

NASH NEWS

MARCH 2009



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NASH
25th
ANNIVERSARY



NEW BUSHFIRE CONSTRUCTION REQUIREMENTS

Sadly the topic of bushfire resistant construction received little public attention until the occurrence of the recent tragic and destructive bushfire event that Victoria experienced on Saturday, 7 February 2009. This event has left communities shattered and presents a challenge for building regulators in the longer term.

While some newer homes would have been among those threatened in the recent fires, many of the homes destroyed in these fires were in older townships, constructed long before any mandatory construction standards existed for bushfire resistance. Exceptionally severe fire conditions leading to sustained high levels of ember attack plus radiant heat, coupled with the absence of fire fighting resources for property protection immediately following the passage of the flame front, meant that the proportion of houses destroyed in the fire path was much higher than usual.

The Victorian Government in response to the devastation has set up a Royal Commission and in the meantime has introduced new rules for building in bushfire areas. The new regulations are now in force throughout Victoria.

UPDATED BUSHFIRE STANDARD

The Building Code of Australia (BCA) currently references AS 3959-1999 Construction of buildings in bushfire-prone areas, last amended in 2001. In the intervening period, many changes have been proposed and several test procedures developed and amended. The revised edition AS 3959-2009 was published by Standards Australia on 10 March 2009 and is scheduled to be referenced in BCA2010.

The new requirements in the Standard expand from four to six the number of Bushfire Attack Levels to which a building may be subject. The revised Standard

contains two procedures for determining the Bushfire Attack Level (BAL): a simplified procedure based on tables and diagrams and a detailed procedure where a more precise assessment of heat flux can be made using fire science principles. The BAL is determined from the Standard after considering:

- The Fire Danger Index for the region (a measure of bushfire probability).
- The types of vegetation within 100 metres of the site.
- The proximity of the building to classified vegetation types.
- The slope of the land on which the classified vegetation is growing.

At the lowest level, BAL-LOW, there are no special construction measures. The next four levels are designated BAL-12.5, BAL-19, BAL-29 and BAL-40, where the number denotes the maximum anticipated heat flux for that level in kW/m². The highest attack level is BAL-FZ or "Flame Zone", introducing for the first time requirements at an exposure level previously deemed inappropriate for building. Measures for resisting the effects of ember attack are present in the requirements for all levels from BAL-12.5 upwards.

The purpose of AS 3959 is not to define a structure that will resist any fire and protect any occupants indefinitely, with no form of human response. Bushfires are extreme and somewhat unpredictable events. Bushfire construction standards are not absolute and cannot guarantee building survival,



but rely for their effectiveness on other less controllable factors. Communities in high risk areas must be well planned. Houses should be well sited and correctly assessed, with adequate and regularly cleared setbacks from classified vegetation types (the primary source of the radiant heat). They must be well maintained to ensure each critical feature of ember and heat resistance will be effective. Finally, they must be adequately prepared prior to and throughout seasons of elevated bushfire risk.

VICTORIAN RESPONSE

The Victorian Government has been quick to act on revised building regulations in the aftermath of the fires. Existing regulations are based on the Building Code of Australia (BCA) that takes effect through the Victorian Building Regulations 2006.

The Victorian Government has announced that the Victorian Building Regulations 2006 are to be amended immediately to include the requirements of AS 3959-2009. In advance of the release of BCA2009 in May. This means that all rebuilding work in the fire affected areas, all other new building work and many alterations and additions anywhere in Victoria will be subject to the new requirements from Wednesday 11 March 2009. Construction requirements will also apply to attached structures and to outbuildings that were previously exempt in some cases.

Although every new Victorian home will require a BAL assessment under the new regulations, not all new homes will automatically require additional construction requirements. Based on 2008 building permit data, the Victorian Government estimates that 80% of new home building applications will be assessed as falling into the lowest level of bushfire risk, requiring no special construction measures.

The new requirements are explained in a Building Commission publication entitled "A guide to building in Victoria after the bushfires". This can be downloaded from the Building Commission website at www.buildingcommission.com.au. The Guide includes a helpful table explaining the basic requirements for each major part of the building in each of the five BAL categories where construction measures are required. For detailed requirements it is necessary to refer to AS 3959-2009.

