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SCOTT WILLIAMS

Chief Executive Officer, Fire Protection Association Australia



Improvements in fire protection are typically a matter of incremental progression. Large step changes are rare. In the last 50 years, the only such step change commonly referred to in Australia is the 1995 introduction of legislation requiring smoke alarms in residential buildings around the country.

In November 2018, we saw another of those step changes with the confirmation that the upcoming National Construction Code (NCC) 2019 would require fire sprinklers to be installed in all new residential buildings over three storeys and under 25 metres in height. This goes beyond the previous requirement for sprinklers only being required in residential buildings reaching above 25 metres.

It is the culmination of six years of groundbreaking collaborative work by Fire Protection Association Australia (FPA Australia), Fire and Rescue NSW, CSIRO and the Australasian

Fire and Emergency Service Authorities Council (AFAC).

Coming into effect with the NCC 2019 in May 2019, the new sprinkler requirements will fundamentally improve the life safety of residents in the more than 700 buildings of this type constructed each year.

As I noted earlier, in Australia, residential buildings under 25 metres have not previously required sprinkler protection. The situation was predicated on an old understanding of how fast a residential fire can spread. New testing has shown that fires in modern residences furnished with synthetic materials reach flashover eight times faster than they did 50 years ago, often within two or three minutes – too fast for residents to evacuate from multi-storey buildings or for fire services to respond.

The terrible consequences of this mismatch between risk and protection was seen with the tragic death of Connie Zhang, who in 2012 jumped from a fifth-storey balcony after being trapped by a fire in her Bankstown, NSW apartment, which was not required to be installed with sprinklers. The fire quickly became out of control and cut off an escape route for Connie and her housemate Ginger Jiang, who was left with severe injuries after also jumping from the balcony.

In the subsequent coronial inquest, NSW Deputy State Coroner Hugh Dillon found that both women likely would have survived without significant injury if the building had been installed with fire sprinklers. The inquest set in motion a six-year collaborative effort between industry, emergency services and researchers to explore, develop and propose effective, fit-for-purpose sprinkler systems for buildings over three stories and less than 25 metres in effective height, such as the Bankstown apartment building. The project tested world-first fire sprinkler designs that explore the use of the existing residential water supply or hydrant feed systems to reduce cost and complexity, while still providing a high level of protection. The new designs were developed into two Technical Specifications by FPA Australia, which are now referenced in NCC 2019.

We must acknowledge that to make this change possible, large amounts of work and resources were required from across the fire protection industry, the research sector and emergency services. It has also relied on the Australian Building Codes Board's willingness to consider evidence-based proposals, and its fundamental commitment to life safety.

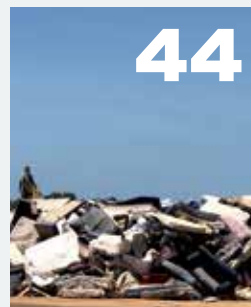
The outcome of all of this is arguably the biggest single improvement in the fire safety of Australians in the last 23 years. With it, we hope nobody in future will have to face what Connie Zhang and Ginger Jiang tragically did in that Bankstown apartment in 2012.

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FIRE AUSTRALIA



IN THIS ISSUE

- 12 Learn, connect and grow at Fire Australia 2019
- 16 Fire Australia 2019 exhibitor profiles
- 26 Learning from history
- 30 Experts take to AFAC19 stage
- 32 Agreement signed on new Fire Academy
- 34 Science expertise helps Queensland
- 36 A shock to safety: the rise of solar panel fires
- 40 The mission to place sprinklers in Australian homes
- 42 Planning for catastrophe: an all-hazards, whole-of-community approach
- 44 Scorched and soaked: the cost of climate change
- 46 Professionalising fire safety engineering

REGULAR FEATURES

- 4 News
- 48 AFAC Q&A
- 50 Blast from the past
- 52 Standards Australia update
- 53 Calendar of events
- 54 Movers and shakers

OUR COVER

The new sprinkler requirement is the most significant shift in fire safety policy since the introduction of mandatory smoke alarms in homes.

PHOTO: TOM BICKNELL, FPA AUSTRALIA

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.

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LIGHTS AND SIRENS FOR INTERNATIONAL WOMEN'S DAY



The International Womens Day event at Federation Square in Melbourne promoted roles for women in disaster research, response and recovery.

PHOTO: ALANNA BEITZ, AFAC

On 8 March 2019, people all around the world celebrated International Women's Day, an annual event celebrating the achievements of women around the globe.

In Melbourne, Victorian fire and emergency services agencies, along with AFAC, the Bushfire and Natural Hazards CRC and AIDR, came together at the iconic Federation Square and marked the occasion by reflecting on the rich history of women in emergency management, research, and their promising futures.

This year's International Women's Day theme was 'More Powerful Together', echoing Emergency Management Victoria's slogan, 'We Work as One'. Representatives from across the sector came together to showcase the comprehensive and diverse nature of Victoria's emergency management sector and encourage others to become involved.

Emergency demonstrations and vehicles entertained crowds alongside live entertainment, engaging discussions and storytelling from fire and emergency services staff and volunteers.

The event promoted career pathways for women and girls interested in a future in fire and emergency management and aimed to break down gender stereotypes within the sector and wider society. ■

FPA AUSTRALIA WELCOMES NSW BUILDING COMMISSIONER ANNOUNCEMENT

NSW's Innovation and Better Regulation Minister Matt Kean announced in February 2019 that the state would establish a new Building Commissioner to oversee and approve construction of new multi-storey residential buildings, and ensure building practitioners are competent.

The announcement followed the Council of Australian Governments Building Ministers' Forum (BMF) meeting, which discussed compliance with the National Construction Code (NCC) and the duty of care of builders, among other

issues. The new Building Commissioner will be responsible for approving high-rise designs and for registering and auditing building practitioners.

Under the plan, all designers and builders involved in high-rise construction will need to be registered and qualified, and will need to declare buildings are compliant with the *Building Code of Australia*. The office of the Building Commissioner will also conduct regular audits of practitioners.

In line with an outcome from the BMF meeting, the NSW plan will also clarify the law to ensure building practitioners have a duty of care to owners and corporations.

As part of the legislative shake-up, Minister Kean said the NSW Government will accept the "vast majority" of recommendations from the Shergold-Weir *Building Confidence* report.

FPA Australia is strongly encouraged by Minister Kean's announcement.

"Minister Kean's announcement promises much-needed oversight and accountability for the NSW construction industry," said FPA Australia CEO Scott Williams.

"The fire protection industry has long advocated that building practitioners at all levels must have the necessary competence and be accredited to perform their job roles. Minister Kean's announcement is an important step towards regaining consumers' confidence in their buildings, and in those who design, build and maintain them.

"The Association believes this affirmative action is overdue, and will go a long way to ensuring that buildings in NSW have the compliance and quality that the community deserves," Mr Williams said.

"FPA Australia looks forward to continuing to work with the NSW Government on improving fire safety and construction outcomes in the state." ■



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SCIENCE INFORMING MEDIA



PHOTO: NATHAN MADDOCK, BUSHFIRE AND NATURAL HAZARDS CRC

The Age science reporter Liam Mannix with Dr Katharine Haynes from the Bushfire and Natural Hazards CRC.

Media coverage of the ten-year anniversary of the Black Saturday bushfires, as well as coverage of hazards generally, has been informed by Bushfire and Natural Hazards CRC researchers. Dr Josh Whittaker and Dr Katharine Haynes took part in a 'Scientist in residence' program with *The Age* and the Australian Science Media Centre, working alongside science reporter Liam Mannix. They spent a week each at *The Age* and the placement gave them an opportunity to use their knowledge and expertise on all things hazard-related within a media scope. Articles by the pair covered research into bushfire warnings and emergency messages, flash-flood risk within Parramatta's CBD and reporting of climate change, and were published in both *The Age* and *The Sydney Morning Herald*. An article on changes since Black Saturday in 2009 co-authored by Dr Whittaker and Dr Haynes featured prominently in *The Age* on 7 February, while Dr Haynes' co-authored article on the flash flood risk in Parramatta made the front page of *The Sydney Morning Herald* on 20 February. ■



PHOTO: RICHARD FORSHAW

REMEMBERING AT THE NATIONAL MEMORIAL SERVICE

The National Fire and Emergency Services Memorial Service will be held in Canberra on 1 May 2019 on the banks of Lake Burley Griffin.

The occasion is an opportunity for all members of the public to honour the fire and emergency services personnel who have lost their lives in the line of duty.

This year, dozens more names will be added to the National Memorial Wall, which was opened at the commemoration event in 2018. They will join the 505 names that are currently inscribed on the wall.

The wall honours the sacrifice that each person has made and provides a place of permanent and national significance for the community to reflect in a more personal way.

Families of fallen fire and emergency personnel and industry leaders have been formally invited to the event. AFAC extends this invitation to anyone in the sector and general public who would like to pay their respects on the day. ■

The National Fire and Emergency Services Memorial Wall was unveiled at the 2018 ceremony.

For more information, visit the memorial website: www.memorial.afac.com.au.



PHOTO: AFAC

REGISTER NOW FOR AFAC19

Registrations are now open for AFAC19 powered by INTERSCHUTZ, Australasia's largest emergency management conference and exhibition. From 27–30 August, the sector will come together at the Melbourne Convention and Exhibition Centre to discuss the latest innovations and thinking in the fire and emergency services. This year's theme is 'A shift to the new norm: riding the wave of change'.

The AFAC19 conference is held concurrently with the Bushfire and Natural Hazards CRC Research Forum, the Institution of Fire Engineers National Conference and the Australian Disaster

Resilience Conference, bringing a broad range of interests and experience from across the sector together under one roof.

AFAC19 will also offer an impressive exhibition space to showcase the latest products and innovations available to the sector, alongside engaging simulations and demonstrations. At 12,000 square metres, the exhibition floor in 2019 is the largest to date for the conference.

The conference program is taking shape, with this year's conference receiving the largest submission rate yet. The full program will be released on 3 May, but for details about keynote speakers already locked into the program, see page 30. ■

Take advantage of our early bird registration offer before 28 June for a discounted rate. See the AFAC19 website for details: www.afacconference.com.au.

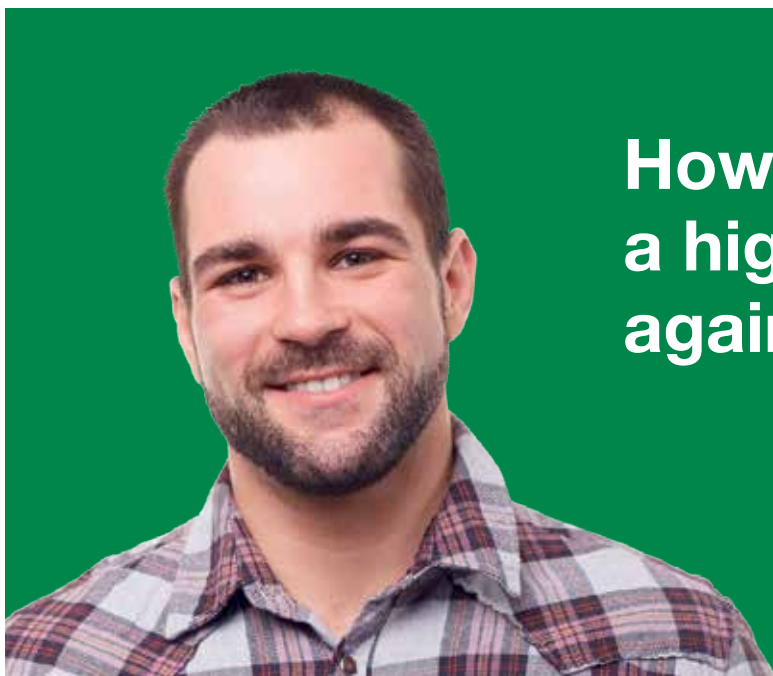
PHOTO: DAVID BRUCE, BUSHFIRE AND NATURAL HAZARDS CRC



L to R: CRC CEO Dr Richard Thornton; Queensland Fire and Emergency Services Deputy Commissioner Mike Wassing; Queensland Minister for Fire and Emergency Services Craig Crawford MP.

Research brief for Queensland minister

Queensland had more than its fair share of natural hazards over the summer, so it was timely when the Hon Craig Crawford, the Queensland Minister for Fire and Emergency Services, visited the Bushfire and Natural Hazards CRC offices for an overview of the research that is supporting the effort up north. The Minister was briefed by CRC CEO Dr Richard Thornton on current research into fire prediction, severe weather, urban planning, community safety, community recovery, volunteer management, strategic planning and other projects. Mr Crawford was already well aware of much of this work, including the use of CRC-supported fire simulation software to inform evacuation priorities late last year in fires in central Queensland. ■



How does John protect a high bay warehouse against fire?

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FLOOD AUTHORITY SET TO BENEFIT



PHOTO: SOUTH AUSTRALIA STATE EMERGENCY SERVICE

The Gawler River Floodplain Management Authority is set to benefit from a risk modelling and projection tool developed by the Bushfire and Natural Hazards CRC and the University of Adelaide.

The Unified Natural Hazard Risk Mitigation Exploratory Decision support system (UNHaRMED) is an interactive

modelling platform developed by CRC research to assist decision-making for planners and policy-makers in measuring and managing risk. UNHaRMED shows the impacts of natural hazards on urban infrastructure and natural environments, and allows future changes to be taken into account, giving a more complete picture of the

Six councils in South Australia will enhance their flood risk mitigation based on CRC research.

impact of certain policies, investments and land-use management decisions.

Funding through the Commonwealth Government's Natural Disaster Resilience Program administered by the South Australian Fire and Emergency Services Commission was recently announced, allowing the Gawler River Floodplain Management Authority to inform and align their stormwater and flood management strategies and their collective investment in mitigation activities across six local councils (Town of Gawler, Light Regional Council, Adelaide Hills Council, Barossa Council, Adelaide Plains Council, City of Playford).

