction is crucial, so shipwrights created hollow and tapered masts out of fir and spruce. In the structure of the boat itself, each component was reduced and pushed to breaking point – sometimes literally. There were no computer models in those days; it was all trial and error, and there was tremendous evolution in a short time.

Henderson Wave Bridge, Singapore features prefabricated modular yellow balau decking, curved balustrades and concealed epoxy dowel connections

More timber elements appearing in SEA design

Hardwood decking and balustrades lead to the Marina Bay Sands Infinity pool, Singapore

SOUTH-EAST ASIA

WARMING A COLD PALETTE

“there are still many misconceptions about wood that I regularly uncover in discussions with designers around South-East Asia. they frequently think of it as this ubiquitous material whose properties are all the same – much like steel or other alloys,” he told timber+DESIGN.

“That is partly because the timber industry has not been doing a good job of shaming from the soapbox. Some trade bodies have helped quite a bit by rationalising the fact that cutting down trees can be a good thing, and by offering a wonderful palette of [timber] choices for designers. But more needs to be done,” says the entrepreneurial managing director of urban design and contracting company Venturer Pte Ltd.

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“There is very good timber factory capacity in this part of the world. Traditionally, that meant churning out OEM-made products, but these days we see family-owned timber brands becoming more adventurous and successful. “It is very clear when you get to a site where the job was produced in a factory. In Singapore it is not uncommon to have many different nationalities working together, and quite often there are language barriers. Inevitably the workers get on with it, because they have to, but that doesn’t always lead to the best results. Examples include badly scribed joints, poor mitres and the overseen of wood putty and air nails.

“In a factory, division of labour and predictable circumstances mean you can overcome these challenges, it just takes planning. I think it’s common sense that advancements in CAD technology and mechanised cutting will lead to a reduced amount of on-site work. It just needs designers to insist on this approach early so the builder has a fair opportunity to find the appropriate resources.”

Founder of the Double Helix branded DNA timber tracker, Hill divides his time between Australia and Asia where he is also promoting “more curves in timber”. By that he means applying boatbuilding skills to glulam construction.

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Fortunately, fast boats also tend to be beautiful, so you don’t have to sacrifice that for speed. Timber only wants to bend in ‘fair’, attractive curves, and fortunately for the yachtsman, these lines also tend to work well for their purpose of displacing water without creating turbulence.

Steam bending, laminating, material maximisation, gluing techniques – not to mention the development of high-level craftsmen – are all products of the boatbuilding industry.

Sings praises

Operating in a part of the world where softwoods like radiata pine are generally consigned to packaging and formwork, Hill sings their praises. “We often use treated softwood such as southern yellow pine [SYP] from the US, or radiata pine from New Zealand for framing, joists and rafters – internally and externally. It is wasteful to use increasingly rare, visual-grade hardwoods for concealed framing. Unless you are employing their specific structural properties, it does not seem warranted. Treated softwoods can be very durable.”

Nearly five years ago, Hill used treated SYP to fill a continuous 1 m void between concrete floats at the Raffles Marina Super Yacht Berth. “Some people thought it wouldn’t last a year; we think they still have some years left in them. That is about as harsh an environment as you’re ever going to get.”

He has also pioneered the use of LVL in SEA – despite most manufacturers not guaranteeing their built-in insecticides in equatorial latitudes. “We mitigate that by treating the exposed edges with thinned epoxy – something we learned from boatbuilders – and I’d like to meet a terrestrial termite that can get through that stuff.”

For more demanding structural and outdoor projects, Hill’s company has developed a merbau (kwila)-based glulam product. “Merbau has twice the modulus of elasticity of oak and is several times more stable. It is nearly as stable as teak and is the only glulam we will use in our landscape projects where it will be exposed to rain and sun.

Because merbau is also considered fire retardant under AS3959 for [Australian] bush fire zones, we believe it has the potential to even outperform steel in a fire – especially with the application of an intumescent paint.”

Hill claims the merbau product outperforms European and American glulams, “because often when you are creating a geodesic, elliptical or free-form structure, maintaining light sections makes the effect even more striking”. He has created laminates as thin as 4 mm and achieved radii of 150 mm – outperforming standard rules of thumb for cold bending timber by more than 200%.

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TRULY DELIGHTFUL

An elegant realisation of a vision

They don’t come more quintessentially English and private than the Hurlingham Club in Fulham, but the glare of publicity was unavoidable when the club’s new outdoor pool facility won the coveted “gold” in the 2012 UK Wood Awards.

The new features include a replacement 30 m pool, children’s pool, beach area, changing room building and café, integrated into the picturesque club grounds abutting Hurlingham Park and the River Thames.

The original outdoor pool facilities were 80 years old and though much loved for their character and charm had reached the end of their serviceable design life.

