

From the Chairman's desk

Welcome to Leading Edge for Autumn 2009. This edition marks a milestone in our communication with members and stakeholders. Not only have we switched to a new, convenient electronic newsletter format, we have also introduced a more dynamic and exciting mix of news articles, features and research reports.

The decision to move from a print to an online newsletter follows comprehensive customer research earlier this year. More than 200 members were surveyed to learn more about their reading habits, satisfaction with the previous newsletter and gauge support for a new mode of delivery.

Overall the results were encouraging: more than 75% of respondents agreed that Leading Edge provides them with helpful information that is relevant to their organisation; 39% rated the information as excellent or very good. Most, however, skim read the articles for topics of interest while opinions were split over the preferred delivery method.

The new-look Leading Edge is designed to give readers more of what they want in an easy-to-read format. Browse the article summaries to learn about key industry research and events; print a copy and read later at your leisure; or forward to colleagues and friends.

Our lead story touches everyone in our industry – and in fact all Australians. In the wake of the February 7 Black Saturday bushfires that devastated communities across Victoria and destroyed more than 2,000 homes, the spotlight was focused on the performance of residential building materials including timber.

Critics claimed that the timber industry needed “to do things better” while ill-informed commentators argued that when rebuilding in extreme fire risk areas a concrete slab and exterior of non-combustible materials, such as brick veneer or concrete, would be necessary.

Drawing on seven years of research supported by Forest and Wood Products Australia, the timber industry is set to benefit as rebuilding begins. Findings from FWPA-backed studies have been incorporated into the new *AS3959-2009* standard adopted by the Victorian Government and confirm that sealing and protecting a building is the most important factor – whatever materials are used for construction.

This edition we also explore the findings of a Joint Venture Agroforestry Program-funded study of three low rainfall eucalypt species and the commercial potential of sugar gum.

The study indicates that sugar gum could become an important source of material for vineyard posts due its natural durability and strength. The vineyard pole market is estimated to be about 5.5 million posts annually and worth \$33million and this market could be lost to competitive materials like steel and recycled plastic.

In closing I urge members to take part in the first-ever National Carpenters Day on 21 April. Free events are being held in Sydney, Melbourne, Brisbane, Perth, Adelaide and Hobart so come along and support your industry. Nominations are also open for Carpenter of the Year Awards. [Click here](#) to learn more about the events and competition.

We trust you enjoy your new Leading Edge newsletter and look forward to receiving your feedback over the coming weeks and months.



Timber Framed Buildings in Bushfire-Prone Areas

In the wake of the Black Saturday bushfires that devastated communities across Victoria and destroyed more than 2,000 homes the spotlight was focused on the performance of residential buildings.

Critics claimed that the industry needed “to do things better” while ill-informed commentators issued a call stating that when rebuilding in the most extreme fire risk areas a concrete slab and exterior of non-combustible materials, such as brick veneer or concrete, would be necessary.

The latter claim – potentially damaging for members of the forest and wood products industry in Australia – is, however, a myth. In fact, in the face of a bushfire, it is more important to seal and protect the building envelope.

This has been confirmed in the upgraded standard AS3959-2009 Construction of buildings in bushfire-prone areas issued by the Victorian Government in early March 2009, which sets out guidelines for rebuilding in the areas affected by the fires.

The new standard, which was introduced via an amendment to the Victorian Building Regulations 2006, incorporates research supported by Forest and Wood Products Australia over the last seven years that is set to benefit the industry.

Traditionally, observations from fire events have been used to develop the requirements of these standards. However, the FWPA backed independent research to demonstrate timber’s performance in a building systems approach rather than studying the performance of individual materials – research that was based on the new test methods incorporated within the draft standard as a means of compliance.

By funding this work prior to the finalisation of the standard FWPA has ensured that, rather than suffering from the fallout from Black Saturday, the industry is in a good position to deliver results to the marketplace well ahead of other material suppliers.

What the new standard means

The vulnerability of a house during a bushfire depends mainly on the ability of the fire to get into the house and the new standard addresses the critical points of entry – typically gaps, glazing and where embers and debris can gather.

The intention of AS3959 is to “build out” bushfire attack by stopping embers, radiant heat and flames from penetrating the building envelope. This being the case, the use of internal timber building products (timber house frames, flooring, joinery and so on) is not restricted, nor does it restrict the type of floor to be used (concrete slab or timber sub-floors, for example).

