

FIRE AUSTRALIA

National capability fire investigation

Research—don't underestimate fire

Proposal for change includes new sprinkler designs

AFAC18 program highlights revealed



Pertronic F220: The right information in the right place at the right time



The F220 Full Function Mimic provides full system control and monitoring across the entire network. Alternatively, this unit can be programmed to control and monitor specific F220 panels



The F220 Enhanced Mini-Mimic provides a read-only display of all event information from the entire network, or from specific F220 panels



The F220 Alarm Mini-Mimic displays alarm-only information from all F220 panels in the network, or from specific F220 panels

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Phone 02 9638 7655
sales.nsw@pertronic.com.au

Melbourne

B2/2a Westall Road
Springvale VIC 3171
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Adelaide

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STUART ELLIS AM

Chief Executive Officer, AFAC



In early September, global experts in leadership, crisis and emergency management will come together for the emergency management sector's premier annual conference and exhibition.

AFAC18 powered by INTERSCHUTZ will be held at the Perth Convention and Exhibition Centre from 5-8 September 2018. Registrations are now open and those who register before 29 June will enjoy the Early Bird rate.

The conference continues to grow every year. Under the theme 'Changing lives in a changing world', the program will focus on how change is fast becoming the new normal for emergency services. Our program will reflect

the rapid scale of growth and change that is occurring across emergency management globally.

Ahead of the full program release we have previewed some of the highlights across the keynote and invited speaker program, which you can read on page 22. Keynote speakers will include crisis and emergency management expert and former Federal Emergency Management Agency (USA) Administrator Craig Fugate, and Dana Born, Harvard Kennedy School of Government lecturer and public leadership expert.

In addition to the conference, we continue to offer many other professional development initiatives. One recent example is a coaching and mentoring resource developed for incident management teams (IMTs). This resource will focus on best practice approaches to coaching and mentoring for IMT personnel. You can read about it on page 40.

There are plenty of other opportunities on offer across the sector. From professional development conferences and events to products and resources targeting capability development, we are developing our people and investing in your future.

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FIRE AUSTRALIA



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OUR COVER

A live burn cell during the residential component of the Advanced Diploma of Public Safety (Fire Investigation) at Fire & Rescue NSW Londonderry training facility.

PHOTO: DR KYM TURNBULL, CANBERRA INSTITUTE OF TECHNOLOGY

ABOUT FIRE AUSTRALIA

Fire Australia is a joint publication of Fire Protection Association Australia, AFAC and the Bushfire and Natural Hazards CRC. We aim to bring the latest news, developments and technical information to the fire protection industry, emergency services and natural hazards research organisations. *Fire Australia* is produced quarterly and distributed throughout Australia and New Zealand. Editorial submissions are welcome and can be sent to: tom.bicknell@fpaa.com.au. For more details on submitting a contribution, please contact the editors.

JOINT EDITORS

Tom Bicknell (FPA Australia)
TEL +61 3 8892 3118 tom.bicknell@fpaa.com.au
Nathan Maddock (Bushfire and Natural Hazards CRC)
TEL +61 3 9412 9600 nathan.maddock@bnhrc.com.au
Zoe Kenyon (AFAC)
TEL +61 3 9419 2388 zoe.kenyon@afac.com.au

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PREDICTIVE SERVICES WEBINARS AVAILABLE



PHOTO: DARREN MCCAGH, FARMHOUSE FILMS

A pyro-cumulo-nimbus cloud over the 2016 Waroona fire in WA was among the topics discussed in AFAC's webinar series.

A series of webinars on predictive services is now available via AFAC's YouTube channel. The webinars were developed as a learning and development opportunity for AFAC's Predictive Services Group, and more broadly as a resource for the emergency management sector.

The Predictive Services Practitioners

(Bushfire) Network sponsored the series of webinars to provide professional development for fire behaviour analysts (FBANs) and others interested in fire behaviour. Four webinars have been held to date, covering topics such as extreme fire behaviour, smoke and air quality, blow up fires and the role of FBANs during a 2017 deployment to Canada.

The first in the series, 'Lessons learned from the Waroona fire', was held in November 2017. This webinar featured Bushfire and Natural Hazards CRC researcher Dr Mika Peace from the Bureau of Meteorology discussing the extreme fire behaviour during the 2016 Waroona bushfire in WA.

Another webinar in the series explored the learnings and observations from the group of Australian FBANs who were deployed to Canada in 2017 to assist with a severe fire season in British Columbia.

The third webinar in the series looked at the topic of 'Predicting Blow Up Fires'. When a fire 'blows up', it often does not follow the McArthur scale or any of the other steady-state fire-spread models. The webinar describes the development of a 'Blow Up Fire Outlook' predictive model to help reduce the impact of blow up fire events through timely forecasts of their onset. The importance of dynamic fire behaviours in bushfire prediction is increasingly being acknowledged. You can read more about this in *Fire Australia* Issue One 2018.

The Predictive Services Systems Working Group also sponsored a webinar featuring Beth Ebert and Monica Long from the Bureau of Meteorology, who presented the bureau's Smoke and Air Quality Forecasting System (AQFx).

The series will expand throughout 2018 with additional webinars planned. For more information on future webinars, please email Nicola Laurence at AFAC (nicola.laurence@afac.com.au). ■

To watch the recent webinars or to follow AFAC news on YouTube, visit: <https://tinyurl.com/AFACnews>.

CONGRATULATIONS TO PHD STUDENTS

More Bushfire and Natural Hazards CRC PhD students have graduated and are sharing their research outcomes with the fire and emergency services sector.

Rachael Quill

Rachael Quill's PhD explored spatial-statistical characterisation of wind fields in complex terrains for bushfire modelling applications. Her research examined data to conclude that statistical approaches can be linked to current physics-based wind modelling methodology. She hopes that the application of these statistical analyses will be used to evaluate the spectrum of wind-prediction models used for

bushfire modelling over rugged landscapes. Dr Quill completed her PhD with the University of New South Wales.

Philip Stewart

Investigating the changing fire regimes in the Great Sandy Region of south-east Queensland, Associate Student Philip Stewart's PhD at the University of Queensland investigated the past, present and future challenges in the area. Dr Stewart investigated the linkages between fire regimes and how they affect the environment, vegetation and population dynamics. His research

offers a variety of regime management controls that can be implemented in the future.

David Barton

David Barton's PhD investigated the aftermath of the Black Saturday bushfires and examined the notions of loss, grief and attachment. He drew on his own personal experiences as a resident of fire-ravaged Marysville, as well as the experiences of the Marysville community. Dr Barton began his PhD with the Bushfire CRC and completed it as an Associate Student of the Bushfire and Natural Hazards CRC, based at RMIT University. ■

The logo for Exova Warringtonfire, featuring the company name in white text on a black background. To the right of the text are several vertical bars of varying heights and colors, including pink, purple, blue, and teal.

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A NEW COMMUNITY FOR PRESCRIBED BURNING PRACTITIONERS



The Centre of Excellence for Prescribed Burning develops national principles and frameworks for prescribed burning.

The Centre of Excellence for Prescribed Burning is an initiative of AFAC and the Forest Fire Management Group (FFMG). It brings prescribed burning practitioners together across Australia to develop national principles and frameworks for prescribed burning.

Between 2011 and 2017, AFAC and FFMG worked together to deliver the National Burning Project, producing a suite of guidelines, principles and frameworks applicable to all agencies engaged in prescribed burn planning and implementation. These can be viewed at <https://knowledge.aidr.org.au/resources/national-prescribed-burning-guidelines-and-frameworks>.

During delivery of the National Burning Project, a Centre of Excellence for Prescribed Burning emerged as a concept to help implement the principles across Australia. The Centre will also foster cross-border relationships and promote collaboration towards a holistic, consistent approach to prescribed burning across Australia and New Zealand.

Commencing operations in July 2017, the Centre of Excellence has several key objectives that will facilitate dissemination of knowledge and promote engagement for prescribed burning practitioners. The Centre will:

- ◆ continue the collaborative effort towards national acceptance of the principles of the *National Position for Prescribed Burning* and develop further guidelines, principles and frameworks
- ◆ undertake extensive, targeted engagement with prescribed burning practitioners and provide guidance on how they can implement frameworks developed by the National Burning Project and the Centre of Excellence
- ◆ build formal national networks to address the most challenging and significant prescribed burning problems, such as reducing risk, increasing community understanding, participation and resilience and maintaining ecosystem health
- ◆ develop a trusted exchange of knowledge, information and technology between agencies, researchers and Traditional Owners to improve best practice
- ◆ investigate leadership and mentoring opportunities to support the capability development of personnel in delivering prescribed burning programs
- ◆ build a proactive, responsive and sustainable vision.

Several initiatives have been established to facilitate these

objectives, including the development of a Knowledge Hub to house national guidelines, frameworks and other key resources to assist practitioners in prescribed burn planning. A monthly webinar series will explore insights into prescribed burning tools, emerging issues for practitioners and case studies. A prescribed burning practitioners network will allow anyone engaged in prescribed burning to share knowledge, solicit advice from peers and participate in conversations.

The Centre of Excellence continues to engage with agencies across Australia through conferences, workshops and professional development sessions to increase awareness, understanding and implementation of the national guidelines and frameworks.

The Centre of Excellence is supported by AFAC and FFMG and positioned within the Australian Institute for Disaster Resilience. An Advisory Group drawn from AFAC and FFMG member agencies provides guidance on the strategic directions of the Centre of Excellence, and ensures it has a national focus and reflects industry needs for capability development in prescribed burning. ■

Visit the Centre of Excellence online at: <https://knowledge.aidr.org.au/collections/centre-of-excellence-for-prescribed-burning>.

AUSTRALIA DAY HONOURS FOR RESEARCH TRAILBLAZER

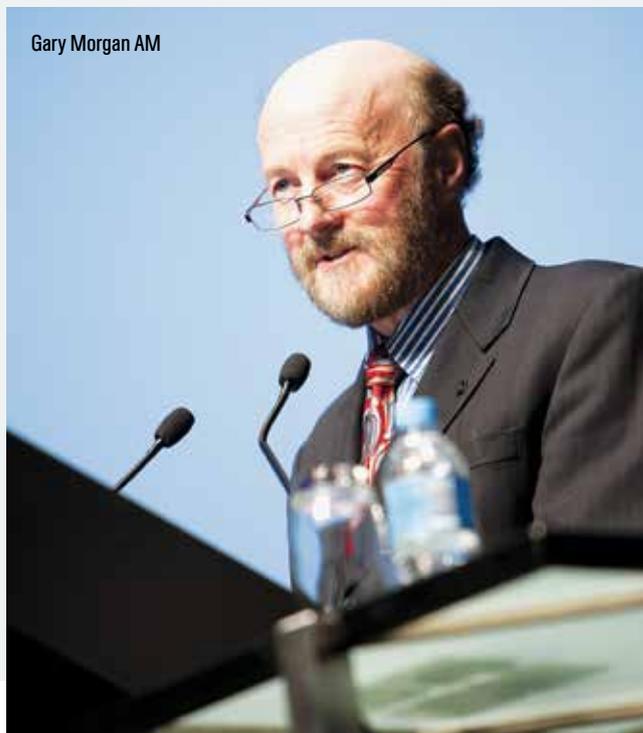
Former Bushfire CRC CEO Gary Morgan was recently recognised for his significant service to the community with an Australia Day honour. Becoming a member of the Order of Australia (AM), Mr Morgan was awarded for his significant service to the community through emergency response organisations, and to forest and fire research and management.

Bushfire and Natural Hazards CRC CEO Dr Richard Thornton said the acknowledgement was well deserved.

"Gary was integral to research, land management and fire and emergency services for many years, and to be recognised with an AM is fantastic. The Bushfire and Natural Hazards CRC would not be in the position we are in today without his concerted efforts. Congratulations to Gary from all at the Bushfire and Natural Hazards CRC."

Mr Morgan was CEO of the Bushfire CRC from 2007 until it wound up in 2014. Prior to this he was the Chief Fire Officer at Victoria's Department of Sustainability and Environment from 1996 to 2005. ■

Gary Morgan AM





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SURVEY TO PROTECT HISTORIC WA TOWN FROM EARTHQUAKE

Researchers using the Rapid Inventory Collection System to retrofit buildings in York.



PHOTO: GEOSCIENCE AUSTRALIA

Research is underway to protect a small town in one of Australia's most active earthquake regions.

A research project from the Bushfire and Natural Hazards CRC has teams from Geoscience Australia and the University of Adelaide examining practical approaches for retrofitting historical buildings in York, Western Australia.

Teams will collect information with handheld computers, digital cameras and a vehicle-mounted camera known as a Rapid Inventory Collection System to investigate how to retrofit heritage buildings in Western Australia's oldest inland town. Following this, retrofitting options will be virtually applied to

the buildings to understand what modifications are most effective in reducing the damage from a large earthquake.

York's Town Hall is among the list of buildings that are at risk if an earthquake does occur. The heritage-listed building was built in 1911.

"The hazard has been ignored until quite recently, and we can't forecast an earthquake," Bushfire and Natural Hazards researcher Mark Edwards said.

Local business owners will also be surveyed about the possible economic disruptions if an earthquake occurs, while scenarios will be developed to assist the Shire of York and the Department of Fire and Emergency Services WA with their

emergency planning. The research will not only benefit the Shire of York but also other small Australian towns with similar structures.

Earthquake as a hazard in Australian building design was not fully recognised until the 1989 earthquake in Newcastle, NSW, which means that buildings built prior to the development of the earthquake code could be particularly vulnerable.

York is the first town in Australia to be selected for the earthquake-mitigation study. The town has 31 buildings on the state heritage register.

A report on the survey findings will be delivered to the Shire of York later this year. ■

VALE ALAN HOST

Fire Protection Association Australia (FPA Australia) expresses its condolences to the family, friends and colleagues of the New South Wales Department of Planning and Infrastructure's program manager Alan Host, who passed away in March.

Over many years, Alan was a tireless contributor to building and fire safety reform in NSW, and played a major role in the state's 2017 building regulation and certification reforms.

"Alan will be sadly missed, and we will remember him for his great contributions to the industry and the legacy he leaves behind in improved fire safety in NSW," said FPA Australia CEO

Scott Williams.

"The past few years have seen the introduction of some of the most significant fire safety reforms in the history of NSW, and Alan had very much been a part of championing this change."

Alan was also a generous supporter of FPA Australia. He frequently donated his time to speak at industry events and provide Association members with his unique insight into NSW building regulations, most recently at a member forum in August 2017.