NON-COMBUSTIBLE STEEL FRAMING

Following a bushfire seminar in March 2008, NASH News reported in its April edition that CSIRO researchers had reiterated the importance of resistance to ember attack. Of some concern therefore is the increased emphasis the revised Standard places on radiant heat over ember attack. This has resulted in some concessions at lower levels of bushfire attack, where many types combustible materials may now be used on the building envelope for wall cladding and bushfire shutters

Framing systems, components and services supplied by NASH members will generally be unaffected by the revised construction requirements. Steel is a non-combustible material and its use within the structure and on the envelope of a building generally does not require special consideration. The NASH website contains an extensive section on bushfire construction principles at www.nash.asn.au. Details of the revised Standard together with any findings and useful information from the enquiries into the Victorian bushfires will be incorporated as they emerge.

STEEL-FRAMED HOUSING WINS STATE GOVERNMENT CONTRACT



Eco-Fab has won an \$8 million tender for 50 Quick Build homes. These homes are to form part of the Tasmanian Government's investment in affordable housing innovations.

They will be delivered on Housing Tasmania land across the state:

- 21 in the south;
- 12 in the north; and
- 17 in the north west.

The Tasmanian Minister for Human Services, Ms Thorp said "An independently audited process has seen Eco-Fab selected from a strong field to construct the 50 homes. Their submission competed against others from Tasmania and nationwide and factors such as cost, architectural standards and environmental friendliness were considered."

The homes are designed using passive solar design principles to be low maintenance, climate sensitive and have a five star energy rating.

Shortly after the award of the contract in December 2008, Eco-Fab began the fabrication of the steel frames at their facility located in the Hobart suburb of Kingston. The homes are due to be completed mid this year.

Most of the 50 homes will be sold to home buyers who meet the income and asset criteria and who intend it to be their principle place of residence. The homes may be bought off the plan once local council approvals are obtained. The price of the properties will be based on valuations provide by the Valuer General.

The eligible home owners will be able to receive State and Federal Government assistance of up to \$75,000, which provides an opportunity for people to own their own home that otherwise would never have been able to afford it.

Eco-Fab only started production of steel frames in 2007. Their production facility is based on the Custom Steel model that utilises the same machinery, software principles and processes that Custom Steel Frames have developed in Dubbo, New South Wales. Eco-Fab's history of successes include a recently completed 100 person mining camp building contract in Zeehan, Tasmania.



NASH DIRECTORS



CHELSEY SCARR

Chelsey Scarr, NSW Chapter Chair, is relatively new to the steel industry. Previously a Sales Coordinator with the frame and truss division of Stramit's Newcastle operation, Chelsey is now the Commercial Manager of Steel Building Systems (SUPALOC) manufacturing facility located in Tomago.

Reaching 5 years with the company this June, Chelsey originally came on-board as the Administrator in 2004. Within the following year she was promoted into the role of Contracts Administration Manager and went on to establish systems that allowed for improved function and control of the Tomago site. This progression through the organisation has given Chelsey a deeper understanding of both the steel and building industries, as well as allowing her to forge strong relationships with industry members. Now as the Commercial Manager, Chelsey directs the day-to-day operations of the plant and ensures all departments run efficiently and effectively.

With Steel Building Systems going international in July 2007, the South Australian and New South Wales operations now form part of a much bigger picture – one which Chelsey is very excited to be associated with. She believes a combination of the company's vision and values, along with passionate staff and a premium steel framing system, is the key to their success.

Chelsey is a third of the way through an MBA and is thoroughly enjoying the challenge. Although she admits the light at the end of the tunnel still seems faint, Chelsey affirms the journey thus far has been very rewarding. Recently engaged, Chelsey and her fiancé will be building their first home together this year.

NEW TECHNICAL NOTE – CYCLONIC DESIGN

NASH has developed a new technical note to assist designers when designing for Northern Australia. Due to the very high wind speeds associated with tropical cyclones, buildings in these northern regions require particular attention to both structural design and detailing to ensure that the applied actions can be resisted and transferred to the foundations. Wind pressures can be up to 6 times greater than those designed for the southern parts of Australia due to:

- higher wind speeds
- greater internal pressure
- lower terrain roughness due to disallowing the effect of vegetation in cyclonic regions.

