

NASH NEWS

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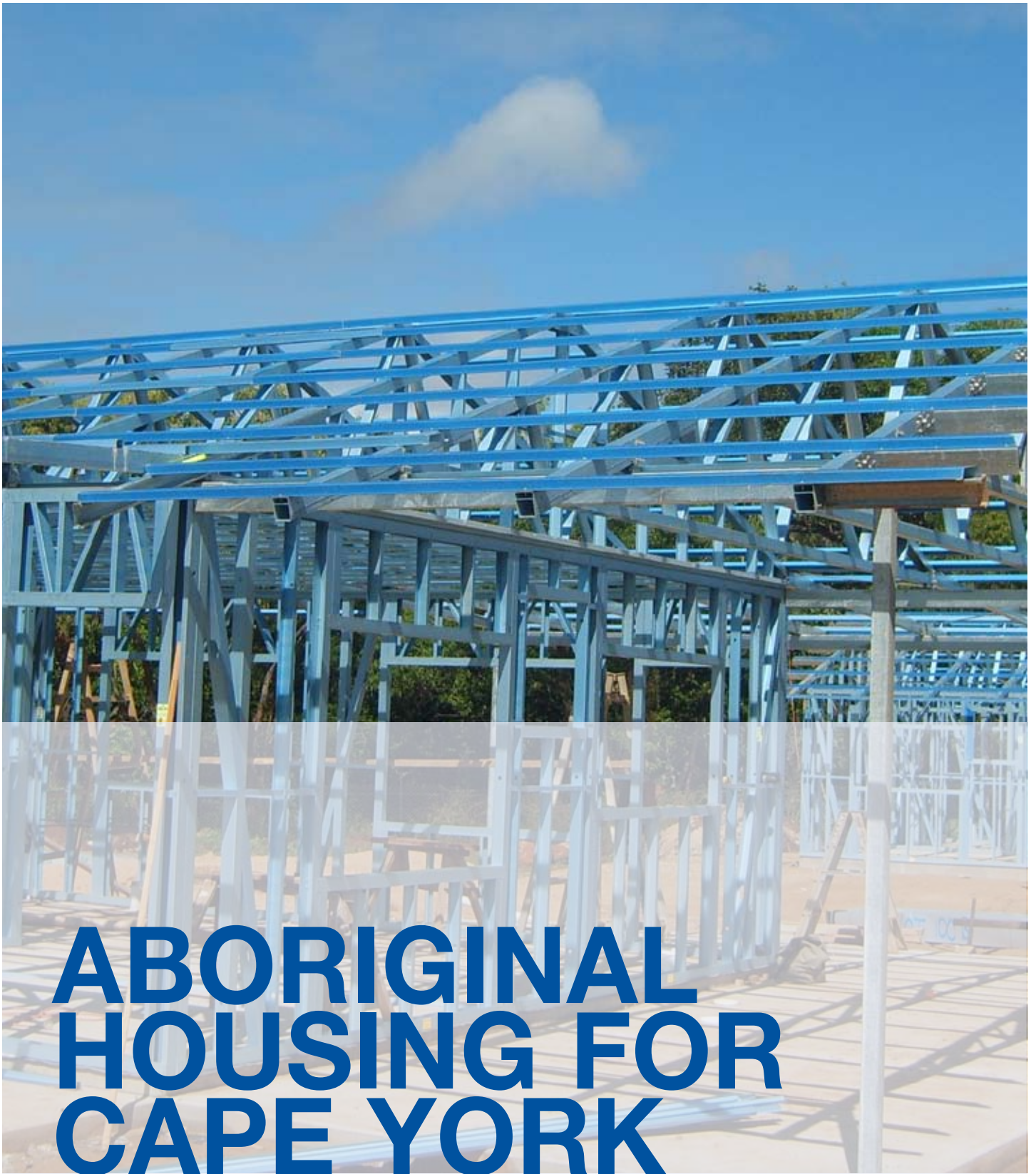
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ABORIGINAL HOUSING FOR CAPE YORK

It's unquestioned that there is a need for more housing in aboriginal communities. This is proving a huge challenge – high cost of construction in remote areas, long delays and insufficient local involvement. To address some of these challenges a new model is being adopted in the Cape York region in North Queensland for building houses in remote centres that could have much wider implications.