More than \$98,000 in funding will enable the Gawler River Floodplain Management Authority to use UNHaRMED to support development of a flood mitigation strategy and strategic plan for the floodplain. ■



PHOTO: AIDR

Schools award winner Firesticks.

How are you building resilience?

The Resilient Australia Awards returns for its 20th year in 2019 to celebrate initiatives that build community resilience to disaster and emergencies around Australia and capture images of resilience in action. The awards recognise collaboration and innovative thinking across all sectors and this year offer six categories to which entrants can submit: community, business, local government, government, school and photography. Whether you are building resilience through risk assessment, mitigation, education, training, research, community engagement, response or recovery, the Resilient Australia Awards are a great way to showcase your work and share your resilience-building practices on a national level. The Resilient Australia Awards are proudly sponsored by the Australian Government in partnership with the states and territories and are managed by the Australian Institute for Disaster Resilience. ■

Submissions are open until 17 May.

For more details and to submit your project, visit: www.aidr.org.au/programs/resilient-australia-awards.

INDUSTRY CALLS FOR NATIONAL COMPLIANCE ACTION

FPA Australia's Matthew Wright travelled to Hobart in early February at the invitation of the Building Ministers' Forum (BMF) to attend its latest meeting. The meeting was focused on combustible cladding and the broader compliance problems in the Australian construction sector that recent fires caused by combustible cladding have exposed.

At the meeting, FPA Australia called for the recommendations of the Shergold-Weir *Building Confidence* report to be implemented in a consistent fashion nationwide.

"While the Shergold-Weir report set out a clear roadmap to address the problems with building compliance in June last year, we still haven't seen any affirmative action on its recommendations at a consistent state and territory or national level," said Mr Wright.

"At the moment, every time Australians buy an apartment they are playing Russian roulette when it comes to compliance, even if that apartment is brand new. To stop that happening, we need the Shergold-Weir

recommendations to be implemented consistently across the country.

"Someone in Sydney deserves their home to be as safe as someone in Melbourne or Perth or Darwin. Industry has to be part of the compliance fix, and we're pushing ahead in a range of areas. But to truly address this issue and deliver the buildings Australians deserve, government needs to be as dedicated to this as we are."

FPA Australia believes that the success of the Shergold-Weir recommendations is dependent on consistent national implementation. The Association is calling on the BMF to establish a new National Construction Code Implementation Taskforce (NCCIT). This would bring together government and industry to manage the development of a model NCC Administrative Code to harmonise requirements and compliance with the National Construction Code (NCC) across all states and territories wherever possible. ■



PHOTO: FPA AUSTRALIA

Matthew Wright and the Hon Karen Andrews MP.

FIRE DRAGON TO MODEL BUSHFIRES

It looks like the set of *Mythbusters*, but the firebrand modelling 'dragon' housed at Victoria University provides the perfect space for modelling the impacts of short, medium and long-range embers that occur during a bushfire.

Bushfire and Natural Hazards CRC PhD student Rahul Wadhvani has used the facility to test the effects of short-range embers.

"These embers travel in front of a fire front and can start new fires, which can trap firefighters or destroy houses," Mr Wadhvani said.

The dragon allows researchers and students to conduct a practical assessment of how a bushfire ignites in high vegetation areas using practical data analysis.

Mr Wadhvani's research focuses on refining two sub models in the Wildland-Urban Interface Fire Dynamics Simulator—pyrolysis and firebrand



PHOTO: NATHAN MADDOCK, BUSHFIRE AND NATURAL HAZARDS CRC

transport—and testing these using the firebrand dragon.

"I'm hopeful that my results could help enable better predictions for fire behaviour in vegetation where a lot of

embers are generated," he said.

Mr Wadhvani's research will benefit fire model developers and improve numerical modelling of short-range embers. ■

Rahul Wadhvani with the fire dragon at Victoria University.



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REGISTRATIONS OPEN FOR 2019 LESSONS MANAGEMENT FORUM

The Lessons Management Forum returns to Sydney in July 2019, bringing together

lessons management practitioners and those who are interested in and want to learn more about it. The forum allows attendees to share good practice, learning and innovations within the lessons management space. Presentations will cover lessons that have been identified, as well as how to manage lessons.

For the first time, the 2019 Lessons Management Forum made a call for abstracts to invite a more diverse range of speakers and ideas at the event. The

The Lessons Management Forum brings together current thinking on learnings from a range of sectors.



PHOTO: LEONE KNIGHT

conversation will focus on what lessons have been identified from incidents and operations, the challenges involved in learning lessons and successful approaches to lessons management.

There will be a broad range of presentations and workshops from various organisations, jurisdictions and sectors, including emergency management, defence, agriculture, health, humanitarian and corporate.

The forum is open to everyone and

will provide face-to-face networking opportunities to enhance the expanding community of practitioners working in the lessons management area. New members are encouraged to join.

The forum will take place on 30–31 July at Novotel Sydney Central. Registration is now open and costs \$395. ■

For more information and to register visit www.aidr.org.au.



NSW RECOGNISES ACCREDITATION SCHEME

The NSW Government has formally approved FPA Australia's accreditation scheme under the state's 2017 fire safety reforms.

The Fire Protection Accreditation Scheme (FPAS) will be formally recognised after a phase-in period of approximately 12 months. After this time the NSW Government will recognise as 'competent fire safety practitioners' individuals who hold the appropriate class of FPAS accreditation.

The applicable FPAS classes of accreditation will include Fire Systems Design (FSD) and Fire Safety Assessment (FSA).

The announcement represents a major step forward in fire safety in NSW, delivering on the NSW Government's ten-point action plan to improve fire safety in the state. It also acts on the recommendations in the Shergold-Weir Building Confidence report, and the earlier Lambert Review.

"We applaud the NSW Government

and Minister Matt Kean for prioritising the fire safety of the community and implementing these major reforms, and for working closely with industry to make this happen," said Scott Williams, FPA Australia's CEO.

"The NSW Government's recognition of FPAS will improve the quality and consistency of fire protection work in the state, and puts NSW at the forefront nationally in implementing the recommendations of last year's Shergold-Weir report."

As part of its ten-point plan, the NSW Government is committed to partnering with industry to improve fire safety and building outcomes.

"I congratulate FPA Australia on becoming the first accrediting body capable of accrediting competent fire safety practitioners approved by the NSW Government," said Matt Kean MP, Minister for Innovation and Better Regulation. "This appointment is another key step towards ensuring the people of NSW are safe."

Under the state's 2017 fire safety reforms, introduced by the Environmental Planning and Assessment Amendment (Fire Safety and Building Certification) Regulation 2017, building owners are required to use competent fire safety practitioners (CFSPs) for certain types of fire protection work, including fire systems design and fire safety assessment.

Until recognition of an industry accreditation scheme, building owners

have been required to satisfy themselves that the fire protection practitioners they select are competent. Following official recognition of FPAS, building owners will be required to use a CFSP accredited by FPAS or other future approved schemes. ■



PHOTO: FPA AUSTRALIA

Trevor Voevodin farewelled

FPA Australia farewelled its immediate past president, Trevor Voevodin, in February. He retired as a Director after having served on the Board continuously since 2007, and has held the presidency role on two occasions, as well as the vice presidency.

"Mr Voevodin has been an outstanding contributor to the Association over a long period of time, and his professional and personal guidance will be sincerely missed," said FPA Australia CEO Scott Williams. "Trevor has been a significant contributor to the fire protection industry, in particular with his work involving Australian Standards and the implementation of occupational licensing in Queensland." ■

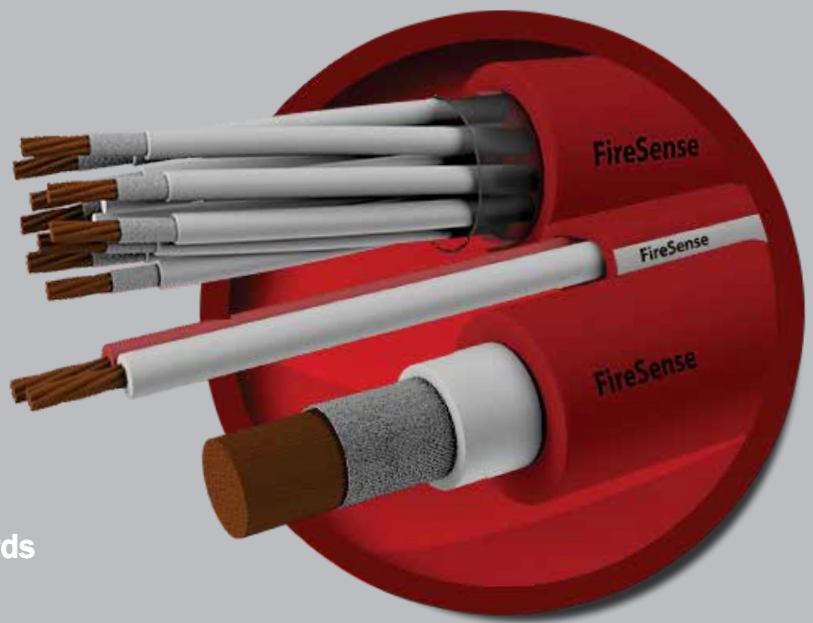
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LEARN, CONNECT AND GROW AT FIRE AUSTRALIA 2019

The Fire Australia Conference & Tradeshow is the biggest dedicated fire protection event in the Southern Hemisphere.

The Fire Australia Conference & Tradeshow 2019 will be more hands-on than ever before, with offsite visits, networking sessions and tradeshow demonstrations.

BY **TOM BICKNELL**

FPA Australia

Returning to Melbourne this year, the Fire Australia Conference & Tradeshow 2019 offers a new, interactive program running across three days at the Melbourne Convention and Exhibition Centre (MCEC) on 14–16 May 2019.

It's the largest event dedicated to the fire protection industry in the Southern Hemisphere, and boasts a fantastic line-up of expert speakers from Australia and around the world. Keynote speakers include Gary Strong of Practice

Standards & Technical Guidance (UK), Sean DeCrane of Underwriters Laboratories (US) and Lorraine Carli of the National Fire Protection Association (US).

Through keynote presentations, workshops and panel sessions, Fire Australia 2019 will focus on providing content for the entire industry. The program will explore the fallout from combustible cladding, the Grenfell and Neo200 building fires, the new introduction of residential sprinklers in the National Construction Code (NCC) 2019, building compliance, a series of interactive technical sessions, and much more.

The Fire Australia 2019 conference will



Keynote speaker:
Gary Strong
Practice Standards & Technical Guidance (UK)

Gary Strong has practised as a surveyor, building engineer, expert witness and arbitrator for 38 years. He has spent most of his career investigating fires and rebuilding post-fire, incorporating the latest best practices.

In a keynote presentation at Fire Australia 2019, Mr Strong will look at how Grenfell has put fire safety back on the global agenda, and he will take part in a panel discussion on how relevant fire safety is in driving and addressing built environmental trends.



Keynote speaker:
Lorraine Carli
National Fire Protection Association (US)

The National Fire Protection Association's (NFPA's) Lorraine Carli is the president of the US-based Home Fire Sprinkler Coalition, which provides advocacy and education for residential sprinklers in the US. As Australia's own Home Fire Sprinkler Coalition gets underway in the wake of NCC 2019's new residential sprinkler requirements, Ms Carli will provide a keynote presentation sharing the US experience in community education around home sprinklers, and what Australia can learn to help kickstart a major improvement in fire safety outcomes.

also include, for the first time, four offsite visits. These visits offer delegates exclusive access to class-leading fire protection installations and testing facilities around Melbourne. Tickets for offsite visits are strictly limited, so conference delegates need to book early.

The Fire Australia 2019 tradeshow will feature more than 60 exhibitors, and provide attendees the opportunity to explore the latest fire protection technologies and innovations. In another first, this year the tradeshow floor will feature live demonstrations from exhibitors at a dedicated stage, giving attendees the chance to see the latest products and solutions in action.

There will also be a free dedicated program for specific segments of the industry, including technicians and end users, consisting of a range of short presentations, demonstrations and panel discussions.

On day two, Fire Australia 2019 will also hold the Fiona Wood Foundation Charity Dinner on the second day. This annual event raises money for FPA Australia's Official Charity Partner, the Fiona Wood Foundation, an independent not-for-profit organisation that exists to reduce the physical, psychological and social devastation caused by burn injury. Fire Australia delegates donated \$25,500 to the foundation at the 2018 Charity Dinner. ■



Keynote speaker:
Sean DeCrane
Underwriters Laboratories (US)

Sean DeCrane is deeply involved with fire research in the US at Underwriters Laboratories (UL) and the National Institute of Standards and Technology. He served more than 25 years with the Cleveland Division of Fire, retiring as a Battalion Chief.

At Fire Australia 2019, Mr DeCrane will present new science on modern fire characteristics and UL changes to smoke alarms. He will also take part in a panel discussion on what innovative solutions the fire protection industry needs to develop to keep pace with modern fire safety risks.

The Fire Australia 2019 tradeshow will feature more than 60 exhibitors, and provide attendees the opportunity to explore the latest fire protection technologies and innovations.

OFFSITE VISITS



**Offsite visit:
MCEC fire protection systems**

Delegates are able to book for an exclusive tour of the state-of-the-art fire protection systems at the new Melbourne Convention and Exhibition Centre expansion, where Fire Australia 2019 is being held.



**Offsite visit:
(Left) Warringtonfire Melbourne test laboratory**

Fire Australia 2019 conference delegates will be able to visit Warringtonfire's world-class Melbourne test laboratory in Dandenong. The visit will include a live burn to demonstrate full-scale façade testing under AS 5113, as well as a presentation and tour around the facility.