The challenge was to retain the qualities (charm) of the original traditional lido-style buildings while providing high-quality, modern, accessible changing facilities with an efficient layout, maximising natural day-lighting. The original buildings were a single-storey timber-framed construction, clad in clapboard timber, painted in distinctive Hurlingham blue and white, which was complemented beautifully by reflections off the pool. They had pitched roofs, tiled in grey slate.

The materials, proportions, details and accessories from the original were incorporated into the new design: the rhythm of white cubicle doors against blue timber cladding; long horizontal proportions; a horizontal band of blue cladding with a horizontal band of grey roof above. And accessories such as a clock, lifesaving rings and palm trees in planters help to animate the facade.

Change rooms are organised into modules of wet and dry spaces. The Hurlingham Club’s new facilities reflect the charm of the original wooden buildings.

The existing changing pavilion was an awkwardly thin building, whereas the new pavilion – in the same location – pushes out to follow the curved alignment of the adjacent pathways integrating into the landscape. The curved plan extending to maximum limits allows space to flow around the building, anchoring the curvilinear form of the lake and creating a prow which, viewed across the water, appears on the scale of a gazebo in the landscape. The roof is lifted clear of the changing room facade, allowing daylight to permeate the internal spaces, reducing artificial lighting needs and giving views from within of the tree canopies and the grounds.

The key innovation was the use of prefabricated timber cassettes to form the roof structure, giving it its distinctive profile. This involved the development of a structural design by Scott White and Hookins, with Price and Myers Geometrics and fabricators Commercial Systems International, based on an approach that was established with David Morley Architects’ residential penthouses at Lister Mills.
The new UK headquarters of one of the world’s most recognised conservation organisations will open in 2013, with timber playing a major role in the sustainable design.

The Living Planet Centre rising above an old car park in Woking, Surrey, is described by its owner and eventual occupier WWF-UK as the realisation of an ambition for a sustainable headquarters to support the ENGO’s mission and engage more closely with its work.

Designed by Hopkins Architects, the ‘environmentally intelligent’ building features an eye-catching 80-m-long arched timber grid shell roof spanning 837.5 m. It will house an open plan workplace for 300, a 150-seat conference venue, educational facilities and a WWF ‘Experience’ exhibit.

Hopkins senior partner Mike Taylor says the best architecture often comes out of the most difficult challenges. “Building an ultra-green headquarters for WWF over an existing car park has required an especially innovative approach using all the design principles. “As well as providing a socially inclusive and uplifting place to work, it will add much more greenery to the site and hopefully inspire other projects around the world not to build on greenfield sites, but instead to bring greenery into our already developed city centres.”

The perimeter of the new A$7.7 million (est), 3600 m² building will be planted with trees, shrubs and flowers, and a new wetland and existing trees will provide a wildlife corridor from a nearby canal to a public common.

The green building objective is Britain’s BREEAM ‘Outstanding’ rating, and given WWF’s strong involvement with the Forest Stewardship Council, we assume all wood products will have to be FSC certified.

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A detailed, fully parametric 3D model enabled the complicated geometry of the roof to be plotted and understood. The model was then used to cut the required shapes from ply and OSB for factory assembly, allowing tight quality control and minimising the installation time on site. The result is an extremely efficient integration of structure with roof form, an uncluttered soffit and an elegant realisation of the original vision.

Externally, the roof is clad in zinc, a grey colour achieved with a traditional material, referencing the original slate. Internally, the changing rooms are organised into modules of wet and dry spaces which respond to the undulations in the roof above and give the impression of sheltering under an upturned boat.

Wood products include OSB³ and construction-grade spruce plywood for the roof structure, BB-grade birch plywood for ‘seen’ columns and down stands, and Siberian larch weatherboards.

Project: Hurlingham Club Outdoor Pool, Fulham, London

Architects: David Morley Architects
Engineers: Scott White and Hookins & Myers

Main Contractor: B&K Building Services

Wood Products: FSC-certified OSB³ and construction-grade spruce plywood, BB-grade birch plywood, Siberian larch weatherboards

PHOTOGRAPHY: David Morley Architects and Tim Lucas

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Reflective of the city of Vancouver’s goal to be the ‘greenest city in the world’ by 2020, the C$21.9 million new visitor centre at the entrance to the VanDusen Botanical Garden is heavily influenced by sustainability.

The original intent was a facility that would house office space for administration and a restaurant, as well as other amenity/rental space for special events. The new facility was also mandated to be a venue to demonstrate special features and ecosystems of the garden.

“We pursued this project with the intention of making it one of the most sustainable buildings we’d ever done,” Perkins+Will Canada associate principal Enrico Dagostini told timber+DESIGN. “Early design charrettes with the clients, stakeholders and user groups proved our initial intentions were in line with the client. It was extremely valuable on a project as ambitious as this to ensure we were all on board with a unified design vision. We held charrettes often to make this possible.”