"Alan was always a strong supporter of the Association and a strong advocate of building fire safety," said FPA Australia Board Finance Director Bill Lea.



Alan Host presents at an FPA Australia forum on the NSW fire safety reforms in 2017.

"He always made himself available to speak at seminars and to provide assistance to FPA Australia members any time he was asked. He was regarded as a real stalwart contributor to fire protection in the built environment." ■

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UPCOMING LEADERSHIP PROGRAMS TO ENHANCE CAPABILITY



PHOTO: AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT

Bridging the Gap: From Management to Executive 22–29 June 2018

The journey between management and executive is one of the most challenging for emerging leaders. Bridging the Gap is designed to build those capabilities identified as factors for generating high performance from senior executives. The eight-day residential program, conducted at AIPM in Manly, NSW, provides a personal architecture to creating a successful transition between management and executive. **Nominations close 25 May 2018.**

Graduate Certificate in Applied Management

Distance education:
16 July–29 October 2018

Residential component:

19 November–7 December 2018
The Graduate Certificate in Applied Management is one of the cornerstone programs in the development of public safety leaders. The program comprises four subjects, two of which are completed via distance education and two via the three-week residential component. The course is designed for managers with significant experience and the capacity for higher office. It is a nationally accredited qualification that unlocks individual capabilities and career progression. **Nominations close 18 June 2018. ■**

For more information on the range of leadership programs, or to submit a nomination form visit:
www.afac.com.au/initiative/leadership.

Participants at one of the annual AFAC Leadership Programs

AFAC is supporting capability development across the emergency management sector through its annual offering of leadership programs and courses. In partnership with the Australian Institute of Police Management (AIPM), AFAC conducts a range of courses in executive leadership and organisational strategy. Nominations are now open for the following programs:

- ◆ Strategic Command Program
- ◆ Bridging the Gap: From Management to Executive
- ◆ Graduate Certificate in Applied Management.

Strategic Command Program 3–8 June 2018

The Strategic Command Program focuses on building strategic and leadership capabilities to provide the participant with the highest level of competence in managing:

- ◆ multiple incidents concurrently
- ◆ incidents posing a threat warranting state-level intervention
- ◆ incidents of political or national significance.

The program is designed to enhance the capabilities of senior leaders responsible for strategically commanding and managing critical emergency incidents. The six-day residential course is conducted at AIPM in Manly, NSW. **Nominations close 3 May 2018.**

LONG-RUNNING LOGBOOK LEGAL ACTION SETTLED

Fire Protection Association Australia (FPA Australia) is happy to announce long-running legal action involving the unauthorised reproduction of the Association's fire protection logbooks has come to a successful close.

The legal action, which began in late 2015, concluded in December 2017 with an out-of-court settlement.

FPA Australia brought the copyright infringement proceedings against publishers Third Planet Publications, Creative Concepts Advertising and

Marketing Pty Ltd, Edward McAlister Munro and Andrew William Waters.

While the respondents denied all liability for infringement, a settlement was reached that included a payment to FPA Australia and an undertaking by the respondents to cease publishing the logbooks and destroy all remaining copies or deliver them to the Association.

"The Association is delighted to bring the matter to a close, and is extremely satisfied with the outcome," said FPA Australia CEO Scott Williams. "More important than the financial

outcome is the message it sends that the Association will actively pursue any party who seeks to unlawfully profit from intellectual property developed using member funds for the benefit of the industry.

"FPA Australia's fire protection logbooks are the result of significant investment. We appreciate the strong support we've received from the industry through fire logbook purchases, which allow the Association to reinvest in work to further develop Australia's fire protection industry." ■



PHOTO: STU RAPLEY (CC BY-NC-ND 2.0)

NCC 2016 AMENDMENT 1 ADOPTED

Amendment 1 to the National Construction Code (NCC) 2016 Volume One was adopted by all states and territories on 12 March 2018, bringing in important regulatory changes around combustible cladding.

The amendment is the outcome of a directive by the Building Ministers' Forum to accelerate adoption of a suite of measures developed to improve fire safety in high-rise buildings following the Lacrosse Apartments fire in 2014.

To accompany the new amendment, the Australian Building Codes Board (ABCB) has provided a summary of changes, a new *Evidence of Suitability Handbook*, and a preview of Consolidated Performance Requirements. More resources will reportedly follow.

The ABCB also ran an NCC seminar series in February and March covering the new amendment, the upcoming public comment draft of NCC 2019, and developing and assessing performance solutions. ■

PORT HEDLAND DISASTER RISK EDUCATION

Participants needed for study

A PhD study is looking at how education can benefit residents in areas that are prone to natural disasters. Bushfire and Natural Hazards CRC Associate Student Liberty Pascua is seeking participants who have experienced cyclones, storms and floods. Ms Pascua would like to speak to Port Hedland, WA, residents who have been living in the area for 10 years.

The study is part of Ms Pascua's PhD thesis undertaken at the University of Sydney, and will form part of her project to investigate and document how residents perceive and understand their natural surroundings and how they manage weather-related hazards. Volunteers must be willing to participate in a one-hour recorded interview. ■

If you are interested in finding out more information about participating in the study, please contact Ms Pascua at liberty.pascua@sydney.edu.au.

How does John protect a high bay warehouse against fire?


SECURITON

For your safety

The Coulson Helitak 347 was selected as the aircraft to undertake the first night aerial fire suppression trial in Ballarat, Victoria.



NIGHT FIRE-SUPPRESSION TRIAL A SUCCESS

Victoria has conducted a landmark night-time aerial fire-suppression trial. For the first time in Australia, a helicopter successfully hover-filled from an open water source at night and dropped a load of water on a fire within a controlled environment.

The trial started on 21 February 2018. It is a collaborative effort, led by Emergency Management Victoria working together with the Country Fire Authority, Department of Environment, Land, Water and Planning, the National Aerial Firefighting Centre (NAFC) and the Civil Aviation Safety Authority.

Run out of Ballarat, the trial tested the use of night-vision technology in aerial fire suppression. Aerial firefighting at night is practised overseas in places such as southern California, but has never been attempted in Australia.

Richard Alder, General Manager of NAFC, said the Centre worked with Emergency Management Victoria to support the trial and determine the

appropriate contracted aircraft to use.

"We currently have helicopters on contract that use night-vision goggles for reconnaissance, mapping and incendiary dropping, so the trial is really about extending night operations to firebombing. At this stage the trial will not include fixed wing airtankers, but we are examining possibilities for the future."

The trial is an important step in building the capability of aerial fire suppression, allowing firebombing aircraft to continue to fight fires after the sun goes down. The Civil Aviation Safety Authority will undertake a full assessment of the trial before night-time aerial firefighting can be introduced in Victoria and other states or territories. ■

"We currently have helicopters on contract that use night-vision goggles for reconnaissance, mapping and incendiary dropping, so the trial is really about extending night operations to firebombing. At this stage the trial will not include fixed wing airtankers, but we are examining possibilities for the future."

Richard Alder, General Manager, NAFC

DEDICATED EVENT FOR HAZMAT 2018

The HAZMAT 2018 Conference and Trade Show will once again become a standalone event specifically targeting the hazardous materials, dangerous goods, major hazard facility and emergency management industries.

The standalone event will be held in September in Sydney, NSW, with a full conference program and trade show running across two days.

Event organisers Fire Protection Association Australia (FPA Australia) will partner with the Australasian Institute of Dangerous Goods Consultants (AIDGC) to deliver HAZMAT 2018, which will combine with the AIDGC Annual Conference.

"HAZMAT has been delivered as part of the Fire Australia event in recent years. However, the industry has indicated a desire to re-establish it as a standalone conference, which is something the Association strongly

supports," said FPA Australia CEO Scott Williams.

"This is an opportunity for the dangerous goods and hazardous materials industry to meet and discuss issues and solutions specific to their industry."

The event is tailored to consultants, engineers, fire services and a wide variety of other industry representatives, including those responsible for storing, processing or transporting hazardous materials and dangerous goods.

"We are looking forward to having

a combined conference covering a range of issues for a broad coverage of participants from industries involved with hazardous materials," said AIDGC Vice President Peter Hunt. ■



PHOTO: CHRIS WYBORN



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GARRY KWOK'S CONTRIBUTIONS RECOGNISED

The work of Fire Protection Association Australia (FPA Australia) is made possible by the contribution and engagement of members of the industry. For the past decade, Garry Kwok has been one of the most prominent of those contributors, and, as he departs the industry, FPA Australia would like to recognise his support and the impact he has had on the fire protection sector.

Mr Kwok, who is returning to his structural engineering roots with a new senior role, has made numerous contributions since joining the fire protection industry in 2008. Most recently, he has served as the chair of the Association's New South Wales membership group, chair of the Technical Advisory Committee for Sprinklers, Hydrants, Pumps & Tanks (TAC/4/8/9), and as a member of the Fire Protection Industry (ODS & SGG) Board.

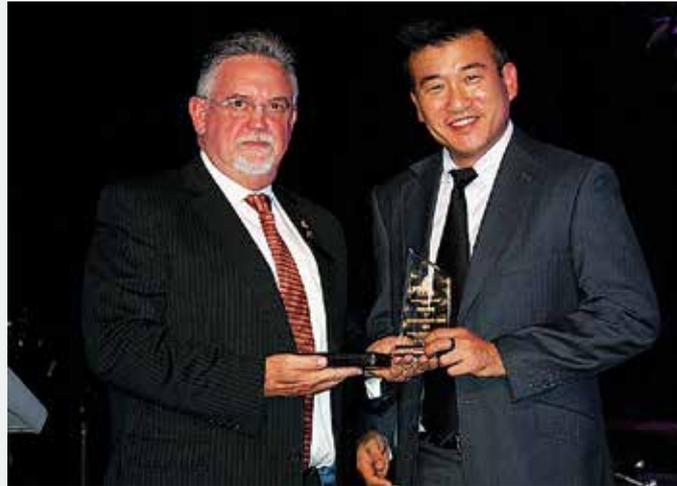
Mr Kwok has frequently represented FPA Australia during government

consultation and has shared his expertise at many industry seminars and conferences. In 2014 his work was recognised by FPA Australia with the Meritorious Service Award.

"We would like to acknowledge Garry's significant contribution to the

industry and wish him well in the next phase of his career," said FPA Australia CEO Scott Williams.

"His input will be missed in fire protection, and the building and construction industry is fortunate to be gaining a member of Garry's calibre." ■



Garry Kwok receives his Meritorious Service Award in 2014

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FLAMESOL RELAUNCHES

Bushfire software provider Flamesol has relaunched under the FPA Australia banner after being acquired by the Association last year.

BY **TOM BICKNELL**

Fire Protection Association Australia

The National Construction Code includes specific requirements for buildings constructed in bushfire-prone areas. The most commonly used deemed-to-satisfy pathway to meeting these requirements is by constructing in line with AS 3959-2009 *Construction of buildings in bushfire-prone areas*.

Two methods are available under AS 3959-2009 to determine the relevant requirements, and collectively these are referred to as a bushfire attack level (BAL) assessment. The first method is a simple but broad approach that can add unnecessary costs to a building. The second ('method two') is complex, but offers the potential for more cost-effective designs.

Method two is the focus of Flamesol, a bushfire software provider acquired by Fire Protection Association Australia (FPA Australia) in late 2017. Flamesol offers a set of simple, accurate method

FPA Australia has acquired Flamesol, a software provider that offers simple, accurate tools and calculators for bushfire attack level assessors and bushfire planning and design practitioners.



FPA Australia's
Bushfire Services
Coordinator,
Andrew Ganey

two-based tools and calculators for BAL assessors and bushfire planning and design (BPAD) practitioners.

"Method two is certainly more complex, but it can save people money on a building's design because it's a more site-specific assessment," said Andrew Ganey, FPA Australia's Bushfire Services Coordinator.

"It's quite complicated to do all the mathematics, and then there's the problem of verifying that your results are accurate. One of the things we've tried to do with Flamesol is to give confidence that the results are verified by the peak body in fire safety, FPA Australia."

The constant demand for innovation in the construction sector and the push to minimise costs are key drivers in the demand for a simple way to complete a site-specific method two BAL assessment, said Mr Ganey.

Acquiring Flamesol was part of FPA Australia's goal to provide practitioners in the bushfire services sector with useful tools, particularly where they support the training provided through FPA Australia's BPAD Accreditation Scheme.

"The acquisition of Flamesol further reinforces FPA Australia's commitment to lead the way in supporting those in the bushfire planning and design sector," said Chris Wyborn, FPA Australia's General Manager Education and Bushfire Services.

As part of the acquisition, Flamesol subscriptions are available to FPA Australia members at a discounted rate. The more advanced suite of tools is only available to regulators and those with appropriate competency. ■

For more information, visit: flamesol.com.au.

NCC 2019 DRAFT INCLUDES ASSOCIATION PROPOSALS

The new National Construction Code draft includes several important changes to fire safety, including residential sprinkler systems proposed by FPA Australia.

BY **TOM BICKNELL**

Fire Protection Association Australia

The Australian Building Codes Board (ABCB) released the Public Comment Draft of the National Construction Code (NCC) 2019 in February for feedback.

The NCC 2019 draft incorporates several changes proposed by Fire Protection Association Australia (FPA Australia) and includes several major developments. For the first time, it makes reference to two FPA Australia Technical Specifications, FPAA101D and FPAA101H, which cover cost-effective fire sprinkler system design and installation (Specification E.1.5). (See the article on page 18 for more detail.)

These Technical Specifications are part of a Proposal for Change to the NCC submitted by FPA Australia, Fire & Rescue NSW and AFAC, which seeks to mandate sprinklers in residential buildings of more than three storeys and under 25 metres in effective height.

Several other changes proposed by FPA Australia have also been included in the NCC 2019 Public Comment Draft, such as:

- ◆ changes to penetration protection (Clause C3.15)
- ◆ sprinklers in lift motor rooms (Specification E.1.5 Clause 13)
- ◆ improvements to Clause A2.2 for evidence of suitability supported by the recently published ABCB Evidence of Suitability Handbook, which the Association has long championed.

Also included is the updated Fire Safety Verification Method, which was recently re-calibrated for the ABCB by a consortium led by FPA Australia.

"This NCC Public Comment Draft includes numerous changes to fire safety requirements, and the proposed referencing of FPA Australia Technical Specifications for the first time is a significant reflection of the capability and industry partnerships we have developed," said Matthew Wright, the Association's General Manager of Technical Services/Deputy CEO.