The challenges Cape York faces are common to many remote areas in Australia including:

- Very little economic activity in the community and hence limited opportunities for training and work.
- Most of the local people of employable age have only a basic education.
- The communities often only have limited access during the wet season so most construction occurs during the dry season.
- It's very expensive to import trades people to work on remote communities.
- The area is subject to tropical cyclones. Most houses are designed for C2 wind classification (61m/s) in accordance with AS 4055. This combined with the increased internal pressure that must be designed for in cyclonic regions means that the design wind pressures are 3 - 5 times those required in most of Australia.
- The weather in northern Queensland is particularly hot and humid in the wet season. This has led to the design concept of covered breezeways and patios that provide comfortable living for most of the year. An important consideration as many people in aboriginal communities cannot afford to continually run air conditioning.

New houses for Hope Vale

At the Hopevale Community five houses are under construction. QBuild, a business unit of Queensland Department of Public Works, in conjunction with the local community developed a specification for the houses appropriate for the local climate and functional needs.

Homefab Steel Truss and Frames designed the houses to meet the specification using termite resistant materials. All of the houses achieved between a 7.5 and 8 star energy rating when analysed using the BERS energy rating software.

The 8 star rating was due to the following features:

- 900 overhangs around the house to shade the walls.
- The use of covered patios and carports to protect the worst exposed walls of the houses from the sun.
- 75mm stud walls with Air-Cell Permishield 65 to provide both insulation and a thermal break. The wall cladding was either fibre cement or corrugated Colorbond steel sheeting.
- The corrugated Colorbond roof cladding was combined with Air Cell Insulbreak 65 insulation.
- Both the wall and roof cladding used light colours to improve the reflection of the heat.



Homefab was awarded the tender to supply and deliver the houses in kit form to Hope Vale. The kits included:

- Construction plans and engineering
- Wall frames
- Trusses
- Beams and post, roof and ceiling battens
- Windows and doors
- Roof and wall cladding
- 9mm Villaboard wall lining and 6mm Villaboard internal ceiling sheeting
- Product Identification and Site Installation Manuals
- Timber mouldings.

By packaging the various items into kits, the cost of transport is significantly reduced as full loads are ensured. Hope Vale is 4 hours north of Mareeba and 5 hours north of Cairns. The closest town to Hope Vale is Cooktown but it too has limited facilities. It is critical that items are not left off trucks - Homefab's sophisticated dispatch systems ensure all deliveries are complete and on time.

The Hope Vale Community Council was awarded the contract by QBuild to build the houses. The Hope Vale Council in turn subcontracted the work to local contractors. The steel frame installation subcontract was awarded to a number of local subcontractors including Justin Pearson and Chris and Jason Woibo who are responsible for carrying out the work for a fixed price. The Hope Vale Council provides the supervision and training to ensure that the work is completed in accordance with the specification. The training is supplemented by Homefab with specialist steel frame training carried out on site. The use of local subcontractors is supplemented by outside companies for specialist activities only if local expertise is not available or the construction requires additional resources.

Hope Vale Council is planning to employ four apprentices and two trainees to build up the skill levels within the community and provide employment opportunities for local people. They'll gain their practical experience working for the building subcontractors.

The overall cost is similar to that of using outside building contractors. The big advantage of this scheme is that it provides jobs with training for local people then allowing them to develop businesses that build and maintain buildings within the community. Another key benefit is that more of the overall cost is retained within the community's economy.

Hope Vale Land and Sea Building

A similar model was used to manage the construction of the Land and Sea Building.

The building was designed to house the offices and a meeting room for the local land council. Separation of the offices and meeting room was achieved with a covered breezeway that provides acoustic separation as well as a cool meeting place for networking and discussions.

Featuring curved roof trusses the Land and Sea building stands out from its neighbours.

Business Centre

Work on the business centre of the town has commenced. Essentially the finished project will contribute to the vision of an attractive town centre for Hope Vale and provide suitable accommodation for local council staff. Currently the council staff are operating out of demountable construction huts.

