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BUSHFIRE TESTING FEATURES ON ABC CATALYST

The recent bushfire testing featured nationally on the ABC Science program Catalyst on Thursday 10 June.

Catalyst is a serious show about serious science, informative rather than entertaining. It aims to present scientific developments at the forefront of discovery, showing how science changes our lives and what it holds for the future.

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With Australia's climate set to get hotter and drier, bushfires are expected to pose an increasing threat to Australian homes. The Catalyst program entitled *Burning Down the House* focused on what researchers have learned from studying the effects of major bushfires on homes, and how this can be applied to determining where and how housing is built to resist them. It featured the field work of CSIRO fire researcher Justin Leonard, who has been involved in investigating the effects of major bushfire events over the last decade or so.

Justin made the point that whilst bushfires can affect buildings up to hundreds of metres from bushland, the most severe bushfire impacts arise when homes are built directly in the flame zone. Finding out exactly what happens to a home in that situation was the purpose of the test project at Mogo.

The dramatic imagery of the flame immersion phase of the test reinforced the program's message: build your house among the trees and you run the risk of it being immersed in flames during a bushfire event. When that happens, what the house is made from really matters.

The ABC crew spent three days on site. On day one they were briefed and reviewed the test house and set up, on day two they documented the test and on day three they returned for preliminary inspection of fire effects on the test house. The resulting program provided an insightful view into designing houses for severe bushfire attack. NASH is now working with CSIRO and fire engineers Noel Arnold & Associates, in developing manuals on designs for Bushfire attack levels (BAL) of BAL 40 and flame zone.

The catalyst broadcast can be viewed or downloaded at <http://www.abc.net.au/catalyst/stories/2922902.htm>

For more information on the test, see the special issue NASH News June 2010.

The test can also be viewed in the Members only section of the NASH website www.nash.asn.au (available to NASH members only).





SOUTH AUSTRALIA ACTS TO REGULATE STRUCTURAL SOFTWARE USED FOR BCA COMPLIANCE

The Department of Planning and Local Government in SA has become the first jurisdiction to issue a regulation on the use of structural software to demonstrate compliance with the BCA.

The Department of Planning and Local Government in SA has become the first jurisdiction to issue a regulation on the use of structural software to demonstrate compliance with the BCA. The regulation is enacted via a SA variation to BCA 2010, referencing Minister's Specification SA A2.2. It is effective from 1 May 2010 and provides an additional pathway for demonstrating compliance with the BCA in SA.

Background

The design and supply of roof truss systems, especially those designed using proprietary structural software, has been in the spotlight for several years. NASH News reported in April 2006 on Coronial findings from a tragic roof collapse in Adelaide in 2002. A timber double girder truss over a golf club dining room, carrying loads from the original building plus part of a 1995 extension, failed near

one end causing a section of the roof to collapse on to a group of diners, two of whom were killed. The Coroner was particularly critical of the communication of essential information between parties to the construction process, particularly those involved in the design, manufacture, installation and certification of roof trusses.

SA Ministerial Task Force

In December 2005, Planning SA briefed the industry on possible regulatory actions flowing from the Coronial enquiry. The Development Act and Regulations requiring third-party engineering certification of the structural design had not always been enforced, especially in the case of familiar software with lengthy use in the timber and steel industries. A Ministerial task force was established to review the existing regulations and procedures relating



to truss design, manufacture and installation, resulting in recommendations for much tighter control of the design documentation and of approval and inspection procedures. One key issue was whether software systems could be developed and managed in a way that enabled independent certification of the software, thus avoiding the need for individual third-party certification of individual designs.

ABCB initiatives

Responding from a national perspective, the Australian Building Codes Board convened an industry working group to consider the requirements for the use of structural software by non-engineers. The group's main interest was in the attributes of a software package that make it acceptable for use in demonstrating the compliance of a design solution with the requirements of the BCA, having regard to the 'evidence of suitability' provisions of the BCA. The group completed its work in 2007.

SA Minister's Specification

SA has now taken the step of incorporating the working group's principles in its regulatory document 'Minister's Specification SA A2.2'. The Specification includes all the provisions of the ABCB handbook but is written in mandatory terms for regulatory reference, via an SA variation to BCA 2010 Part A2.2 (Volume 1) and Part 1.2.2 (Volume 2). Compliance with SA A2.2 will provide building surveyors in SA with confidence that the design is compliant with the BCA and as such, an independent structural engineering check will not be required for individual development applications.

How Compliance works using SA A2.2

SA A2.2 requires that a 'Compliance Document' be prepared and kept by the software provider and made available to building authorities as required. The compliance document contains the 'evidence of

suitability' of the software to perform its function of producing a design that complies with the deemed-to-satisfy structural provisions of the BCA.