**Offsite visit:
Crown Melbourne fire protection systems**

Fire Australia 2019 is offering an exclusive visit to Crown Melbourne to learn about its fire protection system, which protects the largest casino complex in the Southern Hemisphere and is located on the banks of Melbourne's Yarra River in Southbank.

**Offsite visit:
CSIRO test facility**

Delegates are able to book for a tour of CSIRO's Fire System Laboratory in Clayton, which offers comprehensive, full-scale fire testing services to the industry.

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With over 40 years' experience in helping our customers achieve regulatory compliance, enabling market access for new products and systems globally, our strong and committed track record continues to position us as a world leader in fire safety services.

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Fire Australia Conference & Tradeshow
Stand 102 | 14 - 16 May 2019

FIRE AUSTRALIA 2019

EXHIBITOR PROFILES



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Ampac Technologies
Booth 204

Ampac Technologies is the largest independent solutions provider for global innovative solutions in fire detection and alarm systems, recognised for outstanding customer service and revolutionary products. Ampac Fire Safety provides world-leading innovative products for the fire protection industry and offers a one-stop solution in life safety systems—water, mechanical and extinguishers.

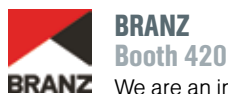
International
AkzoNobel's International
Booth 222

AkzoNobel's International brand is the world leader in marine, yacht and protective coatings. As a long-standing brand synonymous with innovation and collaboration, it is the preferred choice of industry leaders looking for excellence and expertise. We deliver anti-corrosive and fire protection, fouling control technologies and aesthetic solutions for on and offshore. Supported by high quality customer service and in-field support around the globe, our technologically advanced International product range strives to satisfy our customers' needs now and in the future. International—propelled by curiosity.



Alan Wilson Insurance Brokers
Booth 110

Alan Wilson Insurance Brokers works to provide the best insurance protection in the fire protection industry. We've been designing insurance policies specifically for the fire protection industry since 2004—and we cover more fire industry occupations than anyone else. Say hello at stand 110. We really do work for you.



We are an independent research organisation providing impartial evidence-based advice to industry and government on critical issues in building and construction in New Zealand. We provide testing and construction services that drive better performance. We undertake and invest in research by BRANZ science teams and external research agencies to unlock new knowledge, addressing current and emerging challenges of our built environment.



Brooks
Booth 312
Having specialised in fire detection for

over 40 years, our manufacturing and engineering capability ensures that Brooks Australia is uniquely positioned to offer an extensive range of fire detection products across the Australian market. This capacity is guaranteed when coupled with the highest quality supply partners globally, providing comprehensive solutions in both the domestic and commercial areas and allowing seamless integration for our clients and their projects.



BSI
Booth 416

BSI provides accredited testing and product certification for a wide range of fire, building and safety products that have passed performance tests, quality reviews and production audits in order to meet local, national or international standards relevant to a particular market or product set.



BSRA
Booth 311

BSRA is a niche recruitment company servicing the commercial construction and building services industry nationally since 2006. Well connected within



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FIRE PROTECTION MAINTENANCE SOFTWARE

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Talk to us and find out how easy your life can become with FireMate!

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PHOTO: FPA AUSTRALIA

the fire industry, we're trusted by our clients to source quality professionals.



CSD
Booth 308

CSD has partnered with the world's leading security brands to offer customers the best solutions for any projects that involve fire, access control, CCTV, alarms or monitoring. We have eight branches across Australia, including showrooms in Sydney, Melbourne, Brisbane, Perth, Adelaide and the ACT, and a national distribution centre in Tullamarine, Victoria.



Dietzel Univolt and Conduit Connection
Booth 212

Conduit Connection is the proud supplier of Dietzel Univolt HFT conduit and accessories from 16 to 63 millimetres, including large junction boxes, cable ties and glands. Our products are currently being installed on M5, M4, NorthConnex, Norwest Rapid Transit and various railway projects in NSW. Huge stocks are kept in our Sydney warehouse.



DIS Fire Systems
Booth 430

DIS Fire Systems are an independent, national, Australian-owned company specialising in all special hazard applications. Gaseous suppression systems, foam systems, water mist suppression, wet chemical, marine,

vehicle suppression and in-cabinet systems form part of the equipment supply, as well as fire engineering, design, commissioning and fan testing.



EBSA is the Australian partner for D+H Mechatronic (window automation), Lamilux (operable glass roof lights) and Schneider Louvres (glass and aluminium). With offices in Brisbane, Sydney and Melbourne, we provide a full turnkey solution for smoke control and natural ventilation systems and have a vast number of reference projects nationwide.



Fire Protection Technologies
Booth 302

Fire Protection Technologies is recognised throughout Australia, New Zealand and Australasia as the leading independent supplier of special hazard products, technical and engineering services. Every day our equipment is actively protecting people, property and critical assets from the hazards of fire and explosion.



Firebox Australia
Booth 214

Firebox is a manufacturer and wholesale distributor of fire protection products and prides itself on quality and service. The mission of Firebox Australia is supporting the fire industry.



FireMate Software
Booth 412

FireMate is a purpose-built fire protection maintenance software package that is specifically designed around the requirements of AS 1851, BFSR/MP6.1 and the Building Code of Australia. Delivering automatic compliance reporting, complete asset management, defect quoting, employee tracking and several other intelligent features, FireMate is the product of choice for the fire protection industry.



FireSense
Booth 210

FireSense is a 100% Australian-owned and operated company specialising in the design, supply, manufacture and support of fire detection systems and fire-rated alarm cables to installation companies, fire contractors and wholesalers. Our highly experienced staff ensure FireSense delivers impeccable technical solutions, after-sales support and expertise to its customers for all new and existing commercial properties.



Fireworld
Booth 108

MR Distribution is a local, Melbourne-based fire and safety product supply company. We have been supplying products to Victoria for over 12 years. MR Distribution has earned a reputation for supplying quality products and first-class service. MR Distributions distributes the Presto Fire Extinguisher range and associated products. We have a wealth of experience and a wide range of products to support your business. We are located on booth 108.



FIREX
Booth 316

FIREX is an independently owned company and a leading wholesaler of fire protection equipment. In support of the fire protection industry FIREX now provides access to stock when you want it, where you want it, 24/7, 365, in the form of self service distribution units. Now open in Port Melbourne.

FlameStop
FlameStop Australia
Booth 206

FlameStop Australia supplies the largest range of fire equipment to Australia's fire industry. In 2019, FlameStop has expanded its core range of products that is now available at all distribution centres nationally. Through local employment and product category experts, FlameStop understands the supply needs of your business.



FRS
Booth 128

FRS specialises in passive fire and fire and smoke doors. We have a large knowledge base in these areas.



Hills
Booth 404

Hills is Australia's leading technology provider across security and surveillance, access control, CCTV, IT

and fire. By tightly integrating related technologies, we can help you stay ahead of the innovation curve, and provide turnkey solutions for residential, SMB and enterprise. Hills truly is a one-stop shop for building technologies.



Hilti
Booth 213

At Hilti we make and design leading-edge technology, software and services, which power the professional construction industry. We're global, based in over 120 countries with more than 23,000 employees. Every day our technologies support awe-inspiring feats of engineering around the world. We offer a 360-degree service for your build—from software for design, products and tools for work onsite to training, repairs, testing and consultancy. We're a one-stop shop for building, worldwide.



Hochiki
Booth 104

Established early in the 20th century, Hochiki is one of the world's leading

manufacturers of commercial and industrial fire detection and emergency lighting solutions. Hochiki is an independent, multi-national, publicly listed company with over 1,700 employees across five manufacturing plants, 31 sales offices and 18 subsidiaries.



Hydro-Tech and Lawell
Booth 120

Hydro-Tech and Lawell provide a range of fire industry products and services. Hydro-Tech specialises in hydrostatic testing of cylinders and is committed to the highest level of professionalism. Lawell supplies a wide range of lighting, including exit and emergency lights. Lawell prides itself on the quality and reliability of its lighting products.



Ignis Labs
Booth 428

Ignis is an Australian-owned and fully independent organisation and provides testing and engineering services to

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Email: admin@lukealexander.com.au
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LUKE ALEXANDER manufactures fire suppression solutions designed to protect critical assets and satisfy a broad range of customer needs.

Products include UL LISTED and FM APPROVED Clean Agent Fire Suppression Systems:

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PHOTOS: FPA AUSTRALIA



JINTIAN FIRE
Ningbo Jintian Fire Fighting Industrial Co Ltd
Booth 100

Ningbo Jintian Fire Fighting Industrial Co Ltd focuses mainly on casting, die casting, machining and supplying hose reels and cabinets; couplings and nozzles; breeching inlets and saimese; hydrants and landing valves; and foam inductors and monitors.

permax
 Integrated Solutions For The Built Environment
Permax
Booth 202

Permax (previously Nullifire Australia) comprises a group of specialist technical sales personnel, integrated with a team of qualified engineers, providing structural steel fire protection solutions for the Australian construction industry. We have been supplying the Nullifire brand intumescent coatings products for structural steel fire protection in Australia for over a decade. Our primary focus is to provide architects, engineers and other industry professionals with the highest level of technical support and to supply the building industry with the world's leading technologies in fire protection systems.

PERTRONIC
Pertronic Industries
Booth 112

Pertronic Industries is an Australasian manufacturer of automatic fire systems. Pertronic systems are widely used in facilities throughout Australia including in hospitals, transportation infrastructure, hotels and shopping malls. The Pertronic display highlights the high performance AS 7240 compliant Pertronic F220 and the Net2 Networked Fire Detection and Alarm System.

the manufacturing, building and construction industries. We specialise in building code consulting, fire strategy, risk assessment and fire audits, performance-based design, wet and dry design and building façade assessments and testing.

ISUPPLY
Isupply
Booth 418

Isupply is a leading supplier of specialised fire products such as hose reels, landing valves and so on. The business is situated in Melbourne and supplies products throughout Australia and New Zealand. We have 20 years' experience in the fire protection industry, and we supply quality fire products throughout the world for some famous customers.

Johnson Controls
Johnson Controls
Booth 300

Johnson Controls brings innovative technologies to protect data centres at Fire Australia 2019—from fire detection, fire control and system components to fire suppression. We will be showcasing a broad range of new, industry-focused products to support the unique needs of data centres. Come visit us at booth 300.



Kent Smoke and Fire Curtains
Booth 406

Kent Smoke and Fire Curtains is a British-owned firm, which was established as the sole manufacturer of smoke and fire curtains in the heart of the Middle East. With our manufacturing facility in Dubai, we are one of the few facilities across the globe producing smoke and fire curtains with passion and expertise.



Luke Alexander
Booth 434

Luke Alexander is a premier fire suppression corporation. We manufacture 16 different cylinder sizes ranging from three to 1,200 pounds, stainless steel valves and full component accessories that are UL listed. We also manufacture our own clean agents, LUKE5112 and LUKE227, which are UL listed, FM approved and EPA SNAP listed.



Ningbo Huacheng Valve Co Ltd
Booth 314

We are a Chinese manufacturer for brass and bronze valves, fittings and OEM products. We have a gas safety licence for brass gas ball valve, and a WaterMark licence for TMV, DR ball valve, DR gate vane, DR hose cock, bronze landing valve and so on.



PlanGrid
Booth 320

PlanGrid, recently acquired by Autodesk, is construction productivity software used on more than 1.5 million projects around the world. It allows teams to collaborate effectively with access to an intelligent record set on any device, streamlining construction, turnover and operations. For more information and a free trial, visit us at booth 320.

REPIPE

Pipe, Connections & Valves
Connecting Australia

Repipe Group
Booth 114

Repipe Group is a leading Australian-owned and operated distributor of piping, valving, fittings and piping machinery, providing products and solutions to the fire, water, mining, irrigation and general industries for over 40 years. The Repipe Group provides an assembly workshop, testing, pipe fabrication and processing, sheet metal and project management services.



Securiton AG
Booth 116

Securiton AG belongs to the Swiss Securitas Group and has been entirely at the service of technical security since its founding in 1948. Securiton develops and manufactures a large range of different fire detection systems to fulfil customer needs in a broad range of areas, from commercial buildings, to industry, telecommunication, utility stations, tunnels and others.



Shanghai Vision Mechanical Joint Co Ltd
Booth 313

Shanghai Vision was established in 1999 as a leader and innovator in piping systems. We have an R&D centre in Shanghai, and continuously develop new products and provide new services for our customers upon their request. Since 2003 we have obtained UL, FM and CE approvals, and our products are exported to more than 60 countries including the US, Canada, Germany, France, Australia, the Middle East and others. We are eager to work together with you. Together, we are stronger.



SHIELD Engineering Group
Booth 208

SHIELD Engineering Group Pty Ltd is located in Sydney, NSW with a 3,000-square-metre facility in Wetherill Park. We represent NAFFCO GROUP, which is the world's leading manufacturer and supplier of top-tier firefighting equipment, flow control products, smoke management systems, fire protection systems, fire alarms, security and safety engineering systems. Our products are certified and accredited by most international approvals such as UL, FM, LPCB, ActivGire, Global-Mark and WaterMark. We are passionate about sustaining, upgrading and improving any means of safety following all the latest technology available.



simPRO
Booth 220

simPRO provides business management cloud solutions for the trade contracting industries. simPRO streamlines field service management, reduces paperwork, refines office processes, increases profit and enables more business growth. As it



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Simple, powerful construction software that GCs, subs, and owners love to use.

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is cloud-based it can be used anywhere, anytime to help improve business productivity and efficiency.



**Smoke Control
Booth 426**

Smoke Control is an industry-leading expert in smoke and fire curtains, fire-rated glazing, fire shutters, smoke and fire baffles, and smoke and heat ventilation. The development of performance-based building codes in Australia and New Zealand has seen the rise in demand for easily certifiable fire and smoke protection systems.