"In collaboration with our members and industry partners, FPA Australia puts a huge amount of work into the constant development of Australia's fire protection regulations, codes and standards. It's rewarding to see this work progress nationally, but more importantly we're excited by the potential for these developments to improve the industry and the community's fire safety.

"The NCC 2019 Public Comment Draft arguably includes the most significant fire-safety-related changes in a decade, coinciding with the re-confirmation of the community's expectations for fire safety."

Key changes in the NCC 2019 Public Comment Draft are:

- ◆ new quantified performance metrics and verification methods

- ◆ improved fire safety measures
 - ◆ new residential sprinkler requirements
 - ◆ removing the ability to use bonded laminated material where a non-combustible material is required
 - ◆ increased levels of energy efficiency for commercial buildings
 - ◆ revised Acceptable Construction Practices in NCC Volume Two
 - ◆ new Acceptable Plumbing Practices in NCC Volume Three
 - ◆ improved readability, including standardised Governing Requirements across the NCC.
- The feedback period for the Public Comment Draft closed on 13 April 2018. ■

The NCC 2019 Public Comment Draft includes the most significant fire safety-related changes in a decade.



For more information, visit: flamesol.com.au.

PROPOSAL FOR CHANGE



For the first time, the National Construction Code 2019 draft references two Technical Specifications developed by FPA Australia and based on research into the effectiveness of sprinkler systems in modern residential buildings.

A fire in a modern residential building furnished with synthetic materials can become untenable in less than three minutes—eight times faster than 50 years ago—but sprinkler suppression can delay this to at least 12 and up to 26 minutes.

BY **TOM BICKNELL**

Fire Protection Association Australia

As feedback was being submitted for the National Construction Code (NCC) 2019 draft, comment was also coming in on the two new sprinkler Technical Specifications to which the NCC draft makes reference: FPAA 101D and FPAA 101H. It is the first time the NCC has referenced Technical Specifications developed by Fire Protection Association Australia (FPA Australia). Their inclusion is an important achievement for the Association, drawing on technical expertise from its staff and members, data from research partnerships and connections with regulators.

In 2017 FPA Australia submitted a Proposal for Change to NCC 2019 Volume One, made in partnership with Fire & Rescue NSW and AFAC. The proposal sought to amend the NCC's deemed-to-satisfy (DtS) provisions in three ways:

- ◆ Mandate installation of an automatic sprinkler system in Class 2 and Class 3 buildings not more than 25 metres in effective height
- ◆ Require the automatic fire sprinkler system to comply with either
 - ◆ AS 2118.1 or AS 2118.4, as applicable; or

- ◆ FPAA 101D, except for residential care buildings; or
 - ◆ FPAA 101H, except for residential care buildings
 - ◆ Introduce consequential changes to other DtS provisions depending on the automatic sprinkler system standard adopted, delivering a package of reform reflecting a new strategic approach to improving life safety.
- The proposal's goals were to fill what was perceived as a significant gap in fire protection of medium-rise residential buildings, but to do so in a way that was reliable, affordable and met the life safety objectives of the NCC. The proposal was included as part of the NCC 2019 draft, which will now undergo evaluation following the public comment period.

New research

The proposal grew out of a research project conducted by Fire & Rescue NSW, FPA Australia, AFAC and the CSIRO. The research evaluated the effectiveness two new residential sprinkler system designs in suppressing fires in modern residential buildings. Using a replica residence at the CSIRO North Ryde facility, the research found that without automatic suppression, a fire in a modern residential building can become untenable within two minutes

and 45 seconds. That figure is eight times faster than 50 years ago, largely due to the synthetic materials used in modern furnishings. This narrow tenability period is a serious challenge for evacuation and occurs well before fire services are able to respond. Average urban fire brigade response times in Australia from initial notification to attendance on site are seven to nine minutes.

However, in the same testing setup, sprinkler suppression delayed untenability to at least 12 minutes 43 seconds, and with an average of 22 minutes 47 seconds with bedroom doors open, and 26 minutes 34 seconds with doors closed.

The two sprinkler designs tested form the basis for the two Technical Specifications detailed in the Proposal for Change and referenced by the NCC 2019 draft.

FPAA 101D

The new FPAA 101D Technical Specification specifies a sprinkler system integrated into the domestic water supply of a residential building. It provides sprinkler protection throughout the building and has been designed for use with currently listed and available products.

Using the domestic water supply

Table 1 Outline of sprinkler system characteristics

Design elements	AS 2118.1	AS 2118.4	FPAA101D	FPAA101H
Minimum sprinklers in operation	6	4	2	2
Whole residential floor protection	YES	YES	YES	YES
Continuous monitored water availability	NO	NO	YES	NO
AS 1851 testing required	YES	YES	NO	YES (only hydrant system)
Sprinkler Booster	YES	YES	NO	YES (combined with hydrant)
Independent wet hydrant riser	YES (if no coverage from external hydrants)	YES (if no coverage from external hydrants)	NO	YES (combined with hydrant)
Independent dry hydrant riser	NO	NO	YES (if no coverage from external hydrants)	NO
FIP/ASE monitored	YES	YES	NO	NO
Water supply fail risk	YES (independent of domestic supply)	YES (independent of domestic supply)	NO (connected to domestic supply)	YES (independent of domestic supply)
Use of listed product	YES	YES	YES	YES
Operates within data sheet tolerance	YES	YES	YES	YES

significantly reduces costs, while still providing enough water volume for concurrent operation of the domestic supply and two sprinkler heads—enough to provide sufficient suppression at a fire's origin to maintain tenability for occupants to safely evacuate or until fire service intervention. Because the system is connected to the domestic supply, water availability is constantly monitored by residents' use of other water fixtures.

FPAA101H

The FPAA101H sprinkler system is integrated with the conventional wet hydrant riser, which may already be required in the building. This system also provides protection to common areas.

While the domestic system has a

very strict specification limit, the hydrant system has more flexibility.

DtS amendments

The proposal includes several amendments to DtS requirements for new buildings, depending on which of the four sprinkler standards are used. The changes reflect the additional tenability time allowed by the sprinklers.

Key changes include increases in the maximum distance of travel to exits and the maximum length of public corridors, and some alterations to external protection and service penetration requirements in internal non-loadbearing walls, among others.

An independent cost–benefit analysis undertaken by an independent consultant considered the different systems and

their accompanying DtS requirements, and compared them against current NCC DtS provisions without sprinklers. For a six-storey hotel test case, the total project construction costs would be 1.7% cheaper using FPAA101D compared with current DtS provisions, 3.2% dearer using FPAA101H, and 4.6% dearer using AS 2118.1 or AS 2118.4.

Most importantly, an independent fire engineering analysis determined that a sprinkler system reduced the risk level by 67% compared to no fire suppression. That pivotal figure demonstrates the significant increase in people's fire safety the new proposal provides. ■

Further details on FPAA101D and FPAA101H Technical Specifications are available at: www.fpaa.com.au/technical/technical-specifications.aspx.

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BOOSTING CREDIBILITY IN FIRE INVESTIGATION

Fire investigation is a complex process that demands confidence and credibility in a practitioner's skills, experience and knowledge. AFAC is supporting this capability for the sector through the development of a national qualification.



PHOTO: DR KYM TURNBULL, CANBERRA INSTITUTE OF TECHNOLOGY

Participants in the live burns at Fire & Rescue NSW Londonderry training facility, November 2017. Principal tutor Keith Howard (front left) guided the group through the units in the Advanced Diploma.

BY **PETER WILDING**

Fire and Emergency New Zealand

The role of a fire investigator can require giving evidence in court in relation to a fire incident. Fire investigators may be questioned on their experience, training and current knowledge of the subject to establish their credibility before the court.

As an expert witness, fire investigators are required to provide technical advice and opinion, an interpretation of burnt fire scenes and to explain their fire-development theory while rebutting alternative theories. Unless they can provide clear evidence to show they have a strong underpinning knowledge to be considered subject-matter experts, they run the risk of being discredited by defence counsel or dismissed as an expert witness by the judge. This could undermine any origin and cause determination they have presented, compromise any prosecution based on their findings and reflect poorly on their agency.

Building a common capability in fire investigation is crucial to maintain its credibility. While most fire services run their own fire investigation training courses, it was not until 2013 that a nationally agreed qualification was rolled out. This was largely due to the efforts of AFAC's Fire Investigation Network.

The Fire Investigation Network is part of AFAC's collaboration model, which brings together subject matter experts from across the sector to share knowledge and best practice. The Network meets regularly throughout the year to discuss fire investigation principles, practices and ethics, and support AFAC member agencies in fire investigation and analysis. The group has been active for several years and has representatives from across Australia and New Zealand. A large part of their role is to develop national approaches to significant fire and arson issues, and share ideas, developments and trends in fire investigation.

Following a series of significant fire events involving fatalities, the Fire

Investigation Network determined that most fire investigators did not hold any tertiary qualifications in fire investigation. In 2011, under the guidance of AFAC Director of Workforce Development Sandra Lunardi, a working group was established to identify or develop a suitable nationally recognised qualification in fire investigation. This was considered a major priority for the Network.

The working group included representatives from several jurisdictions, including Metropolitan Fire Brigade Melbourne, Queensland Fire and Emergency Services, NSW Police Force, NSW Rural Fire Service, Department of Fire and Emergency Services WA, Fire & Rescue NSW and Fire and Emergency New Zealand.

The Advanced Diploma of Public Safety (Fire Investigation), which forms part of the wider Public Safety Training Package, was selected as the qualification. The advanced diploma is on the national register of Australian Vocational Education and Training Qualifications and requires the completion of 15 units of study over a two-year period.

The program is delivered nationally by the Canberra Institute of Technology (CIT). CIT has a proven track record of delivering quality, distance-based education to state and federal police across Australia and was able to develop content for the qualification. Two fire agencies applied to deliver the course internally, although most agencies enrol their personnel with the program at CIT.

In 2013, the first intake of students enrolled in CIT's advanced diploma. CIT makes great use of the online learning platform Moodle to support a blended learning delivery mode, which includes lectures, presentations, readings, activities, research and online fire scene analysis. The advanced diploma also incorporates workplace learning

activities where students are required to produce reports on actual fire scenes, complete work-based assessment activities and achieve sign-off from their managers.

Students also undertake a residential component for the program, including six days of intensive learning during which they carry out live fire investigations. In 2017, with the assistance of Fire & Rescue NSW, live burns were conducted at its Londonderry training facility as part of the course. Participants then transported their evidence to the CIT Bruce Campus in Canberra where they presented the evidence and their reports in mock court sessions.

Graduates of the advanced diploma who have subsequently been required to present evidence in court say the training provided exceptional value in preparing them to present evidence. One fire investigator said that the emphasis the lecturers placed on diligent note taking was instrumental in helping his presentation lead to a successful arson prosecution. Another officer reported how he was able to directly apply his technical knowledge of fire fatalities, gained through the course, to a fatal fire he investigated.

The interactive online fire scene analysis, coupled with an excellent unit on fire dynamics, takes students' understanding of fire development well beyond the level that agency courses tend to provide. The modular, blended learning approach is well suited to students who are completing the advanced diploma while working full-time in their usual roles within their agency. CIT lecturers are aware of competing work pressures and provide excellent support to students undertaking their studies.

Since the program began in 2013, 236 students have enrolled in the course for one or more units. Of those students, 120 have completed the introductory-level course PUAFIR501B Conduct Fire Investigation and Analysis Activities and a further 91 have enrolled in the full advanced diploma program. Thirty-five students have now graduated from the program with the complete Advanced Diploma of Public Safety (Fire Investigation).

Graduates have developed improved investigative practices and levels of fire investigation knowledge. This provides confidence for fire agency management seeking determination of origin and cause for significant fires in their jurisdictions. Importantly, the advanced diploma adds to the credibility of fire investigators when representing their agencies in court across Australia and

Advanced Diploma of Public Safety (Fire Investigation) and Bachelor of Forensic Science (Crime Scene Examination) students investigating evidence at Fire & Rescue NSW Londonderry training facility.

PHOTO: DR KYM TURNBULL, CANBERRA INSTITUTE OF TECHNOLOGY



New Zealand.

The development, introduction and success of the advanced diploma is a major achievement for AFAC's Fire Investigation Network and highlights the value that AFAC groups can add across the sector. The Network believes fire managers should consider the advanced diploma as a critical, well-proven professional development tool for their fire investigators, and encourages those wanting to improve their credibility to enrol. ■

Peter Wilding (FIFE, AdvDipFI, Grad DipBus, GradDip Exec Leadership) is the National Manager of Fire Investigation and Arson Reduction for Fire and Emergency New Zealand and Chair of the AFAC Fire Investigation Network.

For more information about the Advanced Diploma of Public Safety (Fire Investigation) visit: <https://training.gov.au/Training/Details/PUA60913> or visit the CIT website at https://cit.edu.au/courses/science_environment/forensics/AD-FE29.

GLOBAL EXPERTISE AT AFAC18

AFAC18 powered by INTERSCHUTZ will bring some of the world's leading emergency management, leadership and crisis experts together in Perth from 5–8 September 2018.

BY **FREYA JONES**

AFAC

In early September, practitioners, researchers and thought-leaders in emergency management will come together for the AFAC 18 conference and exhibition to share insights on the theme '*Changing lives in a changing world*'.

Registrations for AFAC18 are now open, with the Early Bird rate available until 29 June 2018.

Several keynote and invited speakers have now been locked in for Australasia's premier emergency management conference and exhibition, to be held at the Perth Convention and Exhibition Centre.

Keynote and invited speakers

Craig Fugate

Joining the program as a keynote speaker, Craig Fugate (USA) is a Senior Advisor at The Cadmus Group and was formerly the US Federal Emergency Management Agency (FEMA) Administrator. Mr Fugate served with FEMA from May 2008 to January 2017, during which time he led the agency through numerous major disasters and emergencies. He is responsible for creating the Waffle House Index, an informal metric used to help predict the effects of an incoming storm and determine the potential level of disaster recovery assistance required. Mr Fugate will present on building capability through partnerships.

Dr Dana Born

Dr Dana Born (USA), an expert in public leadership, will also present a keynote at AFAC18. Dr Born is a Lecturer in Public Policy at Harvard Kennedy School of Government and Co-Director of the Centre for Public Leadership. Dr Born is a former Brigadier of the

US Air Force, with 30 years of service. She has a BSc in Behavioural Sciences and a MSc in Experimental Psychology from Trinity University, and an MA in Research Psychology from the University of Melbourne. During her career she served as an Exchange Officer in the Royal Australian Air Force. Dr Born will present on using vulnerability as a strength.