The compliance document must be assessed by an independent professional structural engineer to confirm that:

- the design process complies with the BCA and its referenced documents, and
- management and use of the software are in accordance with SA A2.2.

The independent engineer must certify in writing that the compliance document has been prepared in accordance with SA A2.2, allowing the software design to meet the evidence of suitability provisions of both volumes of the BCA. Where software suppliers have already had compliance documents independently certified to the ABCB Model Handbook requirements, this will be accepted in SA as complying with SA A2.2.

Minister's Specification SA A2.2 may be downloaded from <http://dataserver.planning.sa.gov.au/publications/1389p.pdf>

Summary of structural software and provider requirements

Software must:

- Be commercially available
- Based on a structural analysis program (ie. not simply lookup tables)
- Capable of computing all member loads, reactions and internal forces
- Capable of applying relevant provisions of appropriate Australian Standards
- Capable of selecting the appropriate proprietary components for a particular design
- Provide results for applied loads, forces and reactions comparable with other similar structural design software



LYSAGHT SUPRACADD® SOFTWARE SYSTEM GAINS CERTIFICATION

BlueScope Lysaght's Supracadd Software – Roof Truss Design is believed to be the first software system to obtain independent certification for its software compliance process. The certification was issued by Dr Emad Gad, Professor in the Faculty of Engineering and Industrial Sciences at Swinburne University of Technology.

In 2006-07 the ABCB set up an industry working group that included NASH, to consider the requirements for software systems used for building design approval. The group was concerned only with design software intended for use by non-engineers, ie. that does not involve a job-specific certificate of compliance issued by a professional engineer. It considered the attributes of a software package that would make it acceptable for use in demonstrating the compliance of a design solution with the requirements of the BCA, having regard to the 'evidence of suitability' provisions of the BCA.

In May 2010, a new path for demonstrating compliance with the structural provisions of the BCA became available in SA. Based heavily on the ABCB working group's findings, Minister's Specification SA A2.2 is referenced in an SA variation to BCA 2010 in Part A2.2 (Volume 1) and Part 1.2.2 (Volume 2). The Specification requires independent engineering certification of the software compliance process. This is discussed further in this issue of NASH News.

Certification of a software system in accordance with Minister's Specification SA A2.2 provides several advantages for software users, truss fabricators and builders. It indicates that the processes by which the software is developed, used and updated are robust and reliable and that users of the software have access to training and support.

- Capable of addressing all relevant provisions of the BCA
- Generate designs based on material properties for products available in Australia
- Indicate degree of competence and training required for users
- Have its performance validated by the supplier's QA program

Inputs must:

- Be identifiable in job documentation
- Be unable to be overridden by non-engineer users (for engineering criteria)
- Be self-checking for values outside the software parameters

Outputs must:

- Identify the source of external engineering information incorporated in the design
- Be suppressed if inputs exceed software limitations
- Include software name and version, and the location of the compliance document
- Declare compliance under Part A2.2 (BCA Vol 1) or Part 1.2.2 (BCA Vol 2)
- Include name and edition of BCA and relevant reference documents used for design
- Include installation and transport procedures for assemblies where critical to design
- State input parameters, including discretionary factors, essential to design
- Identify the software user including their training or approval status



SPACING OF WALL STUDS TO SUIT INSULATION BATTS

Keeping to standard spacing of wall studs saves time and materials when installing wall insulation.

Spacing the studs in a wall presents the designer with two options:

- Equally space the studs; or
- space the studs at standard spacing, eg. 600mm centres and then take out the difference on the last spacing.

The disadvantage of equally spacing studs is that if insulation batts are installed, they will

generally have to be cut to suit the stud spacing.

This leads to wastage of insulation and the additional time and hence cost to cut each batt. The standard widths of batts are 430mm, 580mm and 600mm. The first two widths are the most readily available but 600mm batts are generally stocked.

The issue of standard spacing that has been raised is that the last gap is too small to readily install the insulation.

In this case it is recommended that a half space be used as this minimises the amount of cutting and allows the batt to be easily installed into the last spacing.



BLUESCOPE ONLINE WARRANTY

BlueScope Steel has launched its Online Warranty System to streamline the application process and printing of the BlueScope Steel Warranty.

A ready reckoner tool is available to instantly determine whether the product application and location meet the warranty requirements.

If the warranty application is rejected and the customer is not satisfied with the decision, a review of the warranty can be requested.

The reason for the review request must be provided and this manual process then takes up to a week.

BlueScope Steel offers a 50 year warranty on TrueCore Steel used in houses subject to meeting their warranty conditions. The warranty is created or activated by the home owner.