**Snap Collars
Booth 122**

Snap Collars is a leading international designer of fast-closing fire collar technologies. Snap has developed a trusted brand based on innovation, reliability and transparency. Snap manufactures in Australia under ISO 9001 and Audited Factory Controlled processes, guaranteeing quality and consistency. Snap should be the cornerstone of any passive fire strategy.



**Solberg
Booth 424**

Solberg is your one-stop resource for firefighting foam concentrates and custom-designed foam suppression systems hardware. Part of Perimeter Solutions, Solberg offers an extensive line of sustainable, environment-friendly firefighting foam concentrates for Class A and B fuel fires. Solberg Foam Suppression Systems Hardware is engineered by a team with over 225 years of combined in-the-field fire protection experience.



**SPEEDPANEL
Booth 318**

SPEEDPANEL develops and manufactures cutting edge lightweight, fire-rated and acoustic wall systems. SPEEDPANEL systems are highly versatile as shown throughout the commercial, industrial and multi-residential building sectors. Our continuous dedication to simulating real life scenarios when testing in NATA-approved laboratories ensures that performance is always achieved onsite.

SPEEDPANEL is an asset to the critical path of any project as its ability to be installed quickly by non-specialised trades people (even in inclement weather) adds up to big cost savings! SPEEDPANEL—safe and sound.



**Suzhou HLC Plastics Industry Co
Booth 126**

Suzhou HLC Plastics Industry Co Ltd is an enterprise integrated with R&D, production and sales of various high-quality products, which is developed from the earliest Taiwan-owned CSJ Plastics Industry (Suzhou) Co Ltd. We're the high-tech enterprise of Jiangsu Province, at the Engineering and Technology Research Center Enterprise of Suzhou City, with over 10 products awarded national patent. We supply OEM service and accessories for internationally well-known companies for the past 30 years. With our continuous efforts, we are always committed to providing the most reliable products. We make products of integrity and quality.

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A full range of specification and technical services can be provided by our team of Engineers to Architects, Construction Companies, Engineers, Certifiers and Contractors Australia wide. We are able to assist you at any stage of your project with regards to structural steel fire protection requirements.

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STRUCTURAL STEEL
FIRE PROTECTION

PHOTO: FPA AUSTRALIA



**The Tank Inspectors
Booth 410**

The Tank Inspectors are specialists in water tank inspections and cleaning using remote operated vehicles. Our team of tank experts provides an independent assessment and makes maintenance recommendations to ensure compliance with AS1851-2012. Using technology, we reduce OH&S risks by removing the need for personnel to enter water tanks.



**TBA Firefly
Booth 130**

TBA Textiles Pty Ltd, trading as TBA Protective Technologies, is the Australian branch of TBA Textiles Ltd, one of the world's leading developers, manufacturers and suppliers of protective technologies and textiles, established in the UK in 1875 and in Australia in 1960. TBA Firefly is our passive fire protection range, for which we have carried out a comprehensive testing program to the latest Australian Standard: AS 1530.4-2005. We have also passed the new AS 5113 façade test four times, achieving an EW Classification with four different façade systems.

COMPLETE FIRE PROTECTION SOLUTIONS UNDER ONE ROOF

SHIELD Engineering Group Pty Ltd located in Sydney, NSW with 3,000 SQ facility in Wetherill park representing NAFFCO GROUP who are the world's leading manufacturers and suppliers of fire protection products which are certified and accredited by most of international approvals such as UL, FM, LPCB, ACTIVFIRE, GLOBAL MARK, WATER MARK, CE, FC.



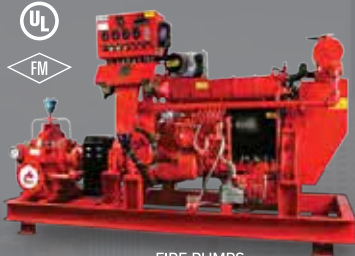
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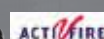
FIRE FIGHTING EQUIPMENT



FIRE PUMPS



HDPE PIPES & FITTINGS



STEEL PIPES & FITTINGS



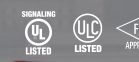
FOAM BASED EXTINGUISHING SYSTEM



A WIDE RANGE OF FIRE FIGHTING & RESCUE VEHICLES



SMOKE MANAGEMENT SYSTEM

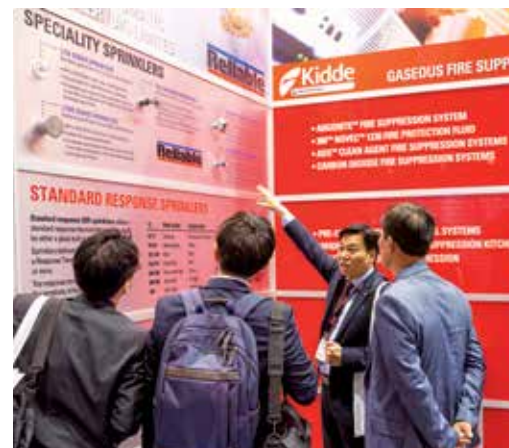


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PHOTOS: FFA AUSTRALIA



**UL
Booth 432**

UL fosters safe living and working conditions for people everywhere through the application of science to solve safety, security and sustainability challenges. The UL Mark engenders trust, enabling the safe adoption of innovative new products and technologies. Everyone at UL shares a passion to make the world a safer place. We test, inspect, audit, certify, validate, verify, advise and train, and we support these efforts with software solutions for safety and sustainability. To learn more about us, visit us at booth 432.



**Victaulic
Booth 400**

As the world's leading producer of grooved mechanical pipe-joining systems, Victaulic works collaboratively with its customers and affiliates worldwide to deliver innovative solutions across its core business areas. Its products and services put people to work faster while increasing safety, ensuring reliability and maximising efficiency and sustainability.



**Viking
Booth 118**

Viking is a global leader in the manufacture and distribution of innovative fire protection and life safety systems. For over 90 years the company's products and services have protected lives and property worldwide from the devastating effects of fire. For more information on Viking's innovative solutions, visit us at booth 118.



**Warringtonfire Australia
Booth 102**

Warringtonfire Australia is the market leader in fire safety consultancy services and NATA accredited fire testing to meet Australian and international standards. We conduct reaction to fire testing and fire resistance testing, as well as fire safety engineering and assessments. Come along to booth 102 to speak with our professionals.



**WBS Technology
Booth 422**

WBS Technology is an Australian-owned manufacturing business with a strong reputation for quality and innovation in LED emergency and exit lighting. Designed by fire electricians for fire electricians and backed by an industry-leading warranty, WBS Technology supplies Australia wide from its offices in Melbourne and Sydney.



**Weifang 100Tong Casting Co Ltd
Booth 402**

Weifang 100Tong Casting Co Ltd has been specialising in grooved couplings and fittings for more than 15 years. Our products have been approved by the likes of FM, UL and CE. With Danish DISA moulding lines, US INductotherm furnaces and the INductotherm pouring system, high quality and timely delivery will be guaranteed. ■

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**See bulletin 033 for F1RES LL series sprinklers
See bulletin 006 for RFC series sprinklers**



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Find us at Fire Australia 2019 Stand 408





LEARNING FROM HISTORY

The devastating bushfires of the past provide valuable lessons for preparing for the fires of the future. The next time we have a summer scorcher, ask yourself: what have you learnt since Black Saturday?

BY **DR RICHARD THORNTON**

Bushfire and Natural Hazards CRC

This year, 7 February 2019 marked the tenth anniversary of the devastating Black Saturday bushfires that struck Victoria, killing 173 people and damaging thousands of homes and businesses. What was a calamitous day for many is now viewed as a watershed in the way such emergencies are handled, not only in Australia but also around the world. The Bushfire and Natural Hazards CRC extends its deepest condolences to all those communities impacted by these fires.

In 2009 there was widespread disbelief at how such a major catastrophe could have hit Victoria, when it was arguably one of the leading states for bushfire community engagement and safety. The Country Fire Authority Community Fireguard program was seen as best practice for this, and the Australian model of 'Stay or Go', as it had been dubbed, was showcased and had started to take

a foothold in parts of the US. Black Saturday put a serious halt to all that, and wide-reaching community pain and hurt was felt throughout Australia. But the extraordinary thing about this summer day that turned bad was that it was inevitable—and it could happen again.

So, valid questions for 2019 include: what has changed since this devastating day and the lead up to it? What do we know now that we didn't then? How has the extensive research changed our approach? And what role does personal behaviour play in survival? In short, the changes have been comprehensive—in policy, operations and community engagement, and in the way we have invested in learning.

What has changed?

Firstly, changes to the Victorian fire services now make it very clear who is accountable. The position of the Fire Services Commissioner was created and has since broadened in scope to be the Emergency Management Commissioner. This was not simply a

change in titles but was a fundamental shift in the approach to critical decision-making in complex and highly stressful situations.

Secondly, community information and warnings are now significantly different in both content and tone to ensure that they are heard and, importantly, acted upon. Immediately following the fires, Bushfire CRC researchers surveyed several thousand community members to understand what they did and didn't do, and why. It was a revelation to fire agencies to learn that many people neither heard nor understood their fire warnings and information. Our research identified something in the psyche of many people under threat of fire—either actual or potential—that makes them process that information in unexpected ways. Despite the stated intention to either 'Stay or Go', many people did not do this, for various reasons, or misunderstood what it meant to either stay or go.

Fire agencies across the country have learnt from this and have adopted stronger and more specific community

messaging, which has undoubtedly resulted in a reduction in loss of life during subsequent bushfires. This has been a long and difficult task, and the role of research has been not just to identify the limitations of current warnings and emergency information, but also to help construct a new language that has impact. These insights into human behaviour have been supplemented through surveys conducted by CRC researchers following major bushfires across Australia over the last decade.

Thirdly, the extensive investment in science has led to a better understanding of the fire behaviour that occurred on Black Saturday—how fire moves across different types of land and how fire interacts with the atmosphere to create its own weather. These new insights are embedded in training packages for fire behaviour analysts to provide more accurate warnings to the community. We now have fire simulation tools used routinely in control rooms throughout the country. The residents of Gracemere, Queensland, were recent beneficiaries of these simulations in November last year as the predicted path of a fast-moving fire placed them in great potential danger. Specific warnings were enacted, firefighting resources were redirected, and the safety of the town and its residents was ensured. These tools did not exist in control centres in 2009 and would not have existed without the boost in research efforts after the 2009 fires.

Finally, following the extensive examination of the houses that were lost and, equally importantly, those that survived, CRC researchers provided expert advice on building standards to ensure that new buildings are safer and more likely to survive and therefore to provide resident protection during bushfires.

Future fires

What remains is the troubling thought that even with all these major changes to community engagement, fire agency operations, decision support tools, building codes and weather and fire behaviour forecasts, days like 7 February 2009 are not just likely to occur again, they remain inevitable. Because of the ferocity of fires like this, we risk falling back into the blame culture and demanding: why didn't someone do something about this?

However, if Black Saturday taught us anything, it is that on these days our fire agencies will not stop these fires any more than they can stop a cyclone. What we can do is ensure that communities,

If Black Saturday taught us anything, it is that on these days our fire agencies will not stop these fires any more than they can stop a cyclone. What we can do is ensure that communities, businesses and governments are resilient to such disasters. It is clear we still need to have a stronger focus on mitigation.

businesses and governments are resilient to such disasters. It is clear we still need to have a stronger investment focus on mitigation, and we need to be clear that this is mainly about mitigating the impact of the hazard, not the hazard itself. We need to be investing in the reduction of hazardous vegetation in regional areas as well as on the urban fringe, especially around the places we live and work. Training and resourcing our agencies, and further research, can provide the ongoing evidence for the development of policies and practice to deal with the increasingly hotter and drier climate.

We need to know more about how fires perform in various types of vegetation under extreme weather conditions. We need to understand how the raised temperatures and reduced rainfall expected under climate change affect fire weather and how it will change vegetation and flammability across

the country, and how communities, government and businesses need to adapt to ensure they are as protected as possible against those impacts. There is still a lot of work to do in understanding how communities understand and interpret risk, and how that perception can be changed.

At the time, Black Saturday conditions were beyond the imagination of many of us. But they will happen again, as they had happened in the past with the 1939 Black Friday bushfires and Ash Wednesday in 1983. What does the next bushfire that is beyond our imagination look like? What will its impacts be? We will be more resilient because of what we have learnt from the past, but we also need to be ready for the unexpected. To paraphrase the Special Investigator of the 2016 Yarloop fires in Western Australia, we need to be planning to fight the next big fire, not the one we have just fought. ■

Research after the Black Saturday bushfires has led to stronger building standards for houses in bushfire-prone areas.



PHOTO: DAVID BRUCE, BUSHFIRE AND NATURAL HAZARDS CRC



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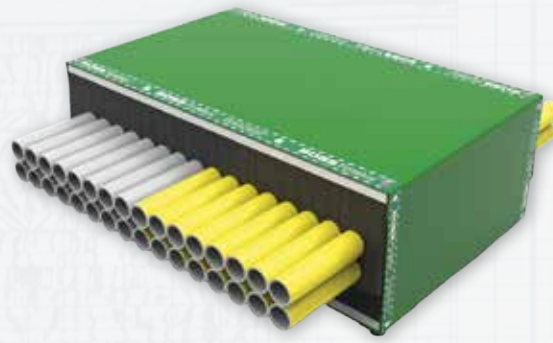


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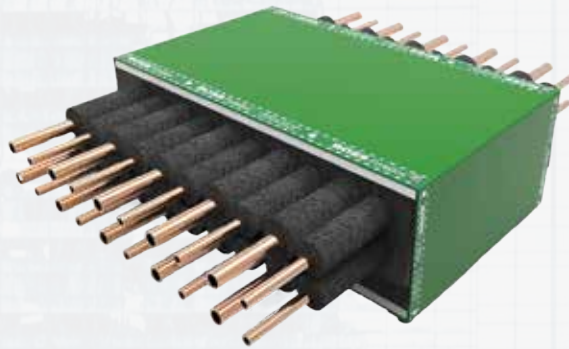
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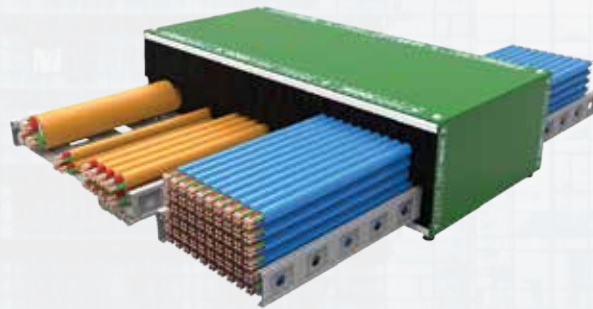
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EXPERTS TAKE TO AFAC19 STAGE

AFAC19 powered by INTERSCHUTZ will showcase leading research and thinking to help guide the future of emergency management.