Sally Steward

Founder and CEO of Leadership Emergency Services Sally Steward will join the invited speaker program at AFAC18. Ms Steward is a master practitioner of neuro-linguistic programming, subconscious reprogramming and performance and results coaching. Her training uses a combination of proprietary models, neuro-linguistics, leadership tools, behavioural communication, workplace culture, relationship building and emotional intelligence. Ms Steward has worked with emergency services in volunteer training, rural research and training, emergency management and officer development. She will present on changing lives through volunteering and offer insights into volunteer retention.

Deon Swiggs

Deon Swiggs (NZ) is the founder of Rebuild Christchurch, an organisation he established after the 4 September 2010 Christchurch earthquake. Mr Swiggs created the online community as a space of personal reflection and to offer the public access to relevant, helpful information in one location. Mr Swiggs is also Councillor with the City of Christchurch, elected in October 2016. Through Rebuild Christchurch, Mr Swiggs has built relationships with offline agencies and organisations that need to share information online, and offered

them a space to do so. Mr Swiggs will present on building capability through partnerships. ■

The full program for AFAC18 powered by INTERSCHUTZ will be released in May.

For more information or to register, visit: www.afacconference.com.au.



Craig Fugate



Dana Born



Sally Steward



Deon Swiggs

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TEAMWORK WHEN THE HEAT IS ON

Individuals working in emergency management teams often face incredible pressure, which can have a huge impact on the ability of people to work effectively in teams.



PHOTO: NEW ZEALAND FIRE SERVICE

Five methods of resolving problems in team functioning are integrated within the checklist. These cover:

- ◆ delegating tasks
- ◆ providing additional resources
- ◆ mentoring
- ◆ asserting authority
- ◆ replacing people in the team.

All of these methods are designed to improve teamwork in what can be challenging working environments during a bushfire, flood or cyclone, when lives could be at stake.

If a problem is identified or a further health check is required, then the Team Process Checklist is used. This checklist prompts teams to think about the three aspects that should be present in effective teams—communication, coordination and cooperation—in an open questionnaire format. Any issues identified are then discussed with the team.

Mark Thomason, Manager of Risk and Lessons Management at the South Australia Country Fire Service, believes emergency management agencies have a lot to gain from using both checklists, particularly with those who work in incident management teams, strike teams and at regional and state operation centres.

"They are invaluable not only during operational response, but also in debriefs and training," Mr Thomason said.

"The straightforward, practical tools developed through this research are of great benefit to emergency managers to ensure their teams are functioning to the best of their ability."

The tools have had a thorough examination in Tasmania, with the lengthy and challenging 2015–16 fire season providing the opportunity to test them in real-life scenarios.

Jeremy Smith, who was the Tasmania Fire Service Deputy Chief Officer during that fire season, said he would highly recommend the tools to other emergency managers. As state fire controller, Mr Smith had a lot on his plate during a challenging time, but the

During emergencies, individuals and teams often work under considerable pressure.

BY **COSTA HARITOS**

Bushfire and Natural Hazards CRC

There is a lot happening at an incident management centre when a bushfire, flood or cyclone occurs. Phones run hot and accurate information is at a premium. In what can be an around-the-clock response, teams of people come and go, all fulfilling specific and important roles. Teamwork is crucial at these times. But in these high stakes environments, breakdowns in teamwork can lead to confusion, miscommunication and a lack of consistency with emergency management plans.

To help emergency managers, two checklists have been developed to help teams work more effectively: the Emergency Management Breakdown Aide Memoire and the Team Process Checklist. These checklists provide guidelines to improve team processes before, during and after an emergency.

A/Prof Dr Chris Bearman at CQUniversity has been developing and refining the tools over the past three years as part of a research project by the Bushfire and Natural Hazards CRC,

Improving Decision-Making in Complex Multi-Team Environments.

"The checklists were very much driven by a gap that we identified through our research in the ways that agencies operated at the time," said A/Prof Bearman. "This project is about developing practical tools to help people make decisions and monitor teams."

The two checklists are designed to shift the focus away from blaming people, instead emphasising error recovery and minimisation. They are a flexible way to closely examine teamwork from a range of perspectives.

"Teamwork will breakdown from time to time," A/Prof Bearman said. "So what we need to do is to be able to quickly and effectively detect and recover from these breakdowns."

The Emergency Management Breakdown Aide Memoire is a quick and easy checklist that identifies teamwork issues at a general level, and provides practical solutions to resolve any breakdowns that are detected. It has been designed to be integrated into the role of a senior officer and focuses on organisational networks and the outputs of teams.

tools helped to ensure communication between different teams was efficient and timely during the stressful periods.

"You could see people were stressed at times," Mr Smith said. "It was important to provide a safe environment where feedback could be provided. It was a very complex and multi-faceted environment and the tools helped to ensure the communication was occurring.

"These types of tools that support incident management and fire operations, or indeed any other hazard, are invaluable. Any assistance they can provide through a body of research that has been undertaken to validate findings is invaluable."

A/Prof Bearman said while the checklists are designed for the emergency management sector, they can be applied to a range of team environments.

"We are expecting to see a wider use for those in the next 18 months or so," he said.

"We have got some people who are very interested," he said. About 20

stakeholders have already registered their interest with the research team.

The evaluation of the two checklists that followed the 2015–2016 fire season, as well as storms and floods, indicated their strength and paved the way for future development and use. Alongside A/Prof Bearman, the team of A/Prof Benjamin Brooks, A/Prof Christine Owen, and Dr Steven Curnin at the University of Tasmania, and Dr Sophia Rainbird at CQUniversity, are now using their ideas to shift policy and implement the tools more widely across the emergency management sector.

To date, both the Emergency Management Breakdown Aide Memoire and Team Process Checklist have been adopted by the South Australian Country Fire Service and Tasmania Fire Service, and used by the NSW State Emergency Service. The tools will continue to be tested in different settings throughout 2018. ■

Download the Emergency Management Breakdown Aide Memoire and Team Process Checklist at: bnhrcr.com.au.

EMERGENCY MANAGEMENT BREAKDOWN AIDE MEMOIRE

The Emergency Management Breakdown Aide Memoire checklist helps people recognise teamwork breakdowns through team outputs (e.g. incident action plans) and formal/informal organisational networks.

It also provides some practical resolution strategies, as shown below.

HOW YOU MIGHT RESOLVE BREAKDOWNS

- 1. Delegate:** find someone who is close to the breakdown or has the most appropriate skills and have them resolve the issue.
- 2. Resource:** breakdowns can be caused by missing resources. Find out what is missing, or what will assist the other teams, and get it to them.
- 3. Mentor:** a subtle form of resolution, mentoring allows you to tactfully suggest alternatives, opinions and strategies.
- 4. Assert:** if you have tried more subtle strategies without success, you can use your authority to resolve the problem.
- 5. Replace:** if breakdowns are caused by disruptive personalities in the management team, or even factors such as fatigue, you can stand the disruptive people down or give them other duties.

The SA Country Fire Service has used the teamwork checklists to ensure its teams are working safely and efficiently.



PHOTO: MARK THOMASON, SA COUNTRY FIRE SERVICE

THE TEAM PROCESS CHECKLIST

The Team Process Checklist is designed to provide a health check for teams and—if there is a problem—to help determine what that problem is. This tool is designed to help people think through three aspects of teamwork: communication, coordination and cooperation. Examples of the communication items are:

- ◆ Are team members passing on information in a timely manner?
- ◆ Are team members passing on information accurately?
- ◆ Is communication between team members clear?
- ◆ Are team members providing appropriate feedback?
- ◆ Are team members providing updates on the situation?
- ◆ Are appropriate communication procedures being used?

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JOINING FORCES TO MINIMISE HARM

FPA Australia and the Fiona Wood Foundation have partnered to improve outcomes for burns patients.

BY **TOM BICKNELL**

Fire Protection Association Australia

In January 2018, Fire Protection Association Australia (FPA Australia) and the Fiona Wood Foundation formalised a partnership that had been developing for nearly a decade. The partnership saw the Fiona Wood Foundation become FPA Australia's Official Charity Partner, while the Foundation's Professor Fiona Wood AM became an official ambassador for FPA Australia.

For FPA Australia, the partnership offers

FPA Australia CEO Scott Williams with official FPA Australia Ambassador, Professor Fiona Wood AM.



THE HUMAN COST OF FIRE: EACH YEAR, FIRES CAUSE AN AVERAGE OF **82** DEATHS AND **2,000** BURN INJURIES IN AUSTRALIA

the opportunity to contribute to the treatment and care of Australians with burn injuries that tragically were not able to be prevented by fire protection systems. For the Fiona Wood Foundation, it offers the chance to support FPA Australia's work to improve fire protection, with the goal of reducing the number of people affected by fire.

The Fiona Wood Foundation is one of the world's leading research and treatment hubs aimed at reducing the physical, psychological and social impacts of burn injury. The Foundation translates cutting-edge research into new treatments and clinical practice for healing burns and minimising scarring. It develops new insights into burn management and recovery, advances in technology, new wound care and management techniques and programs to educate people and prevent burns.

The Foundation is named for and led by plastic and reconstructive surgeon and burns specialist Professor Fiona Wood AM, known for her development of 'spray-on skin' and leadership of a Perth-based team that treated 28 survivors of the Bali bombings in 2002.

In her new role as an FPA Australia Ambassador, Professor Wood will promote and contribute to the Association's work to improve the fire safety of the community.

"FPA Australia works to improve the safety of Australians from fire, but unfortunately an average of 82 Australians still die each year from fire-related causes, and many more are injured," said FPA Australia CEO Scott Williams.

"The Fiona Wood Foundation is at the leading edge of research and treatment of burns patients, and we are extremely

PROFESSOR FIONA WOOD AM

Professor Wood leads the Fiona Wood Foundation, and is the Director of the Burns Service of Western Australia and a Consultant Plastic Surgeon at Fiona Stanley Hospital and Princess Margaret Hospital for Children. She was made a Member of the Order of Australia in 2003. In 2005 she won the WA Citizen of the Year award for her contribution to medicine in the field of burns research, and in the same year was also named Australian of the Year. She was named an Australian Living Treasure by the National Trust, and was voted the most-trusted Australian in a *Reader's Digest* poll for six successive years from 2005 to 2010.



At the 2017 FPA Australia Charity Dinner, David Fyfe shared his story of surviving the Bali bombing and being treated by Professor Wood's team.



Scott Williams presents the Fiona Wood Foundation with a new laptop to help with its operations. L to R—Sam Barbaro, Scott Williams, Diane Lim, Professor Fiona Wood

pleased to be able to support the life-saving work the Foundation does."

The two organisations have had an informal relationship for nearly a decade, and the new partnership formalises that arrangement.

"Both organisations share a common goal to minimise the harm caused by fire, and it's a privilege for us to have the Association's support, and the opportunity to work together," said Professor Wood.

"The work FPA Australia does to reduce loss of life and injury due to fire is extremely important. I would love for the Association's work to put me out of a job because no Australians are injured by fire anymore."

Fundraising efforts

FPA Australia has raised donations for the Fiona Wood Foundation for the last two years at the Association's Charity Dinner, part of the annual Fire Australia Conference and Trade Show. In 2016, the event raised \$16,000, and in 2017 it raised more than \$25,000. At the 2017 Charity Dinner, Foundation board member David Fyfe shared his story of surviving the Bali bombing and being treated by the team led by Professor Wood.

In January 2017, Mr Williams also presented the Foundation with an in-kind donation of a new laptop to help with its operations. ■



RESEARCH INSIGHT INTO COMMUNITY BUSHFIRE RESPONSE

How do communities respond to fire danger warnings, and how can this be improved? Researchers from the Bushfire and Natural Hazards CRC interviewed and surveyed NSW residents to find out in the wake of the 2017 bushfire season.

BY **DR JOSH WHITTAKER**

Bushfire and Natural Hazards CRC and the University of Wollongong

AND **DR MEL TAYLOR**

Bushfire and Natural Hazards CRC and Macquarie University

In January and February 2017, NSW faced some of the worst bushfire conditions ever forecast for the state—including Catastrophic Fire Danger ratings for many communities. During this time, several large and damaging fires occurred, but fortunately no human lives were lost during the worst of the conditions.

Following the fires, the NSW Rural Fire Service (NSW RFS) commissioned the Bushfire and Natural Hazards CRC to research community preparedness and the responses of affected communities. The research involved 113

interviews with people affected by the Currandooley, Sir Ivan and Carwoola fires, and an online survey of 549 residents threatened or affected by bushfires throughout NSW in 2017.

The research project collected information about the following:

- ◆ effectiveness of warnings
- ◆ Catastrophic Fire Danger messages
- ◆ information people sought out in relation to bushfires
- ◆ drivers and motivators for those who sought to enter fire grounds
- ◆ perceptions of risk
- ◆ how people value assets and prioritise their protection
- ◆ influences of previous fire history or experience on decisions and actions
- ◆ public expectations of fire and emergency services
- ◆ opportunities for greater utilisation of local knowledge and participation.

What the research found

Information and warnings

Most survey respondents found fire danger warnings easy to understand, up to date and useful, with participants expressing a preference for highly localised information.

Survey respondents most often identified the 'Fires Near Me' smartphone application and website as their most useful information source. It was seen as easy to understand (88%), useful (82%) and sufficiently localised (76%). Two-thirds felt the information was up to date. Interviewees also commonly expressed strong support and a high degree of satisfaction with 'Fires Near Me'.

Landline telephone warnings (78%) were identified as useful more often than SMS warnings (67%), up to

Burnt land surrounds a house that survived one of the NSW fires in 2017.



PHOTO: NSW RURAL FIRE SERVICE

ratings since their introduction.

Eighty-eight percent of survey respondents considered Catastrophic Fire Danger warnings to be easy to understand; 83% found them timely and 78% found them useful. However, most people do not intend to leave before there is a fire on days of Catastrophic Fire Danger. Those who intend to leave will wait until there is a fire, and others intend to stay and defend. The research shows that some people may underestimate the risks to life and property if the fire danger is not Catastrophic.

Receiving an official warning about Catastrophic Fire Danger prompted survey respondents to discuss the threat with family, friends or neighbours (63%) and look for information about bushfires in their area (62%).

Equal proportions began preparing to defend (39%) or leave, while only a small proportion (12%) left for a place of safety.

When asked what they would do next time they received a message about Catastrophic Fire Danger, 12% of survey respondents said they would leave before there is a fire and 24% said they would wait until a fire started, then leave. Twenty-seven percent reported that they would get ready to stay and defend, while nearly a quarter said they would wait for a fire before deciding what to do.