The project is being managed using a similar model to the houses and the Land and Sea Building. Homefab is currently fabricating the steel work and will supply a full kit to Hope Vale. The local council will manage the construction process.

The Future

This construction management model is proving very successful in providing well-designed and much needed facilities for the Hope Vale community. It has also been successfully used on one-off projects at Lockhart River and Bamaga, both located towards the tip of Cape York.

The major long term advantages are training, employment, economic and community development for these remote communities in Northern Australia. For the program to be successful, it requires continuity of work so that the local people can be trained and go on to develop viable businesses that service their community as well other economic developments on the Cape such as mining, agriculture and tourism.

BUSHFIRE ROYAL COMMISSION



FINDS BUILDING STANDARDS NEED IMPROVEMENT

The much awaited report of the Victorian Bushfires Royal Commission presents many challenges for government, industry and the wider community. From the steel framing industry's viewpoint, NASH is pleased to report that many of the points made in its submission were supported by the Commission's findings and recommendations. The media coverage has concentrated on evacuation policies, fuel reduction, government purchase of properties in high risk areas and management and leadership by the emergency services. However, issues relating to building design for bush fire represent over 10% of the recommendations and in this NASH News article we have concentrated on those issues.

The Commission found that resistance to ember attack was inadequately covered in the Building Code of Australia (BCA), in Victorian regulations and in AS 3959-2009, recommending that all three be amended to increase ember protection measures. It also recommended that the minimum level of construction in designated bushfire prone areas in Victoria should be BAL-12.5, ensuring at least a minimum level of ember protection to all potentially exposed dwellings.

The Commission found that the test methods prescribed for building elements exposed to bushfire attack (AS 1530.8.1 and AS 1530.8.2) did not provide reliable prediction of performance of building elements under bushfire conditions, and recommended their review and amendment. This finding is of particular interest to NASH, given our decision to undertake full-scale bushfire simulation testing as recommended by CSIRO (refer to separate NASH News item).

Bushfire construction provisions do not currently apply to some residential and most non-residential buildings such as schools, child care centres, hospitals and aged care facilities. The Commission recommended that this be changed so that buildings where potentially vulnerable people live or may be present during a bushfire be covered by bushfire construction measures.

Along with researchers and emergency authorities, NASH had been concerned that standards development processes had not delivered, in reasonable time, a standard that could be relied on to meet BCA performance objectives. The Commission agreed, noting that that this process "... has not delivered timely

regulation", and recommended that the Australian Building Codes Board (ABCB) work expeditiously with Standards Australia to review and develop AS 3959. It also recommended that access to AS 3959 and all referenced and related standards be free.

Of considerable interest to our industry is the Commission's recommendation that deemed-to-satisfy provisions for construction in the Flame Zone be removed from regulations. This had been a contentious matter in the lengthy deliberations leading up to publication of AS 3959-2009. The Commission concluded that this was a regulatory matter, inappropriate for a Standards Australia technical committee to decide, and recommended that the State and ABCB should remove these provisions.

Noting that 87% of homes destroyed in the 7 February 2009 fires had not been required to be built to any bushfire standard, the Commission recommended the development of information on improving the bushfire resistance of existing buildings, and the development of guidance material and tertiary courses on bushfire risk management in building and planning.

It now rests with parties in the community to whom recommendations are directed to consider them and respond. NASH supports measured responses from all involved, and will be moving forward with the following activities and initiatives:

- Commencing with the BL-40 specification, develop a comprehensive Bushfire Manual including detailed ember protection measures that can be applied to both new and existing buildings.
- Promote the use of 'real bushfire' exposure curves, such as that developed by CSIRO, and full-scale simulation test methodology.
- Keep promoting non-combustibility, durability and robustness of steel framing, cladding and fencing products, based on test evidence wherever possible.
- Develop training materials supporting the proven benefits of durable, non-combustible construction in minimising ignition risk and fire spread.