In keeping with its organic inspiration, the visitor centre is organised into undulating green roof ‘petals’ that float above curving rammed earth and concrete walls. Mimicking natural systems, the building is designed to collect water, harvest sunlight and store energy until needed.

“Our architectural response is part integration into the surrounding landscape, part bold enough to draw attention and curiosity from passers-by, and, most importantly, one of the most sustainable buildings in Canada.”

Sustainability challenge

Thecentre (finished mid-2011) was the first building in Canada to register for the Living Building Challenge (LBC) – the most stringent measurement of sustainability in the built environment. Constraints included minimal use of so-called red list materials like PVC, and only three projects worldwide at the time had earned full certification.

The LBC also pushes buildings to achieve innovative results, and the VanDusen project uses on-site, renewable sources – geothermal boreholes, solar photo voltaics, solar hot water tubes – to achieve net-zero energy annually.

“Wood is the primary building material, sequestering enough carbon to achieve carbon neutrality,” says Dagostini. “Rainwater is filtered and used for the building’s greywater requirements and all blackwater is treated by an on-site bioreactor – the first of its kind in Vancouver – and released into a new feature percolation field and garden. Natural ventilation is assisted by a solar chimney, composed of an operable glazed oculus and a perforated aluminium heat sink, which converts the sun’s rays to convection energy.”

The structure

Comprised entirely of certified Douglas fir, the panelised roof structure includes more than 70 different pre-fabricated roof panels – each made of over 100 unique, curved glulam beams – pre-installed with thermal insulation, sprinkler pipes, lighting conduits, acoustic liner and wood ceiling slats.

The design team also collaborated to produce a novel, universal ‘one-size-fits-all’ panel-to-column steel connection to accommodate unique geometric conditions at every support location.

Dagostini says the complex and time-sensitive project was made possible by advances in computer modelling, machine-factory production and wood fasteners.

Set as it is in a botanical garden, it is not surprising that the design for this visitor centre should have been inspired by the organic forms and natural systems of a native orchid.
The complex and time-sensitive project was made possible by advances in computer modelling, machine-factory production and wood fasteners.

A solar chimney in the highlights the role of centre of the atrium

All timber elements are certified and/or sustainable

reclaimed

ABOVE: The site’s entrance to heighten public awareness of the garden and the importance of nature. Solid walls of rammed earth and concrete protect visitors from the busy street, and transparent walls of floor-to-ceiling curtain wall glazing open the building towards the garden. The 7265 m2 visitor centre houses a cafe, library, volunteer facilities, garden shop, offices and flexible classroom/rental spaces.

The timber factor

The LBC mandates the use of only FSC-certified wood products for any non-reclaimed wood, a high minimum threshold for recycled content and a series of proximity thresholds that require materials to be supplied locally/regionally, limiting long-distance transport.

Several wood types were chosen for the roof structure, cladding, furnishings, millwork, wall finishes and special features, including:

- FSC-certified structural elements and internal walls
- reclaimed site wood for a prominent bridge, etc.
- off-site salvaged wood for millwork items, including the interior doors, washroom partitions and a 30-m-long curved bench in the foyer
- fallen yew tree wood for feature door handles by artist Brent Comber

On the subject of finishing, the architects imagined a building exemplifying a new, modern, “raw” aesthetic. “We chose materials based on their inherent natural qualities and robustness, and used them as appropriately as possible. Therefore, we limited our material palette as much as possible to maintain a coherent architectural statement, while simplifying and minimising the building’s content and a series of proximity thresholds — thus defining ‘slow pace’.

Design group spokesman Charlie Able says what really differentiates Polymorphic from other seating is that it allows users to interact with it, and each other. Inspired by the simple kinetic action of a see-saw and the reverberating motion of a Slinky toy, the bench changes shape as users occupy its various seating conditions. It also allows users to lift and interact with each other in unplanned and unexpected ways – thus defining ‘slow pace’.

Design, prototyping, redesign, fabrication, production and finishing all had to be completed in four months and a team approach was the only viable option. The 30 students enrolled in the class were divided into three teams and let loose. The team chose 19 mm AA 3-ply furniture-grade Baltic birch plywood for its finish, quality and performance on the router, and because of the complex detailing required.

There are more than 100 independent moving sections, each comprising six or eight smaller segments — all held together with wood dowels. Two simple connections provide stability and moderate movement as sections react to applied forces. One is a sliding bolt restraint between sections, controlling the displacement carried over from adjacent sections. The second is an elastic connection that gives the bench its “springy” quality, plus lateral stability.