Analysis of interview data highlights that many people believe it is impractical to leave on days of Catastrophic Fire Danger before there is a fire. Many are also committed to defending, despite being aware of the increased risks to life on such days.

Interviews with those affected by the Carwoola and Currandooley fires suggests that some people underappreciate the risks to life and property on days that are not Catastrophic. In contrast, some interviewees affected by the Sir Ivan fire did not anticipate its size or severity, despite the Catastrophic forewarning. Many felt that they were prepared to respond to smaller fires, which were more common in the area, but believed there was little they could have done to prepare for a fire of the size and severity that was experienced.

date (72% and 66%, respectively) and timely (68% and 66%, respectively). Nevertheless, survey respondents most often identified SMS as their preferred mode for delivery of warnings. Most people expected to receive warnings from multiple sources. However, limited mobile phone coverage, particularly in the Sir Ivan and Currandooley fires, meant that some people did not receive SMS warnings.

Catastrophic Fire Danger warnings

After the 2009 Black Saturday fires in Victoria, the fire danger warnings were revised nationally and 'Catastrophic' was introduced as the highest level of fire danger. Such conditions do not occur regularly—the 2017 fires represented only the second time that large population centres in NSW had been subject to Catastrophic Fire Danger

THE FIRES

The Currandooley fire was caused by a bird making contact with a high-voltage powerline and landing in dry grass. Under Severe fire danger conditions, the fire destroyed a house, sheds and two vehicles. Around 200 sheep and cattle were lost.

The Sir Ivan fire ignited from lightning strikes near Leadville, and burnt under Catastrophic fire danger conditions. Thirty-five houses and more than 50,000 hectares of land were lost, and many agricultural assets, including livestock, fences, pasture and machinery, were destroyed.

The Carwoola fire destroyed 11 houses about 20 kilometres south-east of Canberra. It was caused by sparks coming from a metal cutting wheel, and burnt under Severe fire danger conditions.



PHOTO: NSW RURAL FIRE SERVICE

An interviewee shows a researcher the impact the bushfire had on his property.

How people accessed information

More than half (53%) of all survey respondents accessed information via the internet. Respondents most commonly sought information about the location of the fire (91%), traffic and road blocks (64%) and weather conditions (60%).

Websites most commonly used included 'Fires Near Me' (in addition to the app), the NSW RFS, the Bureau of Meteorology, and various Facebook pages, including local RFS and community pages. Almost two-thirds (62%) of all survey respondents used social media during the fires.

Interviewees and survey respondents often sought information about the fire through direct observation. This is reflective of past research, where many residents left their homes and properties to go and look at the fire. For



PHOTO: NSW RURAL FIRE SERVICE

Researchers and NSW Rural Fire Service personnel prepare for community interviews at Carwoola.

some people, observing the fire appears to have helped ready themselves to defend, while for others it confirmed the need to leave.

Public expectations of fire services

People generally understand that there are resource constraints during major fires, such as not having enough fire trucks for every property. However, there is less appreciation of the operational constraints of large and dangerous fires, and that often it can be too dangerous for firefighters to directly attack the fire front.

Most interviewees affected by the Currandooley and Carwoola fires praised the efforts of firefighters and did not expect to receive personal firefighting support. Residents in Carwoola were particularly aware of the limitations from fire agencies, a message that had been clearly communicated by the local brigade over time.

Some interviewees affected by the Sir Ivan fire were more critical of the firefighting response. Criticisms centred around the perceived lack of firefighting in the agricultural areas between Leadville and Cassilis. Some saw the fire service as overly bureaucratic and

risk averse. These criticisms reflect a mismatch in expectations and should be viewed in the context of a large, destructive bushfire that burnt under Catastrophic conditions, where there was limited operational capacity or opportunity to deal with such fires due to dangerous conditions.

Conclusion

NSW RFS is now using this research to put in place new processes to better liaise with communities during major fires, and to strengthen its approach to public information through websites, smartphone applications and face-to-face communication.

The research confirms the tendency for people to wait and observe the fire directly before getting ready to defend themselves or confirm the need to leave. This behaviour presents opportunities for emergency service personnel to meet people at a time when they are seeking and receptive to information and advice.

While there is strong appreciation for the danger of fires under Catastrophic conditions, there is a need to more clearly communicate the risks posed by fires burning under

non-Catastrophic conditions. Such messages could be incorporated into community education and engagement resources, as well as emergency warnings and information.

There is potential to develop additional resources to help agricultural landholders plan and prepare for bushfires. Resources are needed to help businesses more systematically identify assets and values, prioritise, and plan for their protection. Such resources could include best practice case studies and information about insurance.

The limits to response capacity need to be more clearly communicated. Limitations due to resource constraints are generally well understood by the public. But communication about the dangers large and fast-moving fires pose to firefighters could be improved, so that people understand that it can be too dangerous to directly attack the fire front.

Overall, findings suggest that local brigades could effectively communicate these messages, but this may require considerable engagement and training. ■

Find out more about this research at: bnhcr.com.au/publications/2017nswbushfires.

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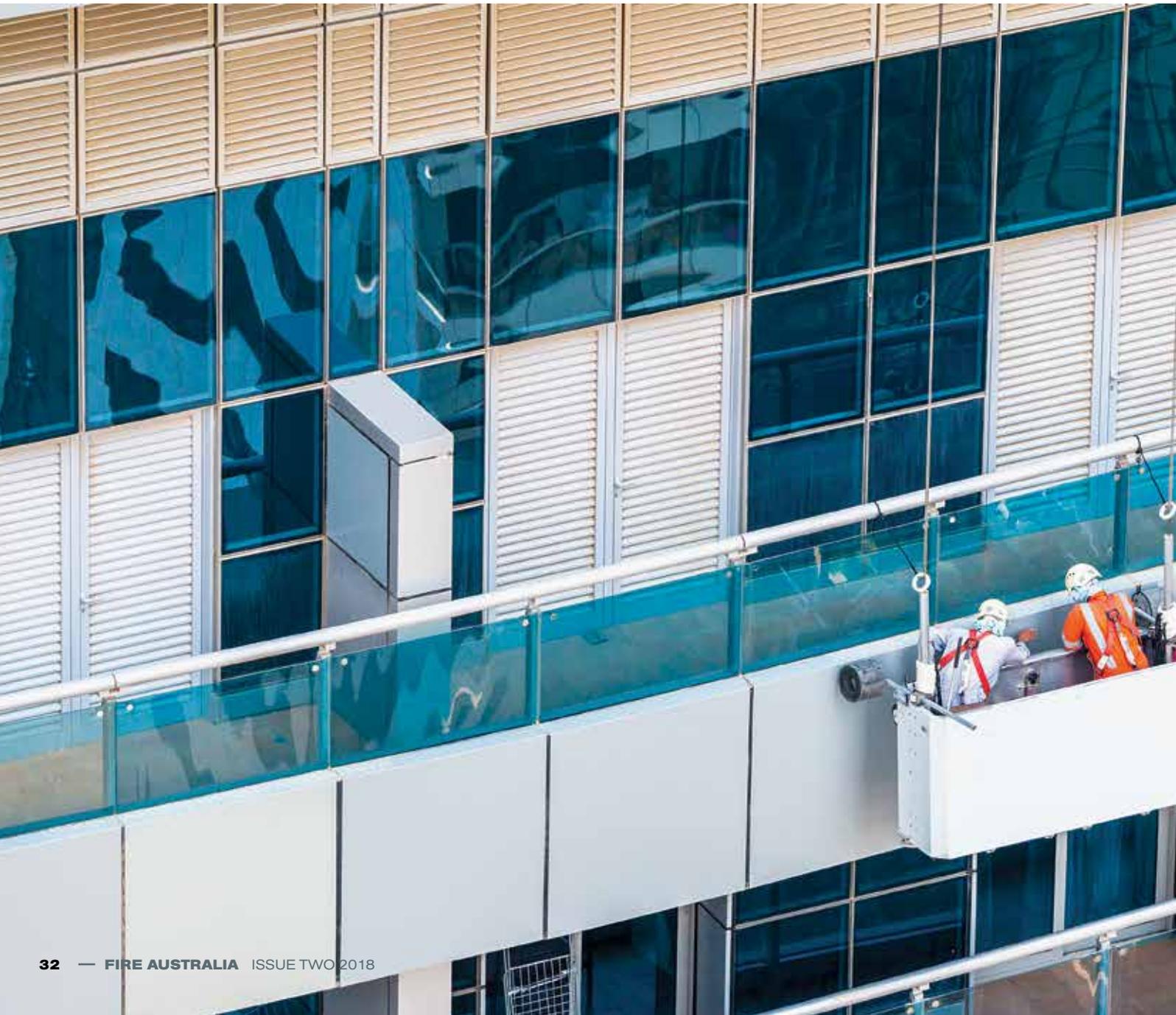
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HACKITT REPORT HITS CLOSE TO HOME

An independent review into the UK's building regulations and fire safety following the Grenfell Tower fire could have been written about Australia—its findings are that relevant to our situation.



BY **MATTHEW WRIGHT**FPA Australia General Manager Technical Services/
Deputy CEO

In December 2017, the Secretary of State for Communities and Local Government (DCLG) in the UK presented an interim report to Parliament titled Building a Safer Future, Independent Review of Building Regulations and Fire Safety.

Dame Judith Hackitt, an experienced engineer with long-term roles in community safety, was appointed by DCLG to conduct the review as part of the ongoing response to the Grenfell Tower tragedy that occurred on 14 June 2017.

Seventy-one people died in this single building incident that shocked the world. The lives of affected families, friends, emergency responders and the community have been changed forever. The legacy of the Grenfell Tower fire needs to be meaningful change—and it represents a sobering reminder of the respect we all need to have for fire safety.

Combustible exterior cladding has been identified as the likely culprit behind the extent and speed of the fire's spread. The building was also not sprinkler protected. Sprinkler systems have long proven to be a critical and consistent life safety measure in other buildings of this size and use, and must be considered as part of a holistic response to fire. However, there is no certainty regarding what the loss of life would have been at Grenfell even if sprinklers were fitted, given the combustibility of the façade installed.

The use of combustible cladding caused alarm within government and fear in residents of similar towers. This led to a national program to test the cladding installed on other high-rise buildings in the UK.

Although this testing program has been triggered by and focused on one building element, Dame Hackitt's review is focused on the broad systemic issues that have led to regulatory and industry failure. She identifies that the focus of the UK's Building Regulations Advisory Committee in recent years "has been mainly on energy efficiency and the deregulatory agenda and less on fire safety and other aspects of the regulations".

If you think this sounds familiar, I don't blame you. Make no mistake, this is a line-in-the-sand moment for the UK, and the world is watching. It represents a political and social opportunity to focus efforts to check and recalibrate what's important, and get the balance right.

In his regular column in the NFPA Journal on international issues, Vice President of Field Operations for National Fire Protection Association, Donald P. Bliss, observed in the October 2017 issue that fire protection is "a matter of will".

"The world knows a lot about fire," said Mr Bliss. "We know how to prevent it and how to keep people from dying from it. But as the string of recent tragedies in Oakland, Iran, Hawaii, and now London illustrate, common sense safety measures keep getting lost in the noise of everyday life—and we are paying with human lives. It is unacceptable."

"I'm sure that many policies, procedures, and actions will be investigated and turned upside down in the aftermath of the Grenfell Tower fire. I and many others hope that Grenfell will be a global call to action to make the necessary changes—such as more timely code adoption, more diligent regulation, and more effective oversight and enforcement—to increase fire safety across the globe. We have the knowledge; what we need now is the will."

Dame Hackitt's interim report reveals with devastating frankness and chilling poignancy the cultural and behavioural aspects of an industry that need to change. It outlines that this can only happen if government regulators and industry work together to introduce wholesale and effective framework reforms. Fire safety reforms are effective when they shift attitudes and support good practice, focused on core safety and compliance objectives to avoid similar disasters.

The summarised list of observations

and recommendations from Dame Hackitt's interim report shown below is eerily close to home, and well describes the Australian landscape and the change we need locally for the same reasons.

Chiefly, the key finding of the review to date has been that:

"The current regulatory system for ensuring fire safety in high-rise and complex buildings is not fit for purpose. This applies throughout the lifecycle of a building, both during construction and occupation, and is a problem connected both to the culture of the construction industry and the effectiveness of the regulators."

This statement is pretty damning for an industry that represents a significant national economic driver, and is expected to deliver a safe and compliant consumer product in an affluent and sophisticated society such as the UK.

Dame Hackitt has identified six areas where change is required. These are listed below with just a sample of her observations, findings and recommendations within each.

1. Regulation and guidance

- ◆ Current regulations and guidance are too complex and unclear. This can lead to confusion and misinterpretation in their application to high-rise and complex buildings.
- ◆ It is clearly the role of government to set the basic framework of standards which must be achieved and to make it clear who has responsibility for delivering those standards of performance throughout the life cycle.
- ◆ The government should consider how the suite of approved documents could be structured and ordered to provide a more streamlined, holistic view while retaining the right level of relevant technical detail.

2. Roles and responsibilities

- ◆ Clarity of roles and responsibilities is poor. Even where there are requirements for key activities to take place across design, construction and maintenance, it is not always clear who has responsibility for making it happen.
- ◆ There is a widespread culture in relation to building and fire standards of waiting to be told what to do by regulators rather than taking responsibility for building to correct standards. This approach is very much driven by aiming for minimum compliance, not ensuring safety for the lifetime of the building.
- ◆ There has been a widespread call for greater consistency of use of terms to identify key responsibilities with the system.



3. Competence

- ◆ Despite many who demonstrate good practice, the means of assessing and ensuring the competency of key people throughout the system is inadequate. There is often no differentiation in competency requirements for those working on high-rise and complex buildings.
- ◆ There is a need to raise levels of competence and establish formal accreditation of those engaged in the fire prevention aspects of the design, construction, inspection and maintenance of high-rise residential and complex buildings.
- ◆ The professional and accreditation bodies have an opportunity to demonstrate that they are capable of establishing a robust, comprehensive and coherent system covering all disciplines for work on such buildings.