The Bushfire Royal Commission's report and recommendations may be viewed or downloaded at www.royalcommission.vic.gov.au/Commission-Reports



SUMMARY OF BUSHFIRE ROYAL COMMISSION RECOMMENDATIONS RELATED TO BUILDING DESIGN	DIRECTED TO
EMBER PROTECTION	
Amend objective of AS 3959-2009 to incorporate reducing the risk of ignition from ember attack	Standards Australia (Rec 47)
Amend BCA performance requirements to incorporate reducing the risk of ignition from ember attack	ABCB (Rec 48)
Apply a minimum of BAL-12.5 to all new buildings and extensions in designated bushfire-prone areas.	State of Victoria (Rec 49)
Extend bushfire construction provisions to non-residential buildings such as schools, child care centres, hospitals and aged care facilities.	ABCB (Rec 48) & State of Victoria (Rec 49)
FLAME ZONE CONSTRUCTION	
Remove deemed-to-satisfy provisions for the construction of buildings in BAL-FZ.	ABCB (Rec 48) & State of Victoria (Rec 49)
STANDARDS DEVELOPMENT & ACCESSIBILITY	
Review and amend testing standards AS 1530.8.1 and AS 1530.8.2 to provide a reliable predictor of the performance of construction elements under bushfire conditions.	Standards Australia (Rec 47)
Effect expeditious continuing review and development of AS 3959 and other bushfire-related standards referred to in the Building Code of Australia	ABCB (Rec 48)
Negotiate free online access to AS 3959-2009 and referenced standards	ABCB (Rec 48)
Expediently develop a standard for bushfire sprinklers and sprayers	Standards Australia (Rec 50)
PLANNING CONTROLS	
Implement a mechanism for council sign-off of any permit conditions and the regular assessment of landowners' compliance.	State of Victoria (Rec 52)
Require that a land vendor's statement include whether the land is in a designated Bushfire-prone Area, the standard (if any) to which the dwelling was constructed and the original and current BAL assessment.	State of Victoria (Rec 53)
Enable the CFA Chief Officer to delegate the power to issue fire prevention notices.	State of Victoria (Rec 54)
INFORMATION & EDUCATION	
Develop, publish and provide information about ways in which existing buildings can be modified to incorporate bushfire safety measures.	State of Victoria (Rec 51)
Improve understanding of bushfire risk management in building and planning by providing regular training and guidance material to planning and building practitioners.	State of Victoria (Rec 55)
Help a suitable tertiary institution design and implement a course on bushfire planning and design in Victoria.	State of Victoria (Rec 55)



NASH BUSHFIRE TEST ROYAL COMMISSION IMPLICATIONS

NASH faced a significant challenge as it prepared the scope and specification for its bushfire test in August 2009, just one year ago: whether to test the building structure in accordance with AS 1530.8.2, or to explore a different test approach using bushfire simulation.

The Building Code of Australia (BCA) 2010 requires that Class 1, 2 and 3 buildings in designated bushfire prone areas, and any Class 10a buildings associated with them, "must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes." Compliance with AS 3959-2009 is a Deemed-to-Satisfy Provision for each of the above building classes in most state jurisdictions. AS 3959 prescribes some construction details, and calls for testing to AS 1530.8.1 (BAL-40) or AS 1530.8.2 (BAL-FZ). Passing the relevant test means the construction element is deemed to satisfy the BCA performance requirement.

Alternative Solutions to the Deemed-to-Satisfy Provisions are possible, provided it can be demonstrated to the relevant Building Authority that they satisfy the same Performance Requirements as the Deemed-to-Satisfy Provisions or that they are at least equivalent to the Deemed-to-Satisfy Provisions.

The AS 1530.8.2 test is conducted in a modified compartment fire test furnace that has accepted limitations in its ability to model actual fire conditions. This was NASH's view at the time, and is confirmed by findings of the Royal Commission (see Recommendation 47). Factors such as the time-temperature profile, availability of oxygen during the test exposure, wind effects, material moisture content etc in the AS 1530.8.2

furnace test differ significantly from the conditions experienced by a building in an actual bushfire.

Seeking a more realistic test, NASH engaged the CSIRO to develop a real bushfire exposure curve and to conduct full scale fire testing using the Bushfire Flame Front Simulator at the NSW Rural Fire Service Eurobodalla Training Centre near Mogo NSW.

This facility was designed to assess the resistance of bushfire fighting vehicles that may be caught directly in the path of a high-intensity bushfire. It is the only facility in Australia that can model the immersion of a full scale vehicle or structure in a high-intensity bushfire flame front in open air conditions.