For more information go to www.bluescopesteel.com.au/warranties



HENROB SELF-PIERCE RIVETING PENETRATES USA MARKET

The Self-Pierce Riveting (SPR) system manufactured by NASH member Henrob, has received approval from the ICC Evaluation Service (ICC-ES) for use as a fastener for cold-formed steel (CFS) in construction in the USA.

Henrob advise that the system has been used for more than 17 years in the USA to assemble automobiles and automobile components, heavy-duty truck bodies, appliances and snowmobile bodies.

It has also been used extensively outside the USA with installations in Australia, Asia and the UK. ICC-ES approval of this technology for fastening light gauge framing represents a major advancement in the construction industry in the USA.

A non-profit, public-benefit corporation, ICC-ES performs technical evaluations of building products, components, methods and materials.

In a process lasting 4 years, the ICC-ES evaluation examined Henrob's product information, test reports, calculations, quality control methods and other factors to ensure the product was code compliant.

Henrob offers world leading technology in self-pierce riveting technology for the construction, transport and appliance markets. Founded in 1985, Henrob has facilities in the UK, Germany and Australia.

NASH SEMINARS

NASH has now held successful seminars introducing the NASH Handbook – Design of Residential and Low-rise Steel Framing in Melbourne, Perth, Adelaide and Brisbane. The attendances demonstrated there is significant interest in designing with steel framing. In Brisbane the seminar was presented to an overflowing Engineers Australia audience by Greg Anderson from Structerre and Ken Watson from NASH. In Melbourne, Ken was joined by Les McGrath - NASH past President / TGM Group and in Perth and Adelaide the co-presenter was Will Osmo - NASH President/T.O.P. Consulting.

The Perth and Melbourne seminars were held in conjunction with Framacad's launch of their F300i roll forming plant and mobile "Factory in a Can". Audiences had the opportunity to hear about both the design and construction of steel-framed structures and to see the latest technology in roll forming operating together with the assembling of the steel framing.

Framacad provided finished steel frame buildings for the audiences to inspect. NASH thanks Framacad for their sponsorship and event management.



WOLGAN VALLEY SPA RESORTS SETS NEW STANDARD

Wolgan Valley Resort and Spa is set amidst the stunning scenery of the rugged Greater Blue Mountain World Heritage Area.

The spa resort is built around a fully restored homestead and nestles within its own private conservation and nature reserve. It is located 190 kilometres or 3 hours from Sydney.

With a commitment to quality and the environment, steel framing was chosen after much investigation as the most appropriate material for the frames of the luxury suites. Steel was strong enough to carry the heavy wall linings and could be designed for the large openings in the walls.

Also contributing to the steel framing decision was that the region has a large termite population. Custom Steel Frames worked closely with the designers in developing the steel solution. Each of the single units had a plan area of 170 square metres and there were 3 double units and a

manager's house, which were all constructed with steel framing.

The construction schedule was very tight and the contractor needed to be confident that the frame supplier had the expertise and capability to deliver the correct product on time.

The owner of the resort, Emirates Hotels & Resorts, was honoured with the Conservation Award at the World Travel and Tourism Council's (WTTC) 2010 Global Summit held in Beijing. The award recognises the valuable work Emirates Hotels & Resorts has done at Al Maha Desert Resort & Spa in Dubai and at Wolgan Valley Resort & Spa in Australia. It acknowledges Emirates' commitment to and leadership in the conservation of natural habitats, biodiversity and wildlife protection.

The original homestead has been carefully restored to its former glory and is the centre piece of 40 free standing luxury suites, each with its own private terrace and swimming pool.

The luxury resort was built using today's cutting edge technology and yet perfectly echoes the original heritage architecture, allowing it to blend seamlessly with the vastness and beauty of Australia's hinterland terrain.

The frames were fabricated in Dubbo NSW by Custom Steel Frames and transported to site at the scheduled rate of two units per week.

NASH WELCOMES NEW DIRECTOR – SAMEER ERANDE

Sameer is WA Chapter Chair NASH and is the Business Development and Operations Manager for Roofmart – WA with responsibility for their Mastertruss Steel Framing operations. Before joining Roofmart - WA, Sameer gained extensive experience in operations and sales within the steel, timber and paint industries in New Zealand, Fiji, Tonga, Korea, UAE and India.



NEW MEMBERS

NASH welcomes the following new members:

Company	Chapter	Activity	Contact
Cerbis Steel Frame and Truss	NT	Fabricator	Mario Tsirbas
Mordek	NSW	Fabricator	Alan Ellis
Steeline Truss & Frame	SA	Fabricator	Des Braithwaite
Howick	NZ	Rollformer manufacturer	Deon Anderson
Ideal Fasteners	VIC	National component	Neville Deutscher

Ken Watson

Executive Director