And, even though the new standard now applies to every new home built in Victoria, 80% of homes will fall into the low bushfire attack (LOW) so will require no change in traditional building-level (BAL) practices.

Some adjustments to design, material use and building systems will be required for the remaining five bushfire attack levels, which are calculated by looking at factors including the Fire Danger Index, the slope of the land, the type of surrounding vegetation and its proximity to any building.

The levels range from properties at risk of ember attack (BAL-12.5) and those under varying levels of threat from ember attack and burning debris ignited by windborne embers together with increasing heat flux (BAL-19 and BAL-29) to properties with an increased likelihood of exposure to flames (BAL-40) and, at the highest risk level, those that could face direct exposure to flames from the fire front in addition to heat flux and ember attack (BAL-FZ).

However, construction can continue with traditional timber framing in keeping with AS1684 Residential timber-framed construction standard as, even in the most extreme fire hazard risk level, AS3959 allows for:

- Raised timber floors to be used, provided they are enclosed by a compliant wall system;
- Exterior walls of any material meeting a minimum fire resistance level (FRL) of 30 minutes, i.e. an FRL of 30/30/30 that requires walls to maintain structural adequacy, integrity and insulation for a minimum of 30 minutes exposure to radiant heat.

Other requirements include: specifications for glass thickness, the use of bushfire shutters as well as other measures, such as suggestions for reduction of construction requirements on elevated sites by shielding walls from fire attack with careful orientation.

For all bushfire attack levels, there are also requirements placed on external structures, such as carports, pergolas, decks and so on, and these can impact on the use of timber products.

At the lowest level there are no specific requirements unless the material is being used close to a window or sliding door (in which case there is a need to use bushfire resisting decking timbers as defined by AS3959) through to the use of non-combustible deck surface materials at the most extreme level.

The urgency of the rebuilding process ensured that the new standard was introduced swiftly without waiting for the findings of the ongoing Victorian Government's Royal Commission into the various causes of and response to February's bushfires.

Already specific guides are being developed to highlight the ways in which the requirements of AS3959 can be met using timber products. These will cover both the immediate needs of householders talking to builders and designers and those professionals needing to know just what will be required in terms of material specification and design options.

FWPA members can rest assured that they can definitely use a timber floor and an exterior timber wall system to meet the standard. Timber cladding can still be used, for example, but a lining of fire-resistant plasterboard on the outside of the frame will be needed to comply at the higher Bushfire Alert Levels. This is a mixed blessing as it will impact on thermal performance and achieving the five star energy standard for new Victorian homes.

The FWPA is currently preparing a Bushfire Investment Plan that will help guide the industry's national bushfire effort over the coming years and enable industry to better inform consumers and specifiers of the benefits of timber products and ways of meeting the new bushfire construction requirements.

Other than for ACT, it is not clear yet if other states will adopt AS3959 but for Victoria it is good news for those wanting to replace the home they have lost with something attractive, sustainable and affordable.



Book showcases trees' contribution to human survival

The Southern Cross, Uluru, Sydney Harbour Bridge – all icons that are undernably, quintessentially Australian.

And, according to John Halkett in his latest book *Trees That Call Australia Home*, to that list should be added the gum tree.

From the early days of European settlement, through the mud and blood of Gallipoli, to the cosmopolitan society of the 21st century he says the gum tree has remained a defining symbol of Australia and its sense of identity.

Australia may be thought of as 'the wide, brown land' but, in his fourth book on trees, Halkett looks at the country's diverse, unique and precious heritage of trees and forest communities and salutes their amazing qualities, geographic spread, botanical complexity and special Australianness.

"Their contribution to our welfare and sense of what it is to be Australian is immense," he says.

The ghost gums and baobabs of the outback, the tropical rainforests, the spectacular Victorian mountain ash, the majestic karri and jarrah of Western Australia and the diverse eastern eucalypts are all featured in a book that recognises the importance of trees to continuing human existence and survival both in Australia and across the globe.

Halkett, whose previous titles include *The Native Forests of New Zealand* and *Tree People: Forest Service Memoirs*, says: "More recently, they have been joined by introduced pines, which with native trees form the basis of an expanding tree plantation estate."

The book is a spiritual, cultural, environmental and economic celebration of Australian trees – trees that, according to the author, are increasingly vital as humanity searches for solutions to climate change, renewable energy and more sustainable lifestyles in the 21st century.