BY **ALANA BEITZ**

AFAC

On 27–30 August 2019, the emergency management community will come together at the Melbourne Convention and Exhibition Centre to discuss the latest developments in the sector. Preceded

by the Bushfire and Natural Hazards CRC Research Forum, the AFAC19 keynote speakers will be a shared plenary with the Australian Disaster Resilience Conference and the Institution of Fire Engineers National Conference delegates. A number of keynote speakers have been secured, with more due to be announced closer to the event.



PHOTO: UNSW

Andy Pitman.

Professor Andy Pitman (Research Forum)

As the Director of the Australian Research Council Centre of Excellence for Climate Extremes, Professor Andy Pitman will bring years of atmospheric science, geology and climate knowledge to the conference program. Prof Pitman has both national and international research experience focusing on the terrestrial processes in global and regional climate modelling, model evaluation and earth systems approaches to understanding climate change.

As lead author for the Intergovernmental Panel on Climate Change (IPCC) Assessment Reports 3 and 4, Prof Pitman contributed to the award of the Nobel Peace Prize to the IPCC in 2007. Prof Pitman has had close involvement with many climate science committees and programs, including his appointment to the Prime Minister's Science, Engineering and Innovation Council on Regional Climate Change.

Prof Pitman has published more than 150 papers in peer-reviewed journals and has authored 20 book chapters. Drawing on this rich research history, he will open the first day of AFAC19 by discussing the link between climate extremes and natural hazards—one of the greatest modern challenges of the emergency management sector—at the Bushfire and Natural Hazards CRC Research Forum on 27 August 2019.



Robert Glasser.

Dr Robert Glasser

Dr Robert Glasser is a Visiting Fellow at the Australian Strategic Policy Institute (ASPI) and an Honorary Associate Professor at the Australian National University. He was previously the United Nations Special Representative of the Secretary General for Disaster Risk Reduction, Head of the United Nations Office of Disaster Risk Reduction (UNISDR) and a member of the Secretary General's Senior Management Group and the Deputy Secretary General's Climate Principals Group.

Dr Glasser has over 30 years of experience as a practitioner, advocate and policymaker in the areas of sustainable development, climate change and disaster risk. He was formerly the Secretary General of CARE International, Chief Executive of CARE Australia and Assistant Director General at the Australian Agency for International Development.

He was previously a board member of the Global Call for Climate Action, Inaugural Board Chairman of the Core Humanitarian Standard' International Alliance and Chair of the Steering Committee for Humanitarian Response. Dr Glasser has published on several topics, including climate change, disaster risk, peace and conflict, and development policy.



Eliane Miles.

Eliane Miles

In her capacity as a social researcher, business strategist, demographer and trends analyst, Eliane Miles brings a research-based understanding of leadership, the future of work, workplace culture, communication and the engagement styles of future generations.

Her research provides a full 360-degree view of how demographic

shifts combine with social change, generational transitions and digital trends, and bridges the gap between the numbers and their real world application. In her AFAC19 keynote presentation, Ms Miles will explore how communities are shifting and communicate these trends to help guide the emergency management community to adapt to these changes.

Ms Miles is a regular media commentator whose research and synthesis create clarity from complexity. Her passion is finding the story in the data and giving practical insights that move organisations towards confident decision-making.



Lance O'Sullivan.

Dr Lance O'Sullivan

From a young boy labelled by society as a troublemaker, Dr Lance O'Sullivan developed into a passionate advocate for Maori health. Today, he is a pioneer for equal healthcare in his community and a champion for creating a fairer New Zealand.

In June 2012, Dr O'Sullivan made headlines when he left his former employer over a difference in patient philosophy. Disillusioned with a system that failed to deliver the care needed for his patients, he vowed to change the system for the better. Harnessing the skills acquired from his cultural heritage and medical training, Dr O'Sullivan has established a healthcare company committed to developing innovative ways to ensure appropriate and quality healthcare that can reach the right people in the right place at the right time.

Now an accomplished author, national and international speaker, role model and disruptive leader and innovator, Dr O'Sullivan will share his story during his keynote presentation at AFAC19. He will explore current changes in capabilities and apply the lessons from his own journey to inspire others to utilise their cultural heritage and address limitations or restrictions within the emergency management space. ■

To register for AFAC19 powered by INTERSCHUTZ and view the full program, visit: www.afaconference.com.au.



Lisa Gibbs.

Professor Lisa Gibbs (Research Forum)

A decade after the devastating impacts of the February 2009 bushfires in Victoria, the Beyond Bushfires: Community Resilience and Recovery study has been extended to explore the wellbeing of affected communities ten years after the event. The study is led by Professor Lisa Gibbs, Director of the Jack Brockhoff Child Health and Wellbeing Program at the University of Melbourne, and she will be a keynote speaker at the Bushfire and Natural Hazards CRC Research Forum at AFAC19.

The original research findings, published in 2016, have been widely used in Victoria, Australia and internationally. The study examines the impacts of the Black Saturday bushfires on community members' physical and mental health and wellbeing. The study also developed recommendations for individuals, families, governments and service providers.

Prof Gibbs leads a range of large, complex, community-based child and family health studies exploring sociocultural and environmental influences on health and wellbeing, with a particular focus on disaster research.



The fire detection, warning and electrical training room.

AGREEMENT SIGNED ON NEW FIRE ACADEMY

BY **TOM BICKNELL**

FPA Australia

FPA Australia and Fire and Rescue NSW (FRNSW) will collaborate on a new state-of-the-art training centre for the fire protection industry, which will open its doors in the second half of 2019.

The NSW Training Centre will be the first educational facility for FPA Australia's Fire Protection Training Academy (Fire Academy), the new name for the Association's expanding training activities.

The Fire Academy's NSW Training Centre will be sited on the grounds of the Fire and Rescue NSW Emergency Services Academy in Orchard Hills in western Sydney, as set down in a commercial agreement signed by

the two organisations in March.

The Emergency Services Academy opened in late 2018, and is the largest fire and emergency services training facility in Australia, covering seven hectares. The two academies will share training capabilities and equipment.

"FPA Australia is dedicated to ensuring the fire protection industry has access to the world-class training it needs to keep protecting the community," said FPA Australia's General Manager of Education and Bushfire Services, Chris Wyborn.

"The centre represents a significant expansion in capacity from our current NSW training facilities in Mascot, and we're proud to be working on making it a reality with Fire and Rescue NSW."

State-of-the-art facilities

When completed, the Fire Academy's NSW Training Centre will be one of the most advanced training facilities dedicated to fire protection in the world. It will feature custom-built training rooms as well as shared access with Emergency Services Academy facilities.

Spread across the Emergency Services Academy complex, the NSW Training Centre will comprise of four themed training rooms dedicated to specific fire protection systems and equipment. These include:

- ◆ a water-based fire suppression room capable of providing training on fire sprinkler systems, fire hydrant systems, fire hose reels and fire pump sets
- ◆ a fire detection, warning and electrical training room used to provide instruction on fire detection and alarm systems,

emergency warning systems and emergency and exit lighting systems

- ◆ a passive fire protection and smoke containment training facility, where participants will be able to interact with the full array of passive fire and smoke systems including fire and smoke doors, penetration protection products and a showcase of materials with different flammability and fire spread properties
- ◆ a special hazards training room with the ability to simulate the operation of several different types of special hazards fire suppression systems.

In addition to the themed rooms, there will be facilities to provide training on routine service of fire extinguishers, fire blankets and water storage tanks.

The facility will include a state-of-the-art, five-storey, live fire training tower that comprises multiple fire simulators installed to replicate a range of building types, rooms and facilities. The tower will include a fully functioning fire control centre; fire sprinkler and fire hydrant systems including boosters and pumps; and an emergency warning and intercommunication system.

Located within the tower will be a purpose-built room that will enable demonstrations of spray patterns for a range of typical sprinkler heads. This system will also enable simulation of a sprinkler system that is overwhelmed and will help train firefighters on correct techniques for maintaining effective sprinkler discharge performance. ■

More information on the new NSW Training Centre and the training available there will be released as the facility nears completion. For more information, visit the FPA Australia website.

The passive fire protection and smoke containment training facility.



The water-based fire suppression room.



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Satellite imagery of the 2018 Queensland bushfires.

SCIENCE EXPERTISE HELPS QUEENSLAND

With catastrophic fire conditions experienced for the first time in Queensland and multiple bushfires raging across the state in November 2018, CRC science was on hand to help combat the flames.

BY **GABRIEL ZITO**

Bushfire and Natural Hazards CRC

To say it was a busy summer in Queensland is probably an understatement. Bushfires, cyclones and floods—the sunshine state has had more than its fair share of natural hazards over the last six months. Cyclones and floods are pretty common, with Queenslanders more accustomed to dealing with the lashing winds, driving rains and rising waters than the threat of disastrous bushfires. But bushfires, and lots of them, was what faced Queensland in November and December 2018.

These fires, which occurred up and down the east coast, including tropical areas, were some of the worst Queensland has ever experienced. The ‘catastrophic’ fire danger rating was observed for the first time in the state, and with roughly 1,000 fires burning, the weather and fire conditions were simply unprecedented.

A heatwave affected Queensland’s north tropical and central coasts from 24 November. By November 26 it was

apparent that the event was very likely to persist and that the coming days would see an increase in fire danger. Queensland Fire and Emergency Services (QFES) Manager of Predictive Services Andrew Sturgess realised that he needed outside assistance to help manage the unprecedented bad fire weather.

“I wanted the best science, the best communicators—the best people we absolutely could get to assist us,” Mr Sturgess explained.

The next morning he got in touch with Dr Mika Peace, Bushfire and Natural Hazards CRC researcher and fire weather meteorologist at the Bureau of Meteorology in South Australia. By that night, Dr Peace was in Brisbane at the QFES control centre.

The uniqueness of the weather that Queensland experienced across such a broad area was what was causing concern.

“We normally get short sharp spike days; we don’t have prolonged fire weather. We hadn’t had prolonged fire weather events like we did that week,” Mr Sturgess said.

This was where Dr Peace was able to provide her expertise.

“The demand for information was absolutely huge for meteorology information—the embedded meteorologist was really providing the high-levelled synoptic scale, big-picture state-wide weather scenarios,” Dr Peace said.

Dr Peace worked alongside fire behaviour analysts from QFES by providing pivotal data and information, mapping out likely scenarios of bushfire spread and analysing pressure points throughout the state.

“What I was doing was really drilling down to the fire level and looking at individual fires and talking about how the weather over the Gulf of Carpentaria was likely to affect fire behaviour on individual fires,” Dr Peace said.

Dr Peace’s specialised knowledge on fire weather gave QFES expert insight, particularly around the potential for pyrocumulonimbus (bushfire thunderstorms) to form, which can profoundly change the way bushfires behave.

Using the PHOENIX bushfire spread

predictive model—initially developed by the University of Melbourne and the former Bushfire CRC—and working alongside QFES fire behaviour analysts, Dr Peace was able to input and map out likely scenarios of the thousands of fires across Queensland, analysing the ways in which they could potentially spread, providing a head start to QFES.

Dr Peace said that it is not just about understanding and being able to provide the weather information, but that it is more about seeing what the needs are of the emergency services and what their pressure points are so that the information provided can be tailored specifically to fit.

“A lot of research hasn’t formally made it into the operation decision process, but that doesn’t mean it can’t still be used during a major event. So much value can be added by having the knowledge available on the day.”

Campaign fires for Queensland

The late November and early December period saw Queensland experience a campaign fire scenario, a first for the state. A campaign fire is one of the two usual types of fire situations seen in Australia, Dr Peace explained.

“The two different scenarios that we see in bushfires in Australia is one where you’ve got single fire events—those are probably some of our worst fire events in history—and then the other ones that we’ve got is campaign fire events, where you’ve got multiple fires in the landscape and they just keep burning for days to weeks on end,” explained Dr Peace.

“And what Queensland really had was a prolonged event, but then with what you would call a peak day right in the middle of it. And on those peak days it’s

not just the fires that you have already got in the landscape, but the potential for new ignitions.

“A bad day in a campaign fire event is really one of the worsts scenarios,” Dr Peace said.

A wind change driven by a sweeping low pressure system led to the ‘catastrophic’ fire danger rating on 28 November, exacerbating the danger of the already-going blazes, but also providing the perfect weather conditions for more fires to break out.

The constantly varying wind conditions resulted in an actively changing fire front with potential for erratic smoke plume development to occur, driving extreme fire behaviour that further scattered embers and accelerated the rate at which the bushfires spread.

Value of science for emergency managers

“The researchers and science tell us there is much more to fire behaviour than just the surface conditions and how important that is,” Mr Sturgess said.

And it is making this link between practitioners, like Mr Sturgess, and researchers, like Dr Peace, that the CRC thrives on. Facilitating information and data and knowledge transfer is what it is all about. Research findings that make it into operations are vital for practitioners, Mr Sturgess explained.