The technical note will be emailed to all members and can also be downloaded from the NASH website www.nash.asn.au

WORK FATALITIES

2007-2008

The Australian Safety and Compensation Council (ASCC) has prepared a statistical report on work related fatalities for the 2007-2008 financial year. There were 150 fatalities during the financial year, which was 16 fewer than in the previous year. Males represented over 90% of the fatalities.

Whilst workers over the age of 55 represented 15% of employed Australians, they accounted for 27% of fatalities. This over-representation of older workers has been apparent since the statistics were first collected. The agriculture, forestry and fishing workplaces contributed almost half of the fatalities in this age group, which is consistent with the fact that this age group supplies 34% of the workers employed in these industries.

TABLE 1: NUMBER OF NOTIFIED FATALITIES BY INDUSTRY – JULY 2007 TO JUNE 2008

INDUSTRY	Industry of workplace		Industry of employer		
	Worker	Bystander	Total	Worker	Incidence rate
Construction	36	0	36	31	3.2
Transport & storage	26	8	34	25	5.0
Agriculture, forestry & fishing	25	2	27	24	6.7
Manufacturing	18	1	19	16	1.5
Cultural & recreational services	3	4	7	3	1.0
Government, administration & defence	3	1	4	5	1.0
Mining	4	0	4	4	2.7
Other industries	16	3	19	23	NA
Total	131	19	150	131	1.2

Note: The incidence rate is the number of fatalities per 100,000 workers.

INDUSTRY

Table 1 shows the number of notified work related fatalities. The industry of the *workplace* identifies the main work activity conducted on the site where the fatality occurred while the industry of the *employer* identifies the main industry conducted by the employer.

The highest number of fatalities was recorded by the construction industry with the transport and storage; agriculture, forestry and fishing; and manufacturing industries following closely behind.

However, when the incident rates are compared, agricultural, forestry and fishing had the highest rate of 6.7 worker fatalities per 100,000 workers. Other industries with rates well above the national average of 1.2 workers per 100,000 workers were transport and storage (5.0); electricity, gas and water supply (3.3); construction (3.2) and mining (2.7).



Safety at Work – Zeehan mining camp completed in 25 weeks by Eco-Fab with no lost time injuries.

CAUSE OF FATALITY

TABLE 2: NUMBER OF FATALITIES BY MECHANISM AND BREAKDOWN AGENCY

MECHANISM OF FATALITY	Breakdown agency of fatality						
	Mobile plant and transport	Machinery and fixed plant	Non-powered equipment	Environmental agencies	Material and substances	Other agency or agency not stated	All agencies
Vehicle accidents	38	4	0	1	1	0	44
Being hit by falling objects	5	5	5	4	3	1	23
Falls from a height	2	2	7	5	0	0	21
Being trapped by moving machinery	5	7	0	0	0	0	12
Drowning /Immersion	4	0	0	4	0	1	9
Contact with electricity	1	3	0	0	0	1	5
Other	4	5	2	1	3	7	20
All mechanisms	75	27	15	15	7	11	150

The mechanism of fatality identifies the overall action, exposure or event that best describes the circumstances that result in the fatality. The breakdown agency identifies the item that initiated the fatality.

The most common mechanism of fatality was vehicle accidents. The number of vehicle accident fatalities is understated as some jurisdictions do not consider work related traffic fatalities in their OHS statistics. Other common mechanisms were being hit by falling objects, being hit by moving objects, falls from a height and being hit by moving machinery.

23 fatalities were caused by falling objects. Of these, 5 workers died when they were struck when loading

or unloading trucks and 3 died when struck by falling steelwork or props.

Of the 16 fatalities that fell from a height, over half (9) were in a construction workplace. Of these:

- 3 workers died when they fell from a building (2 from the roof)
- 3 workers died when they fell from scaffolding
- 2 workers died when they fell from ladders.

The breakdown agency for half of the fatalities was mobile plant and transport.



DID YOU KNOW?

The construction industry specification NATSPEC specifies the NASH Standard Residential and Low-rise Framing Part 1 Design Criteria in its Light Steel Framing Specification and specifically calls up Appendix D for tolerances.

Members report that this is now being used in contracts and it is greatly simplifying the tendering, design and construction processes.

MEMBERS

NASH welcomes the following new members:

Company	Chapter	Activity	Contact
Centrix Group	WA	Fabricator	Paul Skinner
Australian Technical College – Perth South	WA	Educator, Registered Training Organisation	Shane Jamieson

Ken Watson
Executive Director