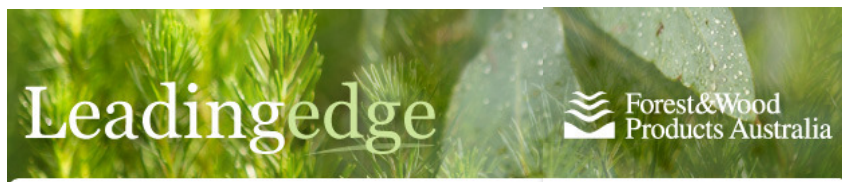
It details how the forests of Australia – manipulated and perpetuated by Aboriginal fire stick farming – were initially regarded as an obstacle to European settlement and destroyed on a dramatic scale.

Trees soon became recognised as an economic catalyst in the fledgling British colony, however, and their contribution to economic well-being continues to this day.

"Trees have been fundamental to human life, to economic welfare and to cultural and spiritual development since time immemorial," says Mr Halkett.

"It is apparent that trees must play a more central role in confronting issues like climate change, resource depletion and renewable energy in the decades ahead."

Trees that Call Australia Home is available in leading book shops or can be ordered online at www.timber.net.au.



Sugar gum – the sweet taste of success in vineyard stakes

Sugar gum could become a viable alternative for posts used in vineyards, farms and horticulture, according to a new study funded by the Joint Venture Agroforestry Program (JVAP¹).

Researchers from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) investigated the scope for genetic improvement in three low rainfall eucalypts potentially suitable for vine trellis posts.

Tree breeder David Bush and wood biodeterioration specialist Kevin McCarthy looked at various traits in sugar gum (*E. cladocalyx*), swamp yate (*E. occidentalis*) and several spotted gums (*Corymbia* spp.), including natural durability, proportion of heartwood, amount of heartwood extractive and basic density.

In particular, they looked for evidence of variability in these traits across the individual species.

“Wide variation in product durability would normally equate to unreliability and represent a significant marketing problem,” said Mr Bush. “But since much of the variation is genetic, it will provide an opportunity to select and propagate from the very best and make substantial improvement through our breeding programs.”

Research revealed sugar gum as the standout performer on natural durability.

“Assessing traits relating to natural durability of trees from young-aged trials (eight to 12 years) showed that sugar gum may be well-suited to production of naturally durable posts and is at the same time amenable to genetic improvement,” said Mr Bush.

“Heartwood development (heartwood diameter as a proportion of Diameter Breast Height Over Bark) was quite strong in both sugar gum and the spotted gums at eight to ten years after planting.

“As the durable component of the wood, this is a fundamentally important trait and the significant genetic variation indicates that genetic improvement should be possible by species / provenance selection in the spotted gums and both provenance and family-within-provenance selection in sugar gum. This trait would also be desirable for sawlog production.”

Their findings could prove especially valuable for the Australian wine industry, which generally relies on wooden posts to support vine trellises; an estimated 5.5 million per year are needed for new plantings and replacements at a cost of \$33 million.

These are mostly creosote or CCA-treated pine posts, which have drawbacks in certain situations, such as:

- They have relatively low strength compared with durable hardwood posts and up to 15% may be broken during mechanical harvesting. While the cost of a post might be only a few dollars, the cost of removal and replacement in an established vineyard can be several times more.
- Broken treated posts are difficult and expensive to dispose of – in most states burning is prohibited and disposal in landfill is regulated.
- Treated posts can be a marketing liability for some food crops, particularly ‘organic’ crops, where standards worldwide are tightening on the use of timber treated with CCA or creosote.

Steel posts are another alternative, but have their own disadvantages. They can damage mechanical harvesters, corrode in some soils, are generally unsuitable for load-bearing situations and could become significantly more expensive as energy costs rise.

Posts made from recycled plastic usually have low load bearing capacity and have been found to bend in prolonged high temperatures.

As part of the JVAP research, accelerated decay studies were carried out that showed genetic variation in both sugar gum and spotted gums for resistance to both brown and white rotting fungi. However, while the sugar gum had good overall resistance to fungal deterioration (particularly the south Flinders Ranges provenances), the spotted gum heartwood was severely attacked.

At last – added value from thinnings?

CSIRO also found significant genetic variation in basic density for both species, which is strongly related to strength. Even at a young age these have a high density (> 600 kg.m⁻³) suggesting a post strength that is likely to be much greater than *P. radiata*.

“This study has identified a potential product from a key low rainfall species (sugar gum) that might be produced from thinnings within as little as eight to 12 years on typical sites,” said Mr Bush. “This is an important development, because while sugar gum is likely to produce high-quality sawlogs, a disincentive to investment is the long lead-time to final harvest.