“The CRC gets different groups of users in the same room, talking and interacting so that we understand what the decision process is and what the important parts are for the fire behaviour analysts.

“In predictive services we try to engage with the scientists. I see us as a

link between the science and operations.

“We talk to fire managers and firefighters directly and try to bring that science into operations to make it meaningful on the ground to support decision-makers.

“The importance of facilitating effective information to emergency personnel is such an essential part of the research at the CRC,” he said.

Dr Peace agrees that the value of the science, and in particular the CRC, provides practitioners with a greater depth of knowledge on which to base their decisions.

“It is an area that takes a long time to develop,” she explained. “It is not something that you can just teach people in a day or two at a training session because it is that multidisciplinary space and you need to understand the needs,” she said.

Dr Peace remarked on how the CRC put a lot of emphasis on networking and bringing people together.

“That’s how Andrew and I know each other and if it wasn’t for things like the CRC’s networking events then the conversations and the phone calls wouldn’t have happened.

“That’s the CRC bringing people together and understanding each other’s needs.”

Dr Peace’s help with the bushfires was recognised alongside others from Queensland who assisted with the bushfires with an invitation from the Queensland Premier, Annastacia Palaszczuk, to attend the Christmas Cabinet Reception. ■

Find out more about Dr Peace’s research at bnhrc.com.au/research/coupledfire.



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A SHOCK TO SAFETY: THE RISE OF SOLAR PANEL FIRES

PHOTO: FIRE AND RESCUE NSW



As the movement towards clean energy gains momentum and interest and the uptake of alternative energy sources grows across Australia, so too does a serious and unmitigated electrical safety risk for emergency service personnel.

BY **JIM FORAN**

PV Stop

Photovoltaic (PV) systems, commonly known as solar panels, are a growing challenge for the fire and emergency services. For personnel, this can be responding to a solar panel fire, attending to storm or flood damage or encountering a property that has a faulty or substandard solar system installed. Solar panels pose a serious risk to personnel safety due to their capacity to circulate electricity even when switched off.

Statistical evidence published by the Clean Energy Regulator warns that solar panels represent a serious national safety issue. This is supported by the increasing number of solar panel incidents reported by fire and emergency service agencies through the Australian Incident Reporting System.

Solar panel systems are emerging

as a new and growing incident category, yet current standard operating procedures still do not adequately address the increasingly obvious safety gaps. Fire and emergency service crews are likely to face solar panel incidents on a daily basis in the near future, but without adequate tools, procedures or training, dangerous scenarios may become more common and increasingly put lives at risk.

Sobering statistics

Solar panels have experienced a staggering 5,000% increase in Australia over the past ten years. Approximately 20% of Australian homes now have rooftop solar, and the ever-growing number of commercial, industrial and solar farm installations have seen the number of PV systems across the nation surpass two million.

In December 2018, Federal Energy Minister Angus Taylor made headlines

when he warned his state counterparts that lives are at risk from unsafe or substandard solar panel installations. Quoting figures produced by the Clean Energy Regulator, he stated that up to one quarter of all rooftop units inspected posed a severe or high risk. Extrapolated against the current number of two million national rooftop installations, this equates to potentially 500,000 unsafe or substandard installations across Australia.

The danger zone

The primary risks associated with solar panels are electric shock and electrocution. As long as solar panels are exposed to light, they will continue to produce potentially lethal amounts of direct current (DC) electricity, known within the industry as the 'DC danger zone'. This means anyone operating near a solar panel system during daylight hours is always engaging with



Table 1 The physiological impacts from 1000-volt DC current exposure

Physiological effect	DC threshold limit for adults (milliamps)
Mild shock reaction	2 mA
Lock on	40 mA
Electrical burns	70 mA
Ventricular fibrillation	240 mA

Even small domestic systems have the capacity to injure via electric shock and kill by electrocution. The physiological impacts from 1000-volt DC current exposure can be represented as shown above.

PHOTO: TACCA PLASTICS PTY LTD



Working amongst a damaged and live solar tile array is a potentially fatal exercise for fire and emergency service crews.

Hail damage to a solar panel array of a Moorebank, NSW factory sparked a significant roof fire at the property.

live electrical equipment.

To put the risk of solar panels into perspective, a domestic 240-volt AC power outlet is usually rated at ten amps and provides 2,400 watts of power. The average size of a residential solar PV installation is five kilowatts, usually configured in multiple strings of up to 600 volts per string. With up to ten amps available, the average residential solar PV array can produce up to 5,000 watts of power. Residential installations of up to ten kilowatts are now common, while commercial installations can be upward of several hundred kilowatts, and generation plants can exceed 100 megawatts or more.

Deadly mistakes

One of the challenges surrounding solar panel safety is the simple fact that the technology is relatively new and has grown so quickly. There are very few true experts in the field of solar safety

and authorities are only just starting to recognise the knowledge and safety gaps. As a result of this, emergency service personnel are at risk of making fatal errors on the job.

For example, the practice of 'tarping' damaged solar panels is extremely dangerous and operates in clear breach of standard operating procedures, which state that crews should assume the solar power system and surrounding area is live. Standard operating procedures mandate an exclusion zone of at least three metres be established around any damaged solar panel components, and the exclusion zone be increased to eight metres if the components are in contact with conductive materials.

The December 2018 Sydney hailstorms highlighted that this dangerous practice is still being utilised as agencies struggle to adapt and come to terms with responding to incidents involving solar panels. Tarping solar

panels is an outdated but persistent practice that is done with good intentions but is ultimately a dangerous solution.

Unanticipated risks: fire and ice

Following the same storm event in Sydney, a new and previously unanticipated risk was highlighted when hail damage to solar panels led to secondary fire incidents. One example was in the Sydney suburb of Moorebank, where a factory's roof top solar panel system had sustained heavy hail damage. Although power had been subsequently isolated, hot and sunny conditions returned and, three days later, the damaged panels began arcing and sparked a significant roof fire that put the entire factory at risk.

There are still many rooftops across Sydney with hail-damaged solar panels. Some owners remain oblivious to the fact that these systems present a significant ongoing fire risk until the

PHOTO: STEWARD O'REGAN



PHOTO: STEWARD O'REGAN



PHOTO: PVSTOP INTERNATIONAL PTY LTD

Above: Solar panels damaged by hail pose a safety risk to fire and emergency personnel.

Top: Tarping damaged solar panels is an outdated and dangerous practice.

Above: PV Stop is an environmentally friendly solution to eliminating electrocution risk from solar panels.

solar panels are disconnected and removed.

Toxic problem

Sandwiched between the protective glass, frame and back sheet of the solar panel, solar cells present no risk to health, but once a panel burns and the solar cells are exposed, the burning panels can be highly toxic and dangerous to humans. Solar cells contain the carcinogens cadmium telluride and gallium arsenide, as well as the potentially lethal phosphorous. Inhalation of these toxic nanoparticles cause silicosis of the lungs and should be treated with the same precautions as asbestos. Self-contained breathing apparatus (SCBA) should always be utilised in incidents involving burning solar panels.

The full scope of solar panel risk

With solar panels now installed on one in five buildings across the country it is important to consider the broader range of incidents involving structures and fire. For every incident initiating from a fault in the solar panel system, there are many more where the ignition cause is unrelated but where the fire may encroach upon the solar panel system and compromise safety. In these

scenarios, it is just as important to isolate the power from the solar panel system as it is to isolate mains power from the grid. Up until now this has proven problematic for firefighters, and in many cases defensive tactics have been employed because solar panel systems could not be easily or reliably isolated.

Solar solutions

There is currently a range of electro-mechanical solutions available on the market including isolation switches, micro-inverter systems and DC-optimising equipment, but all of these options operate downstream of the panels and do not isolate the power produced by the panel itself. An Australian innovation, PV Stop, has recently been developed and is now used as a reactive solution to safely isolate the power produced by solar PV systems. It acts as a liquid tarp that can be sprayed over solar panels to block light from hitting the panels, which isolates the power produced by the system in seconds and eliminates the risk of high voltage DC electrocution.

A critical consideration for fire and emergency services agencies when adopting a new product is the assurance that the product is safe for their personnel, the community

and the environment. PV Stop, which was awarded the FPA Australia's Innovative Product and Technology Award in 2018, was tested by the NSW Environment Protection Agency for harmful elements and has been deemed safe for the environment and personnel working in the vicinity of solar panels. This is just one example of the industry's step toward adapting to more environmentally friendly practices and products that do not limit our ability to embrace clean energy solutions.

Working toward a cleaner future

As technology continues to evolve at its current rapid rate, it is critical that safety innovations keep pace to ensure the fire and emergency services sector can maintain its commitments to emission reductions and environmental protections, without sacrificing the safety of personnel. Actions during the December 2018 hailstorms in Sydney show the sector needs to do more to adapt to emerging technologies and their associated risks, but proactive fire and emergency service agencies can continue to address these knowledge and resource gaps by seeking information, continually improving their practices and driving the development of innovative new safety technologies. ■



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THE MISSION TO PLACE SPRINKLERS IN AUSTRALIAN HOMES



The first steps have been made in a long-term mission to see the homes of all Australians protected by automatic fire sprinklers.

BY **TOM BICKNELL**

FPA Australia

The new sprinkler requirement is the most significant shift in fire safety policy since the introduction of mandatory smoke alarms in homes.

Following the announcement that the new National Construction Code (NCC) 2019 will include a requirement for medium-rise residential buildings to have fire sprinklers installed, the organisations behind the change are launching new initiatives to educate the industry and community.

NCC 2019 requires all new residential buildings four storeys and taller, and less than 25 metres in effective height, to have fire sprinklers installed under

the Deemed-to-Satisfy provisions. The new requirement also references the two new sprinkler system specifications designed by FPA Australia and industry partners—Technical Specifications FPAA 101D and FPAA 101H.

To help educate the fire protection industry on the new sprinkler systems and how they can be used to fulfil the NCC's new requirements, FPA Australia in collaboration with stakeholders from the Home Fire Sprinkler Coalition (HFSC) ran a seminar series around the country. The seminars looked at how the Technical Specifications differed

from existing sprinkler Standards and modifications to Deemed-to-Satisfy provisions when the new systems are used, and recommended routine service procedures.

More events will come focusing on the new sprinkler requirements and Technical Specifications, as well as new resources for industry and the community.

Residential sprinklers will also be covered at the upcoming Fire Australia Conference & Tradeshow 2019 (see page 12 for more). Neil Savery, CEO of the Australian Building Codes Board, will speak about what's new

PHOTO: TOM BICKNELL, FPA AUSTRALIA

TECHNICAL SPECIFICATIONS NOW AVAILABLE

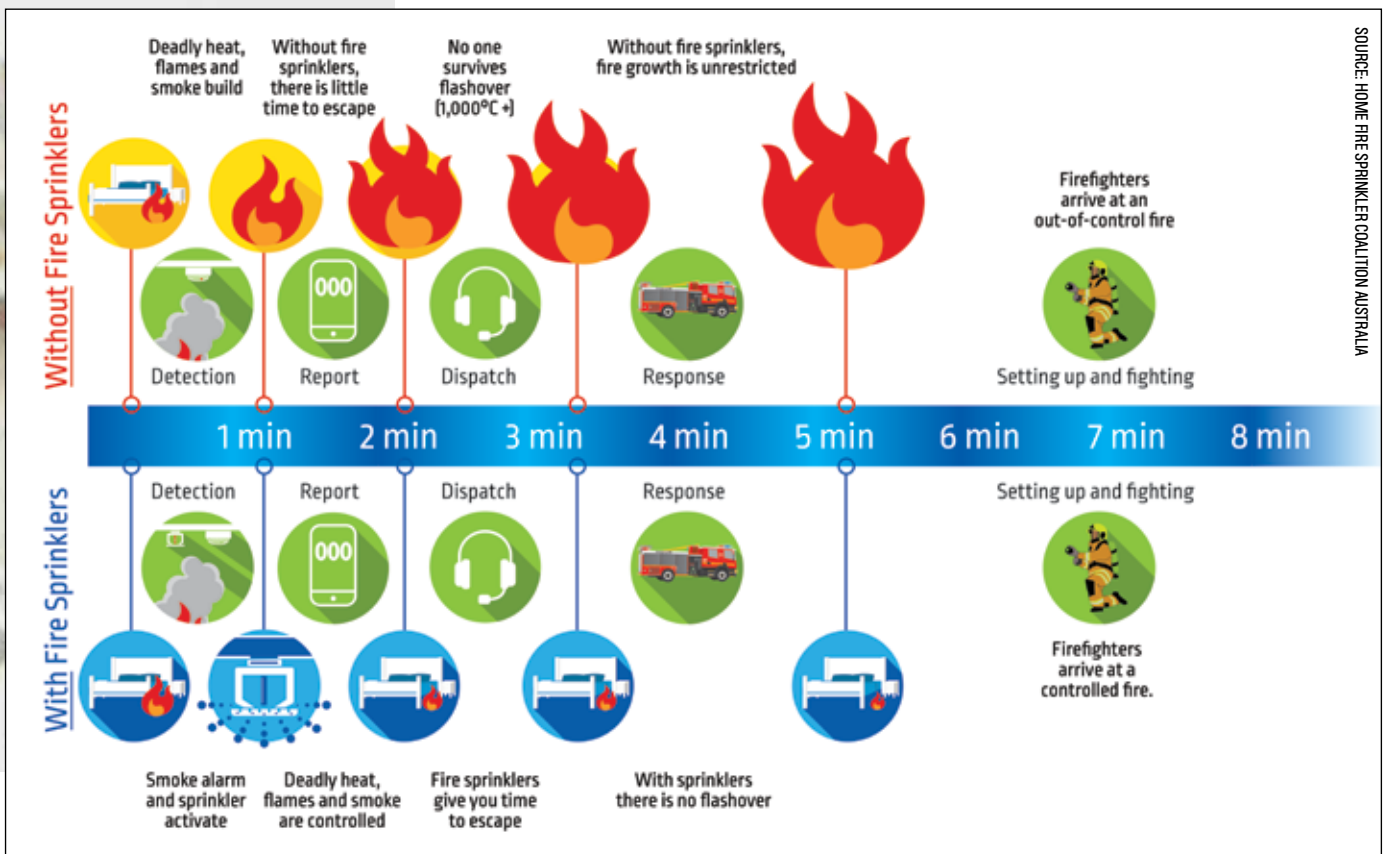
FPA Australia is pleased to announce the availability of the new residential sprinkler Technical Specifications, FPAA101D and FPAA101H.