Sadly, the work is not destined for a long outdoor life because the design team didn’t have the budget or time to apply sealants and finishes to protect the wood. Nice idea, thought

Project website: www.polymorphicyouth.com

PROJECT: VanDusen Botanical Garden, Vancouver, Canada

ARCHITECT: Perkins+Will Canada

WOODS: FSC-certified Douglas fir, recycled Canadian timbers, yew wood

 metaphors. Nice idea, thought

The renewable resource.

Wespine plantation house frames. The renewable resource.

Tough timber frames. Gentle on the earth.
The strong tradition of brick architecture in the Netherlands is said to be steadily giving way to timber-finished buildings and construction.

Benjamin Robichon of sustainable design specialists Knevel Architects in Amsterdam says this is due in part to new preservation and finishing technologies, allowing timber to outperform many other building materials.

Knevel recently completed ‘the world’s most sustainable gas station’ for Avia Marees at Den Oever in the north of Holland, and in so doing, set something of an environmental benchmark for the humble service station.

“The client asked for a design that would mark a new phase of his business, where sustainable fuels such as bio-diesel and natural gas will be increasingly important,” Robichon told timberDESIGN. Avia also wanted a new gas station design standard – something to express its corporate identity.

On a long plot, the two-sided, ‘slab’ design folds as a layered facade over the main service areas, is easily visible and spatially interesting, and connects well with adjoining roads.

Uniformly spaced timber slats sit on top of red-coloured cladding – adding relief and allowing the corporate colour to show through.

“The result is an innovative, climate-neutral service station that combines the poetry and softness of a reclaimed landscape with a utilitarian and robust character,” says Robichon.

The service station’s main supporting structure includes CLT walls, wooden-ribbed floor slabs and engineered timber roof elements. The shop is made as a structural wooden ‘box’ – giving stability to the load-bearing areas. The roof above the tank islands is connected to the box on one side, supported by a wall of larch columns covered with plywood plating on the other side. The roof is supported by eight steel columns.

Finishing details

Timber walls, floors and the roof were all prefabricated and assembled on-site. Because the bare wooden walls would also be the ‘finished’ look, special attention was paid to how the connections were displayed.

Outside, the wooden slats were applied to maximise durability and aesthetics. The architects wanted a material that would fit in with the surrounding landscape and the rural character of the village. “The slats are preserved with a semi-transparent coating, giving the wood a light grey colour that will fade evenly and ensure the durability of the wood in a climate close to the sea,” says Robichon.

The end result, he says, is a utilitarian building with a robust character that still feels included in its rural surroundings because of the wooden facade.

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Wood products are prominent in this new standard for service station design.

Project: Sustainable Service Station, Den Oever, North Holland
Architect: Knevel Architects, Benjamin Robichon
Structural Engineer: ABT, Delft
Technical Adviser: Herman de Groot
Engineer, Amsterdam
Wood Products: Cross-laminated timber (PEFC-certified European spruce) walls and larch columns; floors and roof, Kerto-Ripa (PEFC spruce); facade, Plato Fraké (FSC Certified)
Photographer: John Lewis Marshall

THE SUSTAINABLE SERVICE STATION
The designers of this modest-looking structure spanning a stream on New Zealand’s Banks Peninsula say it demonstrates “enormous opportunities” for the future of timber traffic bridges in that country.

Although increasingly used in the US and Australia, it is the first post-tensioned timber box-girder bridge in New Zealand. Built entirely by voluntary labour, it was highly commended in the 2012 NZ Wood Timber Design Awards. The bridge crosses a small, environmentally sensitive waterway at Little River, near the major South Island tourist destination of Akaroa, and was needed for commercial logging of a radiata pine forest.

The small-scale plantation had been growing for 30 years and was ready to yield around 8000 tonnes of mature logs – requiring a commercially viable bridge to be built in a short time.

Options included a ford, concrete or steel culvert, steel truss and concrete slab bridging, but all were discarded for various environmental and cost reasons.

Several timber bridge options were also considered, including glulam beams, multiple log beams, all with and without a concrete slab to give timber-concrete composite action.

In the end, Plunkett Stream Forest chose the post-tensioned timber bridge because it was the most structurally and economically efficient – avoiding duplication because the bridge structure also forms the bridge deck.

Initial design was for a solid post-tensioned timber flat plate to span 6 m under full highway loading, but with excessive deflections. The final design solution was a box girder with much greater strength and stiffness, and almost the same total volume of wood as a flat plate, while still being lightweight and relocatable.

All timber elements were erected in one day and the building consent includes a 50-year lifespan.

**PROJECT**

Post-Tensioned Logging Bridge

**LOCATION**

Little River, Canterbury, NZ

**CLIENT**

Plunkett Stream Forest

**ENGINEER**

Andy Buchanan, Christchurch

**WOOD PRODUCTS**

H4-treated radiata pine and H5 custom-treated LVL

**SOLVING A BUSINESS PROBLEM**

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