“A commercial product earlier in the rotation would greatly improve the economics, particularly as pulpwood and / or other composites from thinnings are unlikely given the high density of the wood, and high extractives content.”

There are a number of challenges for sugar gum vineyard post production that need to be addressed before it can be considered for full scale commercial production. These include:

- Whether or not sapwood removal is necessary
- Strength determination
- Heartwood taper
- Pole performance with respect to driving and handling.

The report Genetic improvement for naturally durable hardwood posts is available from the Rural Industries Research and Development Corporation at www.rirdc.gov.au.

This research is complemented by another major project funded by JVAP and led by Mr Bush, comprising a four-year genetic analysis of low rainfall tree breeding genetic trials.

¹ JVAP is funded by Rural Industries R&D Corporation (RIRDC), Land & Water Australia (LWA) and Forest & Wood Products Australia (FWPA)



Research Opens More Doors For Western Red Cedar

The use of western red cedar in Australia is set to rise after research revealed it can be machined after fire retardant treatment and still comply with Australian standards.

The findings by the Timber & Building Merchants Association (TABMA) could bring significant benefit to both industry and the environment, particularly in bushfire prone areas, by expanding the product's use in the construction of timber features such as architraves and cladding for the exterior of buildings.

Importantly, increased use of sustainably produced fire retardant-treated western red cedar would also reduce the environmental impact of non-renewable, non-combustible materials.

To date, only products treated in final shape and form can be used when fire-retardant timber is required; although acceptable in some instances, this is not ideal considering the large range of uses and versatility of western red cedar.

“Our research has demonstrated that fire retardant-treated western red cedar could be machined to specified maximum depths after treatment,” says researcher David Gardner.

“This basically then allows treated western red cedar to be produced locally in virtually the same manner as untreated products. Altering this process would be an Australian first and proves the value of constant innovation.”

Research was carried out at Chemco's Ferndale, Washington, facility in the USA, where rough sawn 200x50mm western red cedar boards were treated with Chemco FRX then divided into two groups depending on their fire retardation retention and then machined to depths of 1, 3, 6, 9 or 25mm.

They were then tested for smoke and heat release to AS3837. One half of the boards were subjected to an accelerated weathering schedule, specified by AS3959, before testing and one half were tested without prior accelerated weathering.

The outcomes showed that western red cedar treated to a mean fire retardant retention of 32% m/m can be machined up to a depth of 6mm after treatment and still comply with AS3959 requirements for fire-retardant timber to be used in a weather-exposed situation. The same material can be machined to depths of up to 25mm and still satisfy AS3959 requirements for fire-retardant timber to be used in a protected situation.

TABMA has offered strong support to the project, identifying the potential increase in fire-retardant product diversity as an important result.

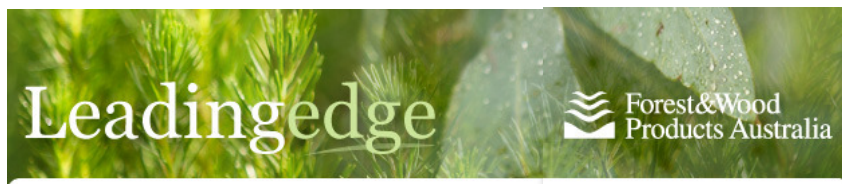
“This crucial research provides both importers and processors of western red cedar products with immediate commercial opportunities therefore furthering employment within the industry,” says chief executive officer Colin Fitzpatrick.

Design engineer Craig Kay, of industry associate Tilling Timber, agrees: “There is no doubt that this research has opened up additional sales in the commercial building sector for Tilling.”

Ric Sinclair, managing director of Forest and Wood Products Australia, says the findings illustrate the importance of ongoing R&D and adds that the outcomes will have relevance to other Australian softwood plantation species.

“We believe there is potential to extend the work already done to benefit other areas within the Australian wood products industry,” said Sinclair.

For more information or to read the full research report visit www.fwpa.com.au (Project number PN06.1037).



Celebrate National Carpenters Day and promote the use of wood

The work of Australia's carpenters is being celebrated by the first National Carpenters Day on April 21, 2009.

The event is part of Forest and Wood Products Australia's *Wood. Naturally Better™* campaign and recognises the vital contribution carpenters make to Australian communities.