4. Process, compliance and enforcement

- ◆ Compliance, enforcement and sanctions processes are too weak. What is being designed is not what is being built and there is a lack of robust change control. The lack of meaningful sanctions does not drive the right behaviours.
- ◆ There is a need for stronger and more effective enforcement activity, backed up with sufficiently powerful sanctions for the few who do not follow the rules.
- ◆ The information flow and documented evidence provided by developers to building control bodies does not provide an adequate public record to ensure building safety throughout the life of the building.
- ◆ Consultation by building control bodies and by those commissioning or designing buildings should take place early in the process and fire and rescue advice should be fully taken into account.
- ◆ There is a need for building control bodies to do more to assure that fire safety information for a building is provided by the person completing the building work to the responsible person for the building in occupation. Given the importance of such information for ongoing maintenance and fire risk assessment, proof should be sought that it has been transferred.

5. Residents' voice and raising concerns

- ◆ The route for residents to escalate concerns is unclear and inadequate.
- ◆ Residents need to be reassured that an effective system is in place to maintain safety in their homes.

6. Quality assurance and products

- ◆ The system of product testing, marketing and quality assurance is not clear.
- ◆ Products must be properly tested and certified and there is a need to ensure oversight of the quality of installation work.
- ◆ The widespread use of desktop studies to assess equivalence of products and systems is not properly managed or controlled in terms of both the circumstances in which they can be used and the qualifications and experience of those undertaking them.
- ◆ The government should significantly restrict the use of desktop studies to approve changes to cladding and other systems to ensure that they are only used where appropriate and with sufficient, relevant test evidence.

Fire Protection Association Australia (FPA Australia) has consistently advocated for change and national harmonisation in relation to these aspects locally.

As previously communicated by FPA Australia, following the Building Ministers' Forum and their discussions regarding compliance, the Federal Minister for Industry appointed independent experts Professor Peter Shergold and Ms Bronwyn Weir to conduct an 'Assessment of the Effectiveness of Compliance and Enforcement Systems for the Building and Construction Industry across Australia'.

FPA Australia welcomed this appointment at the time and has since been consulted by these experts to provide our views. Our written response submitted prior to access to the Hackitt interim report stated that:

"FPA Australia asserts that the NCC [National Construction Code] and standards are definitely not the root causes regarding a lack of compliance.

"Our experience is that, overwhelmingly, the constant barrier to the successful and consistent application of construction requirements is a lack of education regarding roles and responsibilities, coupled with a lack of meaningful education regarding what is necessary to comply, and enforcement regimes to ensure this occurs.

"FPA Australia contends that despite the united effort of many industry and government stakeholders to develop the NCC and referenced standards to reflect appropriate construction requirements, confidence that these requirements will be consistently met remains low.

"Governments must subscribe to the notion that simply referencing the NCC without also implementing consistent core administrative requirements regarding its application and enforcement will perpetuate the current

culture that is lacking in accountability, and has financial and health and safety impacts locally and nationally.

If there was only one area of focus that could be immediately sought to pursue improvement, it should be seeking a commitment to develop a model NCC Administrative Code to harmonise expectations regarding the aspects identified in the terms of reference for this assessment."

FPA Australia is a willing participant in providing the leadership and seeking the kind of industry-government relationships that Dame Hackitt has identified as needed. The ongoing development of the Bushfire Planning and Design Accreditation Scheme and the Fire Protection Accreditation Scheme is one very important example. Collectively, however, we must do more. And that starts with mainstream acknowledgement from government and industry leaders that more is required—and that our current approach is no longer acceptable.

Perhaps one of the most compelling aspects of the Grenfell tragedy is that an event of such magnitude occurred in 2017 in a developed country. As so often happens, it has motivated political will to review and revise. "Codify by catastrophe", as they say. In this case, it has also caused international shockwaves and generated movement in Australia that even the local Lacrosse building fire had not inspired. Post-Grenfell, we now have government-appointed cladding taskforces and some jurisdictions have introduced regulatory change. So change is occurring. But it must be united change.

Dame Hackitt's interim report could well be described as a ready manifesto for Australia to adapt and implement. It is a timely resource for our own independent experts to draw from in their assessment of our fragmented state and territory administrative adoption, implementation and enforcement of the NCC and Standards. We should be able to confidently answer the questions it raises, and if not, act to rectify.

In the meantime, FPA Australia and other industry stakeholders need to support local efforts for reform and heed the advice Dame Hackitt has already provided to the UK industry:

"Stakeholders should prepare themselves for an early call to action to create a more effective regulatory system." ■

You can read the full interim report prepared by Dame Hackitt and terms of reference for the review at: www.gov.uk/government/publications.

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Research has identified three decision making areas across which risk ownership can be assessed.



PHOTO: DAVID BRUCE, BUSHFIRE AND NATURAL HAZARDS CRC

MAKING A DIFFERENCE

Science is helping our emergency services to keep us safe.

BY **NATHAN MADDOCK**

Bushfire and Natural Hazards CRC

Conducting research is one thing. But applied research that partners scientists with emergency management experts—resulting in real-world outcomes—is another altogether. Here, are four examples of research from the Bushfire and Natural Hazards CRC that are making a difference for our emergency services.

Sharing the risk

Assessing risk ownership for managing natural hazards is complicated. Natural

hazard risks can exist across long time frames and multiple organisations can be responsible for different risks. The *Mapping and Understanding Vulnerability and Risks* project is helping government and emergency management agencies identify and allocate ownership of risks, and decide how risk owners are responsible and what they can do to manage risks.

Through the project, which is led by Professor Roger Jones and Celeste Young at Victoria University, a framework has been developed to support better allocation of risk ownership as part of strategic planning and risk assessment

activities. Developed in consultation with CRC partners, the Risk Ownership Framework for Emergency Management Policy and Practice uses a values-based approach to provide a starting point for understanding and clarifying risk ownership.

Emergency Management Victoria is now incorporating key elements of the framework into the emergency risk assessment process that is used to assess emergency risks across the state.

Greg Christopher, Senior Officer Emergency Risk, believes the research improves emergency risk management activities.

"I would recommend the framework to anyone involved in emergency risk management," Mr Christopher said. "It is applicable to all types of emergencies and consistent with the 'all communities/all emergencies' model.

"It provides clarity for shared responsibility—an important element of managing emergency risks—and provides a method for identifying disparate risk owners at different stages, beyond the agencies that have traditional emergency management roles."

This means that the research will help guide priority projects and programs for risk mitigation.

The research is also being referenced at the federal level, informing disaster-policy work for Emergency Management Australia, and changing the way that people think about risk ownership.

Key elements of the process have been mapped to the risk assessment process in the National Emergency Risk Assessment Guidelines. Greater application of the risk-ownership process is expected if the key concepts of the research are integrated into the guidelines.

Carbon abatement through better fire mapping

Australia's tropical savannas are extremely fire prone. Many millions of hectares are burnt every year, contributing greatly to Australia's greenhouse gas emissions.

Sophisticated fire mapping and modelling of fire severity, undertaken by the *Tools Supporting Fire Management in Northern Australia* team, are helping fire and land managers assess greenhouse gas emissions and develop carbon abatement plans. The team is led by Adjunct Professor Jeremy Russell-Smith and Dr Andrew Edwards at Charles Darwin University.

Previously, fire seasonality was used to assess emissions. Fires occurring in the latter part of the northern fire season (after 31 July) release twice as many emissions into the atmosphere as those occurring earlier in the dry season—a calculation based on years of data. But research has now developed a new greenhouse gas emissions abatement method, using actual fire effect, which has improved the accuracy of greenhouse gas emission calculations.

With the emergence of new industries, such as carbon farming, bushfire management is rapidly changing in northern Australia. This requires decisions to be prioritised based on risk. With such large areas to cover, web-based mapping is integral.

Andrew Turner, Director of Strategic

Services at Bushfires NT, says the organisation uses the savanna mapping tools daily.

"They are crucial to all aspects of fire management—planning, mitigation, suppression, monitoring, and evaluation and reporting," Mr Turner said.

It is only through the research team's extensive collaboration process that this fire severity mapping process has been possible.

Strength in the face of high winds

Most of the damage from cyclones and severe storms occurs to older houses, but much can be done to reduce this damage. Research has shown that houses can be retrofitted and strengthened to reduce damage—and that as a result, householders can save money through reduced house insurance premiums.

The research project, *Improving the Resilience of Existing Housing to Severe*

PHOTO: NATHAN MADDOCK BUSHFIRE AND NATURAL HAZARDS CRC



Sophisticated fire mapping and modelling fire severity are helping fire and land managers to assess greenhouse gas emissions and develop carbon abatement plans.

PHOTO: MICHAEL DAVIES (CC BY-NC 2.0)



Research shows that retrofitting and strengthening homes for cyclones and storms has a great cost benefit.



PHOTO: SOUTH AUSTRALIA SES

Relief and recovery from emergencies is proactively meeting the needs of communities.

Ensuring communities are safe and resilient in the face of natural disasters is fundamental to emergency management.

Wind, is led by Professor John Ginger, Dr David Henderson and Dr Daniel Smith at James Cook University.

Suncorp Insurance wanted to know more about the vulnerability of houses in northern Queensland. The company knew that some types of houses built before 1980 were the most vulnerable to cyclones, as they were constructed before the building code was developed for cyclones. But they were surprised by the other findings generated by the study.

"What we were surprised about was the water ingress failures across all ages of houses, whether they were built to code or not," explained Jon Harwood, from Suncorp.

The researchers identified that the majority of claims (60%) were due to a lack of preparation. These were small claims that could have been easily avoided if the appropriate mitigation action was taken before a cyclone.

The project also recommended a range of retrofitting options that reduced the chances of damage occurring.

"The research gave us a clear evidence base to show that retrofitting and strengthening homes really has a great cost-benefit analysis," said Mr Harwood.

Using the research findings, Suncorp created the Cyclone Resilience Benefit, which rewards homeowners who have strengthened their homes and therefore

reduced the chance of damage. More than 30,000 people have accessed the benefit, with an average saving on premiums of \$100 per year. Some have saved more than \$400.

Queensland Fire and Emergency Services (QFES) is also benefitting, using the study's findings to improve the work of its rapid damage assessment teams. These teams operate after major disasters to collect building damage data, which enables a focused and coordinated response as well as better planning for event recovery.

Specialist advice and lessons learned are also provided by the rapid damage assessment team at pre-cyclone season briefings for emergency managers. The briefings are held across Queensland by QFES, as well as other local, state and federal agencies.

A model for relief and recovery

Ensuring communities are safe and resilient in the face of natural disasters is fundamental to emergency management organisations.

Research led by Dr Melissa Parsons and Dr Phil Morley at the University of New England is developing the *Australian Natural Disaster Resilience Index*, which has already begun to improve the understanding of disaster resilience. This is helping

communities, governments and organisations to develop the capacities needed for adapting to and coping with natural hazards.

While the study is assessing resilience across the country, Emergency Management Victoria is embedding the national findings to develop a better understanding of resilience at the state level. It has used the national research as baseline data to build a 'living' resilience index within the organisation, explains Research Coordinator Dr Holly Foster.

"We have used the research as a basis for the Victorian platform, adapting it to our resilience needs in Victoria," Dr Foster said.

"Its primary function is as a relief and recovery tool, exploring the characteristics and attributes of communities to enable a better understanding of what relief and recovery would be required if an emergency were to occur. We want to be able to proactively meet community needs."

The mutually beneficial outcomes of this study have only been made possible through the research team's collaborative approach, with Emergency Management Victoria's learning feeding back into the larger national approach. ■

GOVERNMENT REJECTS CALL TO BAN PE CLADDING IMPORT AND USE

While a ban on combustible cladding is rejected as unworkable, the government does support recommendations to improve accountability in construction.

BY **TOM BICKNELL**

Fire Protection Association Australia

The Australian Government has rejected a recommendation to ban the importation, sale and use of combustible cladding made by the Senate inquiry into non-conforming building products.

The recommendation was one of eight made by an interim report on aluminium composite cladding released in September 2017 by the Senate Economics References Committee's inquiry. The report's recommendations aimed to address the fire risk posed by the non-compliant use of polyethylene core aluminium composite panels (PE-ACPs).

The government response determined that difficulty in identifying PE-ACPs, legitimate uses of the material, domestic manufacturing, international trade obligations and costs to industry would make a total ban on PE-ACPs both ineffective and impractical.

The response stated that:

"The Australian Government is of the view that the national measures currently being pursued by the Building Ministers' Forum, through the work of the Senior Officers' Group, will effectively increase accountability of all participants across the building supply chain, and improve building product conformity and compliance with the National Construction Code (NCC).

Fire Protection Association Australia CEO Scott Williams agrees that greater enforcement of existing legislation is the most effective way to reduce the fire risk posed by combustible cladding.

"The use of combustible cladding on high-rise buildings is, in the majority of cases, already prohibited by the NCC," Mr Williams said. "It's not necessary to ban it twice; what is required is greater enforcement of the legislation we already have that requires a high level of fire safety in Australian buildings.

"As the government response highlights, several important reforms have been introduced in Queensland and New South Wales since the Senate inquiry made its recommendations, some of which are addressed by the new legislation.

"Refinements are also underway in NCC 2016 Amendment One, which introduces further clarification and guidance on the use of combustible cladding on buildings," he said.

Of the other seven recommendations made by the Senate inquiry, the government supported three and noted four, highlighting that the constitutional authority for most of the recommendations lay with the states and territories.

Not supported

- ◆ The Australian Government implement a total ban on the importation, sale and use of polyethylene core aluminium composite panels as a matter of urgency.

Supported/supported in principle

- ◆ The Building Ministers' Forum give further consideration to introducing nationally consistent measures to increase accountability for participants across the supply chain.
- ◆ That the Commonwealth Government consider making all Australian Standards and codes freely available.
- ◆ The Commonwealth Government's decision to give further consideration

to Director Identification Numbers be expedited in order to prevent directors from engaging in illegal phoenix activity.

Noted

- ◆ The Commonwealth Government work with state and territory governments to establish a national licensing scheme, with requirements for continued professional development for all building practitioners.
- ◆ The Commonwealth Government consider imposing a penalties regime for non-compliance with the NCC such as revocation of accreditation or a ban from tendering for Commonwealth funded construction work and substantial financial penalties.
- ◆ The Commonwealth Government ensure the Federal Safety Commissioner is adequately resourced to ensure the office is able to carry out its duties in line with the new audit function and projected work flow.
- ◆ That state and territory governments work together to develop a nationally consistent statutory duty of care protection for end users in the residential strata sector. ■



Difficulty in identifying PE-ACPs at the point of import is one of the hurdles for a ban.

RESOURCE EXPLORES ENHANCED IMT CAPABILITY

A vital new resource, backed by research, explores how coaching and mentoring builds incident management team capability for the emergency management sector.