Fire engineering consultant Dr Ian Bennetts of Noel Arnold & Associates worked with NASH to evaluate the test methodology and specify the test building features. The testing was undertaken in April 2010 and the CSIRO report is currently being finalised. The magnitude and duration of fire exposure during the test has yielded considerable information on the performance of various common building elements and assemblies. This information will be able to be used, along with fire engineering design and possibly some supplementary small scale tests, to develop acceptable steel solutions for floor, wall and roof structures in BAL-40 and BAL-FZ.

In summary, the results from NASH's Bushfire test are enhanced by the findings of the Bushfire Royal Commission and will form an important basis for the future of bushfire design.





MBAV EXPO SHOWCASES STEEL

NASH in association with BlueScope Steel, Buildex, Steer Manufacturing, OneSteel, LiteSteel Technologies, Framcad and Steel Frame Solutions constructed a double storey display at the Master Builders Association of Victoria's (MBAV) Home Improvement Expo to showcase steel building frames.

The display was well positioned through the main access aisles and next to the sustainability precinct and presentation area. Helium filled balloons were also used to give the display even more height and attention.

George Plionis, the local BlueScope Steel Business Development Manager, observed that it was one of the busiest home expos that he has attended in a long time. The blue frame was fairly distinctive and tempted visitors to give it a tap or a push or come in and ask a question. George was also encouraged by the quality of enquiry and sensed a higher degree of familiarity and acceptance of steel framing compared to previous years.

Below is a summary of main questions/comments:

99%

How does it compare in price to timber?

20%

Is it easy to modify for renovations/ additions?

30%

Is it noisy?

30%

What happens in a lightning strike ...electrocution?

1%

I'm sold on the idea but my builder does not want to build with steel (too expensive, too difficult, it rusts).

5%

Is it a sustainable product (embodied energy)?

2%

How many levels can you build up to?

Thank you to those who helped design, install, dismantle and assisted on the stand during the exhibition.

NEW NATIONAL CODE



FOR THE PREVENTION OF FALLS IN HOUSING CONSTRUCTION

The National Code of Practice for the Prevention of Falls in Housing Construction was declared by Safe Work Australia in April 2010. It aims to provide guidance on managing risks with working at heights in the housing construction industry. The scope of work covers Class 1 and 10a buildings.

The National Code is an advisory document. Each state or territory authority is responsible for enacting the code of practice in their jurisdiction. The states and territories have committed to introducing the National Code by 2012.

Codes of Practice were initially developed to give practical guidance on how to comply with the Act or Regulation. However they were not mandatory. The new Code of Practice's language has changed and a lot of the provisions in the Code are now mandatory. Alternative solutions must be shown to be safer than the Code of Practice rather than just being shown to meet the Act or Regulations.

Where working at less than 2 metres in height, the standard risk assessment process of identifying fall hazards, assessing the risk of a fall occurring, and controlling the risks should be used.

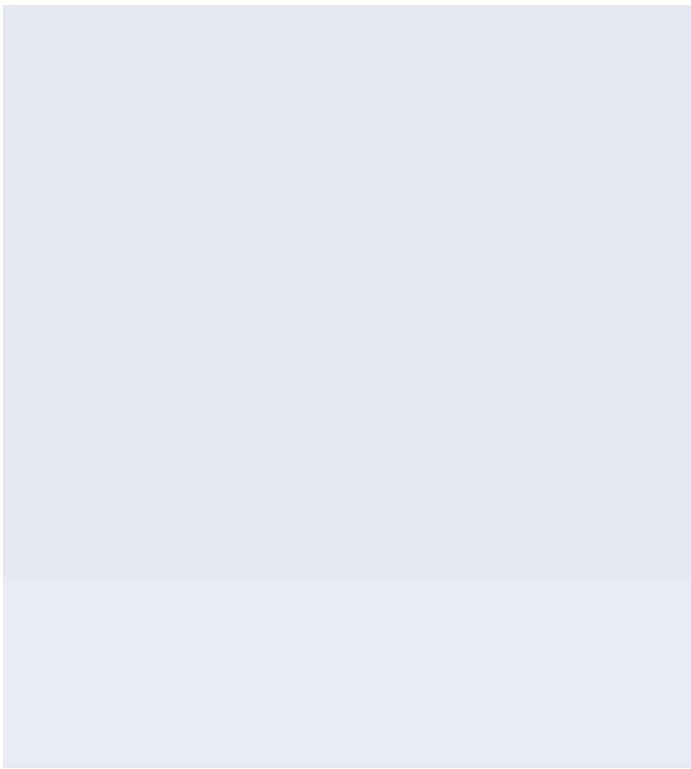
Where working at a height of 2 metres or greater the code provides the following guidance:

- Wall Frames - Erecting wall frames where the fall height is greater than 2 metres, window and door openings must be fitted with guard rails prior to raising the walls. NASH suggests that this is probably best done in the factory when the frames are being assembled.
- Timber Trusses - Very detailed procedures are given for erecting timber trusses at 600 mm centres.

- Trusses - Where trusses are spaced at more than 600 mm centres, fall protection must be provided when working at heights to fix and brace the trusses such as:
 - mobile scaffolding system complying with AS 1576 and AS 4576
 - mesh or netting installed to the manufacturer's specifications
 - fencing and handrails within adjacent trusses installed to the designer's or manufacturer's specifications
 - working platforms, elevating platforms, including motorised single person lift platforms complying with AS 1418.10, or
 - planks placed across internal and external top plates and across the bottom chords of the trusses.

Whilst not specifically mentioned in the above list, portable ladders or step platforms would be suitable as this task is usually a short duration light task.

- Panel roofs - No guidance is given specifically for panel roofs, but some guidance is given for stick built roofs. Once the ceiling frame is erected, planks or sheet flooring plywood may be used as a platform on the ceiling frames to erect the rafters.



- Truss/rafter and batten spacing - Where the roof trusses are spaced at 600 mm maximum centres, the battens may be placed at up to 900 mm centres. Where the truss spacing exceeds 600 mm centres, the batten spacing must not exceed 450 mm centres.

With a tiled roof, the battens are typically at approximately 330 mm centres and hence would comply with this requirement. With a steel sheet roof, an intermediate safety batten can be alternated with a roof batten. However the safety batten must be capable of supporting the expected loads from installers.

- Batten location marking - Where the spacing of the trusses is 600 mm or less, the locations of the battens can be marked on the trusses by walking up the top chord of the truss. Where the truss centres are greater, the batten spacing can be marked sequentially up the roof as the battens are placed or alternatively they can be marked from a ladder or a work platform. Due to accurate manufacture of steel framing, it is usually possible to mark the batten locations on the truss chord prior to the installation of the trusses.

When installing the battens, the lower battens should be fixed from a ladder or work platform prior to roof access being required. The remaining battens are fixed sequentially up to the apex of the roof as described.

- Physical edge protection must be provided for all roof work.

The Code of Practice can be downloaded from Safe Work Australia at www.safeworkaustralia.gov.au .



TIPS FOR TRADIES

BlueScope Steel has introduced a new section on their website dedicated to providing advice and handy hints on building with steel framing. Short videos are provided for framers, second fix carpenters, plumbers and electricians on many subjects including:

- Screw fixing with steel frames
- Trimming or cutting C section profiles
- Frame fixers introduction
- Safety
- 2nd fix introduction
- Plumber tips and tricks
- Adding addition service hols in studs
- Electrical tips and tricks

The videos are typically about 2 minutes long and can be downloaded to your computer. They can be used either online by tradies seeking to become familiar with steel framing or as a training resource for NASH members and TAFE teachers.

Tradies website www.truecore.com.au/tradies

UPCOMING EVENT

NATIONAL BUSINESS IMPROVEMENT WORKSHOP

The Workshop at Dubbo is on 5 and 6 September. Over 50 people have registered for the event and we're looking forward to meeting with you there.

Outcomes will be reported in the next NASH News.



NEW MEMBERS

NASH welcomes the following new members:

Company	Chapter	Activity	Contact
SteelFrameLogix	SA	Fabricator	Ian Ravenscroft
Tru-Blu Steel Frames & Trusses	NSW	Fabricator	Graham McFadden

Ken Watson

Executive Director