The Technical Specifications are now referenced in NCC 2019 as part of the requirement for newly-built residential apartment buildings over three storeys and less than 25 metres to include sprinklers under the Deemed-to-Satisfy provisions.



PHOTO: TOM BICKNELL, FPA AUSTRALIA

Both Technical Specifications are now available for purchase through the FPA Australia sales centre.



SOURCE: HOME FIRE SPRINKLER COALITION AUSTRALIA

for fire protection in NCC 2019, while FPA Australia's Brett Dundules and Shae Mete will explore the design and installation requirements of FPAA101D and FPAA101H.

Home Fire Sprinkler Coalition

The proposal for change to include the residential sprinkler requirement in NCC 2019 was submitted by FPA Australia, AFAC and Fire and Rescue NSW. Those organisations have now come together under a new banner, the HFSC, to coordinate education of industry and community. The HFSC is

modelled on the US organisation of the same name and purpose. "The HFSC has been established to provide the public and industry with independent, non-commercial information about home fire sprinklers," said Matthew Wright, HFSC's Co-chair and FPA Australia's Deputy CEO/GM of Technical Services.

"The Coalition will be coordinating the development of educational materials about how residential sprinklers work, and the dramatic improvements to fire safety they can offer the community. One of our goals is to communicate that benefit and encourage the use of fire sprinklers even

outside the requirements of the NCC, particularly in Class 1 houses."

During its establishment, Australia's HFSC has worked closely with key stakeholders from the Home Fire Sprinkler Coalition in the US, which was established in 1997. At the upcoming Fire Australia Conference & Tradeshow 2019 in May, the US coalition's president Lorraine Carli will deliver a keynote presentation sharing the US experience in community education about home sprinklers. ■

The HFSC is developing educational materials for the industry and community.

Many emergency managers believe that more needs to be done to prepare for catastrophic disasters.



PLANNING FOR CATASTROPHE: AN ALL-HAZARDS, WHOLE-OF-COMMUNITY APPROACH

What do we need to be doing now to prepare for an emergency that is off the charts?

BY **ANDREW GISSING**

Risk Frontiers and the Bushfire and Natural Hazards CRC

Most emergency management efforts are focused on preparation for routine emergencies. But Bushfire and Natural Hazards CRC research, through Risk Frontiers, Macquarie University and the Australian Natural University, is going beyond the day-to-day to get Australia ready for catastrophic emergencies. What planning is needed? How do we collaborate with businesses and non-government organisations (NGOs)? How do we prioritise our capability needs? Such events are characterised by their large, multi-faceted impacts that can overwhelm the planning and capability of emergency services.

The research to date, which has involved interviews and a survey questionnaire, has explored the views and perceptions of Australian and international emergency managers regarding how best to prepare for the inevitability of a truly catastrophic disaster.

The research has highlighted the importance of clearly defining what is meant by a catastrophic disaster. Emergency managers appear to struggle in their conceptualisation of a catastrophe, being limited by the variety of different scenarios that can be imagined and the possible magnitude of their consequences.

Though many emergency managers agree that more needs to be done to prepare for catastrophic events, there are barriers to doing more. These include:

- ◆ confidence in the effectiveness of existing arrangements, capacity and capabilities
 - ◆ the relatively low probability of the occurrence of a catastrophe in Australia
 - ◆ that little can be done to effectively plan for a catastrophe
 - ◆ a response-orientated culture in which planning is undervalued
 - ◆ a belief that emergency managers are not expected to plan for catastrophes.
- It is unrealistic to resource the emergency management sector for truly catastrophic events due to the constraints of cost and relative benefit. More is needed than just simply scaling up existing emergency management arrangements. Different thinking is required.

In planning for catastrophe, it is necessary to consider how existing capabilities will be supplemented and how existing services may be delivered differently to cope with overwhelming increases in demand. Emergency managers, however, tend to be inwardly focused towards government organisations when considering plans and capability.

The research questions the efficacy of the traditional inwardly focused all-hazards, all-agencies approach, and instead proposes consideration of an all-hazards, nationwide whole-of-community approach.

Such an approach would see the emergency management sector embrace a greater number of collaborations across businesses, NGOs and communities, moving beyond a government-centric model.

Emphasis must be placed on the importance of arrangements that could enable rapid expansion of capabilities

both nationally and internationally. One interviewee described this approach:

The people who are running emergency management are like a conductor, but they're not understanding that they have got second strings and they've got the bass at the back and they've got the drums. It's like you've got the first and second violin, violas and the cellos and that's it when all the other parts of the orchestra are available to you—if you've helped get them up to speed a little bit in advance ... we're not understanding how to use the full orchestra. That's the power of it if we get it right ... It's amazing and it's completely transformative for everybody in the community because it's really empowering for everyone ... part of it is about recognising the value of that skill base and giving it some prominence.

Though such partnerships are viewed as valuable, it is well-acknowledged that much more needs to be done to further build collaboration. As an example, engagement with the business sector was viewed to have been largely ad-hoc and emergency managers were uncertain as to how best to engage. Potential benefits identified by interviewees regarding engagement with the business sector included:

- ◆ the diversity of expertise
- ◆ the additional capacity offered
- ◆ the national and possible global coverage of certain large businesses
- ◆ community connections, sharing situational information
- ◆ agility of businesses
- ◆ that businesses may bring different perspectives on problems.

NGOs were largely seen as already woven into different parts of government and already playing significant roles. However, levels of engagement were said to vary across jurisdictions and the knowledge of the capabilities offered by NGOs could be improved.

Most emergency managers recognised the role of communities as first responders, though there was concern as to the extent that existing plans allowed for connections with spontaneous volunteers. In this sense there is a need to consider the changing

PHOTO: ANGIUS VEITCH (CC BY-NC 2.0)



role of emergency services during a catastrophe, from one that would typically undertake direct taskings to one which would be the facilitator of community-led actions.

Collaboration does not need to be encouraged only between government and other sectors, but between businesses, NGOs and communities. Businesses and NGOs may be able to source further capabilities from their global networks separate from any offers by international governments.

To realise the value of the whole-of-community approach there is a need to challenge the existing command and control culture of emergency management to one that embraces wider collaboration and trust.

Such collaboration must be focused on connecting the collective capabilities of many different organisations through a distributed leadership model that empowers organisations to show initiative in adapting to unforeseen circumstances. ■

Find out more about this research at bnhrc.com.au/research/catastrophic.

Preparing for catastrophic disasters, such as the large-scale flooding in Brisbane in 2011 (pictured), is not as simple as scaling up resourcing.

In planning for catastrophe, it is necessary to consider how existing capabilities will be supplemented and how existing services may be delivered differently to cope with overwhelming increases in demand.

SCORCHED AND SOAKED: THE COST OF CLIMATE CHANGE

PHOTO: AMANDA LAMONT



Climate change is making a significant impact on weather behaviour, and this is evident in the recent fires and floods devastating Queensland. But what is the true cost—both monetary and otherwise—of climate change?

BY **ALANA BEITZ**

AFAC

In less than three months, Queensland has endured the disastrous impacts of both bushfires and flooding, driven by extreme weather events that occurred at intensities never recorded before.

These protracted events have exhausted local communities and emergency services, battered the natural and built environments and left the state with a staggering recovery bill that has highlighted the real and growing cost of disasters exacerbated by climate change.

From one extreme to the other

Queensland's 'summer of disasters' has been bookended by unprecedented weather events. With record-breaking maximum and minimum temperatures at many locations, a 'catastrophic' fire danger rating was issued on 28 November 2018, for the first time in Queensland's history, as more than 100 fires across the state threatened multiple communities and forced thousands of residents to flee.

A few months later, a monsoonal downpour soaked the state's north

coast and broke previous rainfall records, with some locations recording accumulated totals of more than 2,000 millimetres between 26 January and 7 February 2019. Many sites across tropical Queensland set records for the highest multi-day rainfall accumulations, and a number of locations observed their wettest February on record. The Bureau of Meteorology described the event as "exceptional" in a Special Climate Statement issued on 15 February.

The cost of climate change

The combined cost of Queensland's fires and floods is estimated at \$1.5 bn, a figure that reflects the enormity of the recovery effort the state must undergo. However, increasing extreme weather events, a growing population and expanding development make the price of future disasters impossible to pinpoint. Coupled with the changing nature and pattern of disasters—which has seen fires catch in rainforests and cyclones travel further south—climate change could bring unconstrained future costs if appropriate disaster risk reduction measures are not put in place.

The Australian Business Roundtable for Disaster Resilience and Safer

Communities estimated that between 2006 and 2016 the economic cost of natural disasters in Australia was \$18.2 bn per year, with Queensland incurring 60% of these costs.

In their 2017 report, Building Resilience to Natural Disasters in Our States and Territories, the Roundtable estimates this cost will reach \$39 bn per year on average by 2050 in present value terms. However, this figure does not consider the accelerating impacts of climate change on the frequency and intensity of natural disasters in the future, suggesting that the actual costs could be much higher.

More than money

The Roundtable report also highlights the wide-ranging intangible costs associated with natural disasters. These are often long-term social impacts on communities, such as affects on health and wellbeing, employment, family cohesion and community networks. For example, the cost of mental health issues following the 2010–11 Queensland floods was an estimated \$5.9 bn. While these intangible costs are estimated to be as great—and, in some cases, greater than—the tangible cost to

the community, they are more difficult to accurately price.

Fire and emergency services also pay the price for these events, as the increasing frequency, intensity and economic cost of natural hazards stretches what resources are available. AFAC and its member agencies are already experiencing the increased pressure of these events on the sector's capabilities, which pose a risk to staff and volunteer health and safety. Concurrent and prolonged events demand a larger workforce be engaged for longer, which can lead to fatigue and mental health issues among employees and volunteers.

These concurrent and compounding events are a growing concern for the emergency services sector. Australian Institute for Disaster Resilience Director Amanda Lamont has recognised these stresses in her capacity as both a firefighter and recovery volunteer.

"What we are beginning to see is not just a disaster that begins and ends, but a series of disasters that merge into each other," she said. "As first responders, what we worry about most is how we are going to resource these events into the future."

A call for reinforcements

In late November, Queensland Fire and Emergency Services (QFES) made a formal request to the AFAC National Resource Sharing Centre (NRSC) to assist with the coordination of interstate resources. A total of 1,202 personnel were deployed to Queensland to support the ongoing firefighting operations and to relieve local crews.

Personnel reinforcements came from

every state and territory across Australia —ACT (77), NSW (647), NT (3), SA (133), Tasmania (87), Victoria (161) and WA (94). They made up both line crews and overhead roles.

The increasing intensity and longevity of events such as the Queensland fires shows the critical nature of sharing arrangements facilitated through the AFAC NRSC, as local fire and emergency services are challenged each year by more complex and unpredictable circumstances driven by increasing and intensifying extreme weather.

Climate change puts heat on Queensland

In response to the far north's unprecedented fire event, the Climate Council released the interim findings of their report on bushfire risk in Queensland, which builds upon their 2016 report *Be Prepared: Climate Change and the Queensland Bushfire Threat*.

The findings point to the recent heat events and trends in Queensland, which has seen eight of the state's ten hottest years on record all occur since 1998, and shows an upward trend in days exceeding 35 degrees.

More frequent heatwave events contribute to higher temperatures and lower humidity in tropical and sub-tropical Queensland, drying out vegetation and increasing the state's risk of bushfire.

But does it bring the rain?

It is difficult to identify the climate change influences on heavy rainfall events such as the Queensland floods because there is a greater natural

variability of extreme rainfall in Australia. However, on a global level, a warmer atmosphere and ocean are expected to generally lead to an increased likelihood and severity of heavy rainfall events.

Preparing for the future

As clean-up efforts continue across Queensland's scorched and soaked landscape, the cost of climate change on emergency management has become apparent. The increasing intensity, severity and longevity of extreme weather events puts emergency service resources under strain, exhausts local communities and creates economic stress.

While it is not possible to eliminate the costs—both tangible and intangible—of disasters, there is a need to adapt to a climate change-affected future, and AFAC members increasingly advocate this. By investing in disaster risk reduction and climate change adaptation and mitigation measures, it will better ensure the safety and prosperity of Australian communities as we progress toward an uncertain future. ■

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PROFESSIONALISING FIRE SAFETY ENGINEERING

Landmark new research from the Warren Centre has identified a need to improve and unify the state of fire safety engineering in Australia.

BY **PETER JOHNSON**

Arup

AND **ASHLEY BRINSON**

The Warren Centre

The Neo 200 apartment fire in Melbourne in February highlighted that the existing installations of combustible façades and the ongoing design of buildings for fire safety are still a major concern across Australia.

Given the alarming similarities between the Neo 200 fire, the earlier Lacrosse Building fire in Melbourne, the Grenfell Tower fire in London and other similar global fires, it would be easy to draw the conclusion that the whole performance-based regulatory regime is completely broken and that the sector is producing few high-quality buildings.

On the other hand, the demonstration of the full design flexibility, aesthetics, functionality and safety afforded by the performance-based Building Code of Australia is displayed through buildings

and structures such as Eureka Tower, Barangaroo International Towers, 1 Bligh Street, Adelaide Cricket Ground New Stand and the Macquarie Bank building in Sydney. Nevertheless, problems continue to emerge in relation to design, choice of materials, façade design, poor installation, lack of proper inspections and other aspects, which shake the confidence of buildings owners and occupants.