BY **BRENDA LEAHY**

AFAC

What's the difference between a coach and mentor? And how do you match and manage these relationships successfully to build incident management team (IMT) capability? These are some of the key questions addressed in a new research utilisation resource on coaching and mentoring for IMTs and emergency management organisations.

Prepared by Dr Peter Hayes of RMIT University for AFAC members, *Coaching and mentoring for incident management teams—research insights for good practice* provides an overview of coaching and mentoring concepts. It examines practical frameworks and approaches relevant to IMTs, evaluates current knowledge and research, details useful models and tools, and offers guidance for operations. This landmark research utilisation resource has been designed for use within fire, emergency services and land management agencies, or those consulting in the sector.

The goal was to deliver a resource for agencies to draw upon when developing and implementing effective coaching and mentoring programs for Australasian Inter-Service Incident Management System (AIIMS) IMTs,

said AFAC's Director of Workforce Development, Sandra Lunardi. However, its ideas, concepts and frameworks also apply more broadly within the emergency management sector. Specific tools and guidance based on the resource will be co-developed and trialled in the near future with relevant end users.

To develop the coaching and mentoring resource, Dr Hayes reviewed the current research literature and surveyed AFAC member agencies. Key stakeholders from fields such as human resource development, training, and learning and development were also consulted to obtain their observations on the barriers and opportunities for IMT development.

Among its key findings, the research indicated sound evidence, from a range of meta-analytic research and other studies, for coaching and mentoring offering significant benefits to the organisation, coach/mentor, and mentee/coachee. It also revealed that coaching and mentoring are fundamentally relationship-based activities shaped by social behaviours, such as rapport, trust, empathy and cooperation. The quality of relationships between coach/coachee and mentor/mentee are central to the success of these activities.

The survey of AFAC member agencies highlighted that:

- ◆ the types of coaching and mentoring offered within agencies vary considerably
- ◆ mentoring has been more widely adopted by AFAC member agencies than coaching
- ◆ the programs in place are mostly informal
- ◆ there are differing interpretations about the distinction between coaching and mentoring and their applications and benefits
- ◆ the present use of mentoring in agencies could help inform the design of coaching and mentoring programs for IMTs.

Recent research by the Bushfire and Natural Hazards CRC (e.g. Bearman et al., 2017) provided valuable guidance and tools to help coaches and team leaders better understand the teamwork dynamics important for effective IMT functioning (you can read about this on page 24).

In the coaching and mentoring resource, Dr Hayes provides comprehensive definitions, explains the types and interprets the science and theory behind the key concepts. One handy overview is Bresser and Wilson's car analogy (2016), which compares coaching, counselling, consultancy,

PHOTO: DEPARTMENT OF BIODIVERSITY, CONSERVATIONS AND ATTRACTIONS WA



Coaching and mentoring are relationship-based activities that require cooperation. Here, an IMT works together during the 2016 Waroona fire in WA.

psychotherapy and mentoring:

“A therapist will explore what is stopping you from driving your car. A counsellor will listen to your anxieties about the car, a mentor will share tips from his or her own experience of driving cars, a consultant will advise you on how to drive the car, and a coach will encourage and support you in driving the car.”

As a general principle, coaches and mentors support and facilitate learning and development, Dr Hayes explained.

“Coaching and mentoring relationships are used in a broad range of ways to support on-the-job learning, training, exercising and simulation and facilitate succession planning,” he said.

“Examples of applications include building operational skills and expertise in the use of AIIMS and incident management systems and processes, developing leadership and teamwork skills, and enabling growth in human factor capabilities, such as thinking, decision making and communication.”

The resources suggests several factors have driven interest in and use of coaching and mentoring within fire and emergency management organisations in recent years. These include the unique demands on IMT roles; a changing, diversifying and ageing workforce; the increasing complexity of incidents; and an increasing move towards greater interoperability.

PHOTO: NSW STATE EMERGENCY SERVICE



The resource states:
“There has been a recent move within emergency organisations towards an integrated approach to the development of people, reflecting the maturity of the profession, incident management and the sector generally.

At the same time, there has been an increasing shift in responsibility for professional development from the organisation to the individual. For example, emergency management practitioners are increasingly focused on ensuring their own professional development and are being encouraged to support

their colleagues’ development through coaching and mentoring activities.

“The AFAC Leadership Capability Framework, the Emergency Management Professionalisation Scheme’s evidence-based capabilities, and their alignment to AIIMS 2017, together with this coaching and mentoring resource, reflect a growing recognition that multiple strategies are required to meet the needs of incident managers.” ■

The coaching and mentoring resource will be available soon from the AFAC shop: www.afac.com.au/shop.

Drivers for the coaching and mentoring resource include unique demands on IMT roles; a changing, diversifying and ageing workforce; and the increasing complexity of incidents.

SA's ban on fluorinated firefighting foams in response to concerns about environmental effects may pose challenges to firefighting effectiveness



SA BANS FLUORINATED FIREFIGHTING FOAMS

A ban on all fluorinated firefighting foam in South Australia will pose a challenge to fire protection of hazardous facilities.

BY **TOM BICKNELL**

Fire Protection Association Australia

South Australia enacted a sweeping prohibition of all fluorinated firefighting foams in February, giving the state the dubious honour of being the first major jurisdiction in the world to ban modern \leq C6 types of foam.

The state's ban covers all types of fluorinated firefighting foams, both C8 and \leq C6 types, and is a response to concerns about the environmental effects of the foam chemicals.

No other Australian state or territory or major international jurisdiction has banned \leq C6 types of firefighting foam. However, SA's move has been presaged

by a growing list of restrictions on fluorinated foam internationally.

Domestically, the prohibition follows Queensland's 2016 ban, which covers C8 fluorinated foam types but still allows some use of \leq C6 foam.

C8 foam may contain perfluorooctane sulfonate (PFOS) or perfluorooctanoic acid (PFOA), while \leq C6 types contain reduced amounts of PFOA. PFOS is considered a persistent organic pollutant, and PFOA is expected to be listed as such in Australia in 2019.

The wide-reaching ban may have significant consequences for major hazard facilities. Such facilities frequently rely on fluorinated foam-suppression systems because they are more effective than non-fluorinated

alternatives.

The ban, which covers all foams containing per- and poly-fluorinated alkylated substances (PFAS), is part of an amendment to the *Environment Protection (Water Quality) Policy 2015* under the *Environment Protection Act 1993*, made following public consultation during 2017.

Two-year compliance window

Under the changes, non-handheld firefighting foam applications in South Australia are required to be compliant within two years. Handheld extinguishers must be compliant within two years or upon the next refill, whichever is earlier.

Fluorine levels in firefighting foams will now require certification

by suppliers. The ban also includes a provision to address PFAS contamination of existing equipment.

Still a role for next-gen fluorinated foams

Fire Protection Association Australia (FPA Australia) released an information bulletin in 2014 on the selection and use of firefighting foams, which is available on its website. In the bulletin, FPA Australia recommends a ban on C8 type fluorinated foams, but recommends modern \leq C6 foams be retained for limited use cases, due to their reduced environmental impact and high level of effectiveness.

"FPA Australia maintains that any foam must be selected on the basis of suitability for responding to fire risk, life safety, property protection and the environment," said Matthew Wright, FPA Australia's General Manager Technical Services/Deputy CEO.

"C8 foams containing PFOS should rightly be banned; however, there is still a role for next-generation \leq C6 foams that offer both reduced environmental impact and effective firefighting capability.

"Although the extinguishing capability of fluorine-free foams is improving, they have still not been proven effective in

significant fire incidents. Taking \leq C6 foams off the table will increase the risk to life safety and the environment due to out-of-control fires in high-risk applications.

"We're nevertheless encouraged by the continuing development of fluorine-free foams, which have made great strides in recent years."

Firefighting-foam seminar

Last February, FPA Australia ran a Future of Firefighting Foams seminar in Queensland. The seminar addressed fluorinated and fluorine-free firefighting foams, describing when and where they can be used, state legislative restrictions and environmental effects.

One of the major concerns about the new SA ban discussed at the seminar was the likelihood of fluorinated foams being directly replaced with fluorine-free foams (F3 foams) in existing equipment.

"F3 foams have different handling and behaviour characteristics compared to fluorinated foams," explained FPA Australia Senior Technical Officer Brendan Scully.

"There are differences in physical properties, ageing, dry chemical compatibility, surface flow

"F3 foams have different handling and behaviour characteristics compared to fluorinated foams."

– Brendan Scully

characteristics and edge flickers, as well as fire-suppression performance. As a result, equipment designed for fluorinated foams may not work with F3 foams and might not perform properly in a fire."

Speakers at the event also identified the concern commercial users have of a 'regret' spend if they shift to \leq C6 foams in states where they are still permitted, but that may ban them in the near future. ■

FPA Australia is exploring opportunities for more firefighting-foam seminars in the future. To express your interest, contact: events@fpaa.com.au.



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PERSPECTIVES ON THE SECTOR WITH NAOMI STEPHENS



In this regular series, AFAC CEO Stuart Ellis interviews a senior AFAC leader for *Fire Australia*. This issue he caught up with Naomi Stephens, Director Fire and Incident Management at NSW National Parks and Wildlife Service (Office of Environment and Heritage) and a member of the AFAC National Council.



BY **STUART ELLIS, AM**

Chief Executive Officer, AFAC

What was your background prior to coming into fire management with NSW National Parks and Wildlife Service (NPWS) and how did you arrive as Director Fire and Incident Management?

I have worked in the NSW public service for many years, but the 12 years spent as the Regional Operations Coordinator of the Hunter Region of NPWS were key to me moving into this role. During that time, I trained and worked as a firefighter and in incident management team roles, and was responsible for coordinating fire management, including capability and response, across the region. I was also responsible for the coordination of incident response, which included marine mammal incidents, search and rescue, equine and avian flu outbreaks and responding to injuries and deaths in the parks.

I am in no way a fire management expert, but these years of operational fire management experience in the Hunter and across the state—working with and learning from very experienced firefighters—were key to me believing I could take on this role.

What capabilities have you seen develop over your time involved in fire management?

For NSW NPWS, I would say remote area

firefighting. The agency was an early adopter in the use of aviation in general park management and firefighting, including remote area firefighting. This capability has developed even more in recent years with the injection of additional government funding for response capability. If the conditions are right, NSW NPWS has the capability to launch response teams, chase down lightning strikes in remote locations, winch in crews and put fires out.

In late January this year, the greater Blue Mountains received 74 new ignitions from dry lightning storms over the course of a week. By the end of the week, remote area firefighters, using aviation support, had put out over 30 of those ignitions. We haven't quite found a way to quantify what that means in terms of reduced risk to the population of NSW and reduced costs in firefighting, but the impact is definitely significant.

NSW NPWS works closely with NSW Rural Fire Service and other NSW agencies. What are the benefits of that arrangement?

The NSW Bush Fire Coordinating Committee brings together a cross-section of government and non-government organisations involved in the prevention, mitigation and suppression of bushfires to develop policies and procedures to achieve a coordinated approach to fire management in NSW.

At a regional level, local Bush Fire Management Committees throughout NSW support this coordinated and cooperative approach. Agencies engage in joint planning, mitigation, training and exercising activities. When operational,

we operate under one system of command and control across all land tenures, with a shared understanding of systems and approach. A real benefit is the close relationships that develop between officers across the agencies. These relationships foster open communication and sharing of situational awareness, and are the real success of these cooperative arrangements.

You have been on the Board of the Bushfire and Natural Hazards CRC for many years. How does the CRC benefit NSW NPWS and the broader sector?

The Office of Environment and Heritage NSW has a strong ongoing commitment to bushfire research. Our involvement in the CRC enables us to combine our resources with agencies and partners across Australia facing similar challenges, and get the benefits of the coordinated investment from that group.

The CRC undertakes research that we would not have commissioned but that informs our policy and our decision making. Its funding base means that it can do long-term, evidence-based research with strong links to end users and applications that directly support the operations of the fire and emergency management sector.

AFAC has commenced a journey with Male Champions of Change. As a senior woman who sits on AFAC Council, are you positive about this direction?

Absolutely, I think it is a fantastic initiative that I strongly support. The issue of gender in the fire and emergency

PHOTO: NSW NATIONAL PARKS AND WILDLIFE SERVICE



Naomi Stephens speaks at the NSW National Parks and Wildlife Service National Medal Ceremony in 2017.

management sector is a very live one. NSW NPWS has strong but not equal representation of women in firefighting and IMT roles, and women in NSW NPWS feel the gender gap in lots of ways.

I see bringing about change as a very important part of my role. The Male Champions of Change program is great because it has lifted the profile of the issue, galvanised the significant contribution that the male members of the AFAC Council can make towards addressing it nationally, and provided a framework to take real action.

Your job can become all absorbing, particularly with your emergency management role. How do you balance your personal life with your professional role?

I'm sure my daughter would say that, at times, I don't. I work long hours—you can't do this job by half—but I think she is proud of the work I do. Her father was away quite a lot, firefighting, when she was little. He says it's my turn now and I have his full support.