It also aims to raise awareness among consumers, tradespeople and professionals of the practical and environmental benefits of incorporating more wood and timber products in building and design applications.

Channel 7 personality and former carpenter Tom Williams is the event's celebrity ambassador and will be promoting these important messages on the day, in particular helping to further educate people about the natural, sustainable and carbon storage qualities of wood and timber products.

Carpenters nationwide are invited to attend free events in Sydney, Melbourne, Brisbane, Perth, Adelaide and Hobart from 4-6pm on the day where they can enjoy a free BBQ, a professional neck and shoulder massage from a Three Minute Angel and have the chance to win a \$2,500 Hitachi Power Tools Mega Pack.

Tom Williams said: "Carpenters, on April 21, Australia wants you to know they appreciate the work we do – this is our day!

"Down tools at the end of the day and make your way to one of the free barbies around the country. Who knows, as well as the free feed, a bit of a shoulder massage and some mateship, you could win the big prize."

The Carpenter of the Year Awards will also be launched on the day. They are open to all carpenters Australia-wide and can be nominated by anyone from colleagues to family and friends. Registrations open online from April 21.

Wood. Naturally Better.™ encourages you to tell colleagues, employees and associates about these events and the awards. Details and locations of are available at www.carpentersday.com.au.



Recording love affairs with wood

At five-years-old Robert Dunlop was breaking up fruit boxes to build toy bridges in his parents' garden.

Almost eight decades later, the internationally-renowned master wood craftsman's love affair with wood continues to flourish.

Now 84, the creator of award-winning wooden furniture and sculptures that have graced Canberra's Parliament House, the High Court of Australia and trade fairs in Dubai, Honolulu, Chicago, Denmark and England, is one of the faces of Forest and Wood Products Australia's *Wood. Naturally Better* campaign.

His story features in a project to unearth inspirational tales of Australians who have dedicated their lives to working with wood.

"Wood simply doesn't get enough recognition," he says. "We really haven't even touched the edge of the opportunities for wood. People are not thinking sufficiently broadly about utilising the timber species we have here in Australia."

He believes wood is a truly remarkable product: "The responsibility one accepts when using timber is to realise it was alive and it is the craftsman's task to make it live again."

Since opening his first 'wood studio' more than 50 years ago, Robert has allowed his fantasies to take wing in the shape of ornate chairs, tables, cabinets and intricate carvings. He has been commissioned to design and create furniture and wooden artefacts for a host of projects in Australia and overseas, including the Speaker's Chair for the Isle of Man Parliament; the King's Table for Canberra's Parliament House; furniture for the High Court of Australia; and the restoration of Parliament House in Brisbane.

Fitches, slabs and small pieces of western timbers are stacked in every corner of his workshop: mulga (*Acacia aneura*); coarse-textured red bloodwood (*Eucalyptus gummifera*) – described as travertine stone in wood and displaying concentric gum veins; lancewood (*Acacia doratoxylon*); gidgee (*Acacia cambagei*).

"These timbers – among the hardest and most beautiful in the world – can be found in the form of old fence palings, stumps, pulled timber, outhouses – you name it. Some of them have been in the ground for 100 years and are as good as the day they were put in," says Robert, who has spent his life looking for interesting pieces of wood.

"Sometimes I can just look at wood and it's like a photograph. Often, the natural flaws make it more beautiful than if the piece is whole. The worst looking chunk can give you the most beautiful piece."

Tracking down and interviewing people like Robert on behalf of the *Wood. Naturally Better* campaign are Jim Bowden and John Halkett. Jim is a longstanding, leading Brisbane-based forest and timber industry journalist; John is a Sydney-based forest consultant who has just published his fourth book, *Trees That Call Australia Home*.

The logo for 'Leading Edge' is displayed in a white, serif font against a background of green, out-of-focus foliage. The text 'Leading Edge' is positioned on the left side of the banner.The logo for 'Forest & Wood Products Australia' features a stylized icon of three wavy lines representing water or a forest canopy, followed by the text 'Forest & Wood Products Australia' in a white, sans-serif font.

Jim says timber industry characters are not always easy to find. “While some run prominent companies, others are out there in the bush somewhere quietly going about their business – potentially remarkable ambassadors for the industry.”

John says the project will have a balanced geographic, gender and work experience spread. “We already have some industry identities and wood champions in our crosshairs.”

However, anyone with names of people who could feature in the project should contact John at halkettj@netaus.net.au

Subscribe to the new Leading Edge email newsletter at www.fwpa.com.au