Because my job is such a commitment, I try not to clutter up my life with other things. When I'm not at work, I focus on my home and family. It's not always easy but I try to make the time to do nothing, so that my daughter has the space to talk to me. We walk the dog, bushwalk and take road trips,



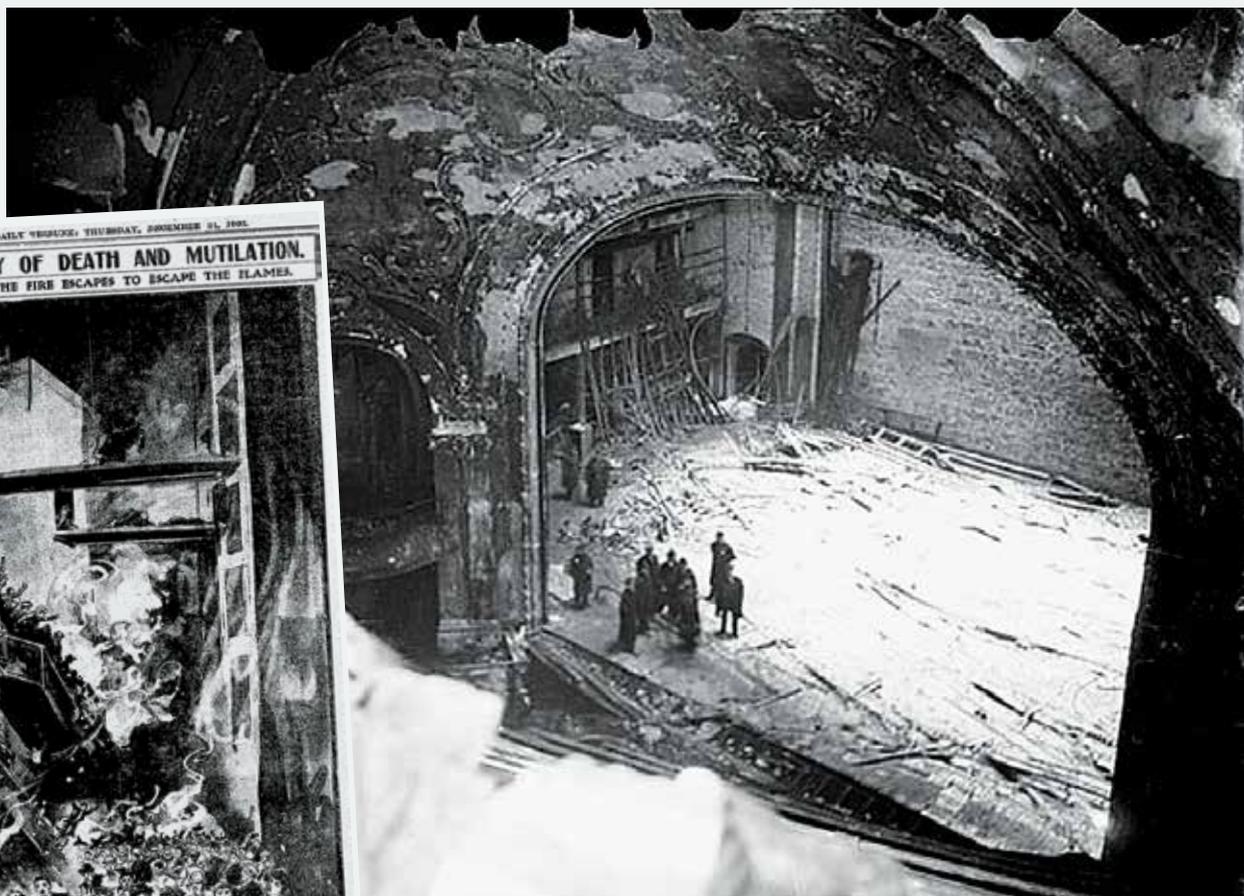
Naomi Stephens speaks at the 2017 National Memorial Service for fire and emergency services in Canberra.

“I see bringing about change as a very important part of my role. The Male Champions of Change program is great because it has lifted the profile of the issue, galvanised the significant contribution that the male members of the AFAC Council can make towards addressing it nationally, and provided a framework to take real action.”

– Naomi Stephens, NSW National Parks and Wildlife Service

singing along to Taylor Swift. Recently I re-watched the movie *Bend It Like Beckham*, an HSC text, rather than do

the work I had planned because it was a chance to sit on the couch with her and spend some time together. ■



The *Chicago Daily Tribune* dramatised the tragic theatre fire showing people trying to escape the smoke and flames.

FUELLING THE FIRE

“On the Iroquois stage at the time of the fire, there was more than 10,000 square yards of canvas, or two and a half acres, and in addition 3000 square yards, or half an acre, of gauze. To hang this required more than 10 miles in length of 5/8 inch Manilla rope, and in the frames, battens, braces, profiles and set pieces, the stage carpenter estimates there were about 8000 square feet of white pine lumber. The total weight of the fuel was more than 10 tons, all dry tinder, and all set or hung in a way to give the quickest possible exposure and spread to the flames.” — JR Freeman, a prominent engineer of the day

THE IROQUOIS THEATRE FIRE—1903

BY **BARRY LEE, OAM**

The deadliest theatre fire in US history occurred on 30 December 1903 in Chicago, Illinois, when flames swept through the stage and auditorium of the Iroquois Theatre. Six hundred and two people died and 250 were injured as a result.

A matinee performance of a popular musical, *Mr Bluebeard*, was playing to a packed house of more than 1,800 patrons—mostly women and children. The seating capacity was 1,625, but on the afternoon of the fire 1,830 people were reported to be in the audience with 275 on the stage. Two hundred audience members, therefore, were seated or standing in the aisles.

At about 3.15 pm, hot particles of carbon from an open arc light ignited

a muslin curtain. Fire spread to the fly gallery above the stage, where hundreds of square metres of highly flammable, painted canvas flats were hung. Efforts were made to drop the asbestos curtain, but it was obstructed by a projecting light board and descended only partway. Escaping stage staff opened a rear freight door, causing a very strong draught that bellied the slack curtain in a wide arc out into the auditorium, pushing with it smoke and flame.

Post-fire investigations revealed that large iron gates blocked off stairways during performances. Within the theatre, curtains covered the main fire exits, which were secured with a type of lock almost unheard of outside Europe at the time. Nobody knew how to open them. Many doors, including the main

stage door, opened inward. Of the 30 exits, 27 had been locked and few were marked.

The largest death toll occurred at the base of the stairways from the upper levels, because the iron gates that barred the stairways were still in place. Hundreds of people were trampled, crushed or asphyxiated. There were no fire escapes, alarms, sprinklers, telephones or water connections. The sole provisions for firefighting were six canisters of a dry chemical used to put out chimney fires.

After the Iroquois Theatre calamity, sprinklers were made compulsory for all stages in nearly all large cities in the US. Similar requirements were enforced in Australia, South Africa, South America and parts of Europe and the UK. ■

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BY IAN FINDLAY

Technical Coordinator, FPA Australia

STANDARDS AUSTRALIA

FP-002 Fire detection and alarm systems

Amendment 2 to AS 3786 is currently at public comment closing 28 March. Public comment has been reviewed for AS 1670.1, AS 1670.3, AS 1670.4 and AS 4428.6. Work has begun on revisions of AS 1603.11 (*Visual warning devices*) and AS 1603.17 (*Warning equipment for people with hearing impairment*).

FP-004 Automatic fire sprinkler installations

The project to amend AS 2118.1:2017 is expected to kick off soon. This amendment is to address matters held over from the development of this Standard.

FP-008 Fire pumps & tanks

AS 2304 *Water storage tanks for fire protection systems* is to go to combined procedure (public comment and committee ballot) due to the nature of the changes as a result of public comment resolution.

FP-011 Special hazard fire protection systems

AS 4214 (the revision and recombination of the AS 14520 series) is expected to be published soon.

FP-018 Fire safety

AS 1530.8.1 and AS 1530.8.2 (*Testing of elements of construction for buildings to simulate bushfire attack*) are expected to go to combined procedure due to technical changes.

FP-020 Construction in bushfire-prone areas

Public comment on the draft revision of AS 3959, *Construction of buildings in bushfire-prone areas*, has been reviewed and the draft is being updated accordingly.

LG-007 Emergency lighting in buildings

The revisions of AS/NZS 2293 Parts 1 and 3 (*Emergency escape lighting and exit signs*) went to public comment in late January/early February and closed in March. There is no update on AS/NZS 2293.2 but this is likely because resources are being focused on National Construction Code (NCC)-referenced standards.



TECHNICAL ADVISORY COMMITTEES

The most recent round of TAC meetings was held in March. All TACs are now using the SPARK online community and discussion forum.

TAC/1 Maintenance of fire protection systems and equipment

Position Statement PS-08 *Routine servicing of aspirating smoke detectors (ASDs) with automated test facilities* was published in January.

TAC/2 Fire detection and alarm systems

The work on the smoke alarm *Good Practice Guide* is progressing well with an updated draft going through review by TAC and other industry stakeholders. Work continues on other technical documents, as well as contributing to Australian Standards at FP-002.

TAC/3/7 Portable and mobile equipment

Work continues on the project on a possible revision of AS 2444 (and associated Standards) as well as a possible document on foam fire extinguishers (given ongoing changes in policy).

TAC/4/8/9 Fire sprinkler and hydrant systems, tanks and fixed

TAC/4/8/9 reviewed the public comment for our draft *Sprinkler Technical Specifications* for Class 2 and 3 buildings less than 25 m in effective height to help FPA Australia identify how to resolve these comments. First drafts of project proposals for AS 2118.4 and AS 2118.6 have been made and we will be aiming for their submission in the August/September Standards Australia project prioritisation period to ensure adequate time to submit these to

the Australian Building Codes Board (as they are NCC-referenced documents and must follow their protocols).

TAC/11/22 Special hazards fire protection systems

Information Bulletins IB-15 *Gaseous fire extinguishing systems: Cylinder hydrostatic testing requirements* and IB-16 *Oxygen reduction fire prevention system (ORFPS)* were published in December and February, respectively. FPA Australia and TAC/11/22 continue to keep abreast of, and contribute to, the ongoing discussion on firefighting-foam policy in Australia, further to the successful seminar held in February.

TAC/17 Emergency planning

TAC/17 continues to be involved in the development of Amendment 2 to AS 3745-2010. It has also considered several relevant Standards Australia project proposals from other nominating organisations regarding crowd management and physical security controls for buildings.

TAC/18/19 Passive fire protection

Work on the *Good Practice Guide* on fire stopping continues with the document now split into a more general document on fire resistance and a more specific document just on fire stopping. The TAC has also been reviewing relevant proposed changes to the NCC.

TAC/20 Bushfire safety

The TAC has reviewed various bushfire protection changes to the NCC, including a draft verification method (GV5). It is also continuing to keep across the development of the AS 3959 revision.

NATIONAL MEMORIAL FOR FIRE AND EMERGENCY SERVICES

1 May 2018, Lake Burley Griffin, Canberra

AFAC will hold a National Memorial Service on 1 May 2018 for fire and emergency service personnel, honouring the courage and sacrifice of those who have died in the line of duty. The service, to be held in Canberra at the National Emergency Service Memorial, will be the fourth annual day of national commemoration. The service is open to the public, family and friends of the emergency community.

For more information, visit: www.afac.com.au.



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- ◆ professional development program.

The 2018 conference theme will explore 'Changing lives in a changing world' and will be hosted by the Department of Fire and Emergency Services, WA, and the Department of Biodiversity, Conservation and Attractions.

Registrations for the conference are now open and the program will be released in May.

For more information, visit: www.afacconference.com.au.



The Fire Australia 2017 Conference and Trade Show attracted 1000 delegates.

FIRE AUSTRALIA CONFERENCE AND TRADE SHOW 2018

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For more information, visit: www.fireaustralia.com.au.

JOINT EDITORS

Tom Bicknell (FPA Australia)

TEL +61 3 8892 3118
tom.bicknell@fpaa.com.au

Nathan Maddock (Bushfire and Natural Hazards CRC)

TEL +61 3 9412 9600
nathan.maddock@bnhrcr.com.au

Zoe Kenyon (AFAC)

TEL +61 3 9419 2388
zoe.kenyon@afac.com.au



Fire Protection Association Australia (FPA Australia)

ABN 30 005 366 576
PO Box 1049,
Box Hill VIC 3128,
Australia
TEL +61 3 8892 3131
FAX +61 3 8892 3132
fpaa@fpaa.com.au
www.fpaa.com.au



Bushfire and Natural Hazards Cooperative Research Centre

ABN 21 163 137 979
Level 1, 340 Albert Street,
East Melbourne VIC 3002,
Australia
TEL +61 3 9412 9600
office@bnhrcr.com.au
www.bnhrcr.com.au



AFAC

ABN 52 060 049 327
Level 1, 340 Albert Street,
East Melbourne VIC 3002,
Australia
TEL +61 3 9419 2388
FAX +61 3 9419 2389
afac@afac.com.au
www.afac.com.au

Production and design: Coretext
TEL +61 3 9670 1168 www.coretext.com.au



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To submit a contribution or to advertise in *Fire Australia*, please contact the editor:

Tom Bicknell
FPA Australia
PO Box 1049
Box Hill VIC 3128
Australia

tel +61 3 8892 3131
tom.bicknell@fpaa.com.au



Michelle Bennetts

Michelle Bennetts

Michelle Bennetts has joined the AFAC National Council as the representative for Airservices Australia. Ms Bennetts is the Executive General Manager of Aviation Rescue Fire Fighting Services at Airservices Australia and has been with the organisation since May 2005. In her role she is responsible for overseeing the new Airservices operating model.



Dr Alex Cockram

Dr Alex Cockram

Dr Alex Cockram has been appointed as the interim Chief Executive Officer of the Metropolitan Fire and Emergency Services Board, Melbourne (MFB). She was previously Chief Executive of Western Health from 2012–17. Dr Cockram also joins the AFAC National Council as the representative for MFB. She commenced in the role on 29 January 2018.



Stefan de Haan

Stefan de Haan

Stefan de Haan has joined the AFAC National Council as the representative for the Department of Biodiversity, Conservation and Attractions (DBCA), Parks and Wildlife Service WA. Mr de Haan has more than 20 years' experience working in land management and fire management in WA. He is the Manager of the Fire Management Services Branch at the Parks and Wildlife Service (DBCA).



Chris Gibson

Chris Gibson

Chris Gibson has joined the AFAC National Council as the representative for Forestry SA. Mr Gibson is the Manager of Conservation, Fire and Safety at Forestry SA. He is also an active member of AFAC's Rural and Land Management Group and the Forest Fire Management Group.



Paul Brennan

Paul Brennan

Paul Brennan has resigned from his position of Manager, Fire Management Services at Parks and Wildlife Service, Department of Biodiversity, Conservation and Attractions WA. Mr Brennan served in various positions across WA with the WA Parks and Wildlife Service and the former WA Department of Environment and Conservation. He has now taken up a position at HQPlantations Pty Ltd.



Stephanie Rotarangi

Stephanie Rotarangi

Stephanie Rotarangi has been appointed as Deputy Chief Officer at Country Fire Authority (CFA) Victoria. Ms Rotarangi comes to the role from Forest Fire Management Victoria (Department of Environment, Land, Water and Planning) where she was Chief Fire Officer since 2016. Ms Rotarangi's appointment makes her the highest ranked female officer in the CFA's history.



Sally Barnes

Sally Barnes

Sally Barnes has resigned from her position as Director of National Parks at Parks Australia. Ms Barnes has been appointed as Chief Executive of the National Capital Authority. Dr Judy West is Acting Director of National Parks, Parks Australia.



Darrin McKenzie

Darrin McKenzie

Darrin McKenzie has been appointed as Chief Fire Officer, Forest Fire Management Victoria (FFMV–DELWP). Mr McKenzie has many years' experience, having been FFMV's Deputy Chief Fire Officer since November 2012. Mr McKenzie is also a member of AFAC's Predictive Services Group and Rural Land Management Group.



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