While governments and the Building Ministers' Forum continue to struggle to find a way to respond to the façade issues and the Shergold-Weir report into building regulation, the Warren Centre for Advanced Engineering is showing leadership by tackling the performance of fire safety engineers (FSEs) and moving industry to lift practice to full and proper professionalism.

The Warren Centre project is focused on the role, regulation, competence, education and accreditation of FSEs. It recognises that while FSEs take the lead on developing fire safety strategies and fire safety designs of buildings, they

are but one of the players in the whole design, construction and maintenance lifecycle of buildings.

The Warren Centre is therefore extremely pleased to have had the support of FPA Australia for the project. Both organisations appreciate that it takes a range of practitioners working together to achieve good quality buildings and achieve the required level of fire safety. The work of FSEs needs to be carefully linked to the practices of many others, such as sprinkler system designers, fire protection installation contractors and companies maintaining systems to AS 1851 for successful fire safety. It is also recognised that FPA Australia, through its Fire Protection Accreditation Scheme (FPAS), is already providing a strong lead on practitioner accreditation.

The Warren Centre project is based around three research themes:

- ◆ the state of FSE regulation, control and accreditation in Australia
- ◆ the state and future role of performance-based FSE in Australia

The Barangaroo building is an iconic example of performance-based fire safety engineering.
PHOTO: MAXPIXEL

- ◆ the effective professionalisation of FSEs.
- In turn, these three parts of the research are divided in eight research tasks, of which three have now been completed, namely:
- ◆ Task 1.1, the 'Regulation Report', on the current state of FSE regulation, control and accreditation in Australia, with differences and deficiencies identified. This task was undertaken by Stephen Kip and Michael Wynn-Jones
 - ◆ Task 3.1.1, the 'Education Report', on the current status of education, training and stated competencies for FSEs, undertaken by a team from University of Queensland and Professor Jose Torero (UCL London)
 - ◆ Task 2.2, the 'Methods Report', a study of the benefits of an updated International Fire Engineering Guidelines (IFEG), the new Fire Safety Verification Method (FSVM) and the Society of Fire Safety (SFS) and other Practice Notes, undertaken by the University of Queensland team with Prof Torero.
- The Task 1.1 'Regulation Report' has highlighted the total inconsistency between the states and territories in relation to regulation and accreditation of fire safety engineers.

This inconsistency is illustrated in the key diagram from the report: see Table 1.

This table shows that while Queensland and Tasmania license FSEs, such that it is illegal to practice without a licence in those jurisdictions, the other states and territories have no controls whatsoever or have registration schemes which do not prevent people practicing fire safety engineering, provided they do not claim to be registered or do not call themselves FSEs.

Only in NSW is it mandatory for fire safety engineers to undertake construction site inspections, and only in Victoria, Queensland and NSW are there mandatory requirements to consult with the local fire brigade on certain matters, although in some jurisdictions consultation is undertaken on a voluntary basis.

Given the lack of controls over the practice of fire safety engineering in a number of states and territories, Mr Kip and Mr Wynn-Jones suggested in their report that "it follows that there is lack of audit and enforcement of fire safety engineers and their performance".

The Regulation Report highlighted, "These findings of national inconsistency and widespread lack of controls over fire safety engineering practice appear to discourage the use of performance-

based fire safety engineering and threaten the likelihood of sound fire safety outcomes for the Australian community."

The authors recommended "the development of a national model set of regulatory controls for fire safety engineering, including for design fire safety engineers, peer reviewers, certifiers approving 'Performance Solutions' and fire brigade officials reviewing designs."

They argue that these national regulatory controls need to be "developed and implemented across all Australian jurisdictions", based on "best practice" and be consistent nationwide. ■

The Regulation Report can be downloaded free of charge from the Warren Centre:
<https://info.thewarrencentre.org.au/firesafety>.

For more information about the project, go to
<https://thewarrencentre.org.au/activities/fire-safety-engineering>.

A summary of the following two projects and reports, Tasks 3.1.1 Education Report and 2.2 Fire Safety Design Methods, will be available in upcoming editions of *Fire Australia*.

Table 1 Requirements for practicing as a fire safety engineer in Australia

Jurisdiction	Regulator	Accreditation, registration or licensing for design fire safety engineer	Accreditation, registration or licensing for peer review or certification by fire safety engineer as part of the approval process	Statutory requirement to consult with fire brigade for fire safety engineer	Offences where fire safety engineer not used by owner, or where practitioner not registered or licensed
ACT	Environment, Planning and Sustainable Development Directorate	No	No	N/A	N/A
NSW	Building Professionals Board	Yes (accreditation in prescribed cases)	Yes (competent fire safety practitioner, in prescribed cases)	Yes (in prescribed cases)	Yes (in some cases)
NT	Building Practitioners Board	No	No	N/A	N/A
QLD	Board of Professional Engineers	Yes (registration)	Yes (registration)	Yes (in prescribed cases)	Yes (professional engineering service)
SA	Department of Planning, Transport and Infrastructure	No	No	N/A	N/A
TAS	Consumer, Building and Occupational Services	Yes (license)	Yes (license)	No	Yes
VIC	Victorian Building Authority	Yes (registration)	Yes (registration)	Yes (in prescribed cases)	No (unless practitioner using title 'engineer')
WA	Department of Mines, Industry Regulation and Safety, Building and Energy Division (Building Commission)	No	No	N/A	N/A

PERSPECTIVES ON THE SECTOR WITH COLLENE BREMNER

STUART ELLIS AM

Chief Executive Officer,
AFAC



In this regular series, AFAC CEO Stuart Ellis interviews a senior AFAC leader for each issue of *Fire Australia*. This issue he caught up with Collene Bremner, Executive Director, Bushfires NT.

Are you able to tell us a little about how you arrived in this role and your work prior to being Executive Director, Bushfires NT?

I was offered the opportunity to act as the Executive Director of Bushfires NT in December 2016, one month after the commencement of a new *Bushfires Management Act*. For the first time, this Act provided authority and protection from liability for authorised bushfire volunteers when acting under direction.

Fortunately, there was good rainfall across the entire Territory when I started at Bushfires NT, which allowed me the opportunity to meet with staff and stakeholders and gain an understanding of the role and organisation before the onset of the Top End fire season.

I have worked in the Northern Territory public service for over 20 years in various leadership roles. Prior to coming to Bushfires NT I was the Director of Security and Emergency Recovery with the Department of the Chief Minister. This position encompassed counter terrorism policy and recovery management. I was Chair of the Australian and New Zealand Emergency Management Recovery Sub-Committee and was the NT representative on the Australian and New Zealand Emergency Management Committee.

I have more than ten years' emergency management experience



PHOTO: BUSHFIRES NT

Collene Bremner in discussion with volunteers.

assisting in numerous emergency events from a response and recovery perspective. Some of the incidents I was involved in include the second Bali bombings, Dili evacuations, Swine Flu influenza pandemic and events such as cyclones, floods and critical infrastructure failures like long-term power outages. I was appointed Incident Controller for the immediate recovery of severe Tropical Cyclone Lam and Recovery Coordinator for the Daly River floods.

How does Bushfires NT operate?

Bushfires NT is a small division within the Department of Environment and Natural Resources, located in Darwin, which supports four regional offices located in Batchelor, Katherine, Tennant Creek and Alice Springs. The division has a total of 35 permanent staff, of which 18 are located in the regions.

Bushfires NT operates under the *Bushfires Management Act*, which covers 98% of the Territory—the focus of which is land management, bushfire prevention and mitigation, as opposed to emergency response and firefighting. The Act recognises fire as a natural and unremarkable occurrence across Territory landscapes, and that fire is a widely used and effective land management tool. It does not attempt to exclude fire.

In conjunction with volunteer bushfire brigades, we participate in fire suppression activities during times of high fire weather conditions, or wildfires that pose significant risk to life or property. There are 21 volunteer bushfire brigades across the Territory with approximately 300 authorised bushfire volunteers, and 16 of the brigades are located in the region outside Darwin in the peri-urban, rural area.

In my organisation both my Chief Executive and Minister are women, our largest Bushfires NT regional office is managed by a woman and 23% of our volunteer brigade captains are women.

— Collene Bremner

Do you see the fire threat in the NT increasing or decreasing?

Unfortunately, I do not see the fire threat decreasing. The Territory has two fire seasons, the northern fire season, which follows the end of the wet season (May to November) and the central Australian fire season, which is similar to southern jurisdictions. The fire risks are changing and the spread of grassy weeds, particularly gamba grass in the Top End and buffel grass in Central Australia, have had a great impact on the environment and fire management, particularly at the expanding rural urban interface.

The increasing climate variability over the last few years has seen the window of opportunity to undertake planned burns reduce or change. It appears that breaking records in relation to the weather is becoming the norm. In the last 12 months we have had heatwave conditions for extended periods across the Territory, combined with below-average rainfall.

In the Top End native grasses are beginning to cure earlier than usual. This has meant mitigation works have had to be brought forward at a time when Central Australia is still experiencing high fire danger conditions.

You are one of a small number of women on AFAC Council and the NAFC [National Aerial Firefighting Centre] Strategic Committee. Are you seeing a change in attitude towards women in the sector?

This is a difficult question to answer. Overall I would say yes, there is a change in attitude, but as a sector we still have a long way to go. I have observed a real push by executives in other agencies and jurisdictions to drive change to improve the attitude toward women in the emergency management sector. Cultural and behavioural change is the hardest hurdle to overcome for any sector and achieving gender equity is a real challenge. I would attest that in Australia at the national political level we haven't got it right either.

In my organisation both my Chief Executive and Minister are women, our largest Bushfires NT regional office is managed by a woman and 23% of our volunteer brigade captains are women. However, I represent the smallest organisation on the AFAC Council and our numbers are minuscule in comparison to the sector as a whole.

How does Bushfires NT benefit as a member of AFAC?

The support we receive from the larger member agencies is amazing

and my counterparts have been very generous with sharing their knowledge and expertise. A recent example is the Country Fire Service in South Australia loaning several of their trainers to come to the Territory to provide Air Observer training. This led to two Bushfires NT staff members being included on their state aviation on-call roster.

The information and knowledge sharing from AFAC is extremely beneficial for us and we participate where we can in the many AFAC committees, however our size and operational priorities often impact on our attendance and contribution. I was disappointed that we were unable to attend to the national AFAC conference last year due to the fire weather conditions in the Top End, even though we won the AFAC Motorola Knowledge Innovation Award.

What are the greatest challenges for Bushfires NT over the next five years?

The increased public expectation on what we can provide within current resources, including the demand for information on the status of fires from the public and media. There has been an expansion of rural residential and related development, particularly in the area surrounding Darwin. This has added significant areas of high asset density and increased population to the area managed by Bushfires NT, and gamba grass infestations are common in heavily populated areas of rural residential development. The NT Government has introduced legislation, herbicide programs and enforcement activities

in order to eradicate gamba, but in the meantime, it is still a major threat.

In a relatively short period of time, Bushfires NT had to change processes and systems to manage public expectations and increasing fire threat. It was only last year that public information and warnings from bushfires were actively put into the public domain. You would think this would be a simple thing to do, but when your head office is located 100 kilometres from the regional office it is a challenge.

We rely heavily on our firefighting volunteers. The demographics of our volunteers, like many other agencies, are getting older, people are leaving and we were not attracting new members. Bushfires NT, in conjunction with our volunteer brigades, is focusing on improving our recruitment and retention of volunteers. Our firefighting fleet is ageing, and we need to increase our training for staff and volunteers.

The NT Government has recognised the many challenges facing Bushfires NT and approved the construction of a rural headquarters. This facility will combine both the regional and headquarters staff, include a space to train our volunteers and incorporate a modest incident control room. This is expected to be completed by June 2020, in the meantime I need to be patient. Rome wasn't built in a day—although I am pretty sure it burned down in one. This financial year we approved an increase in operational funding, which has assisted us to work towards renewing our fleet, update our firefighter training and capabilities and work at addressing numerous other challenges. ■

Pictured:
Collene
Bremner.



PHOTO: BUSHFIRES NT



Top: Cables were insulated in flammable PVC.

Above and right: Toxic smoke was a key challenge to firefighters.



TELEPHONE EXCHANGE FIRE IN NEW YORK CITY – 1975

BY **BARRY LEE OAM**

On 27 February 1975, fire broke out in the basement of the 11-storey New York Telephone Exchange in Lower Manhattan. Inside the Second Avenue building were an estimated 100 tonnes of polyvinyl chloride (PVC) coated wiring and cables. The exchange served as a main switching centre to connect telephone lines with trunk lines serving Lower Manhattan. Cables entered the building through a basement cable vault. The main distribution frame was on the ground floor above the cable vault, and the subscriber distribution frame was on the second floor. The wiring and cables ran vertically through the building, with no fire stops between floors.

Shortly after midnight on 27 February, a short circuit or open splice arc started a fire in the cable vault and smoke was discovered in the subscriber distribution frame. A call to the fire brigade failed because of the damaged lines. Meanwhile, the fire spread vertically to the ground and first floors to involve the main distribution frame and switching equipment. It took 700 firefighters nearly 16 hours to control, and their greatest challenge was heavy smoke and toxic combustion products. The PVC-coated cables connecting the cable vault to the

distribution frame, and the switching of equipment throughout the building on the upper floors, contributed significant amounts of smoke, hydrogen chloride (hydrochloric acid) and other toxic gases.

Most of the cables and equipment on the first two floors were destroyed and there was extensive smoke and corrosion damage throughout the rest of the building. The blaze cut off telephone service (including the emergency 911 service) to a 300-block area of Manhattan that included three hospitals, three police stations, two universities and the main headquarters of ConEdison—more than 170,000 telephones.

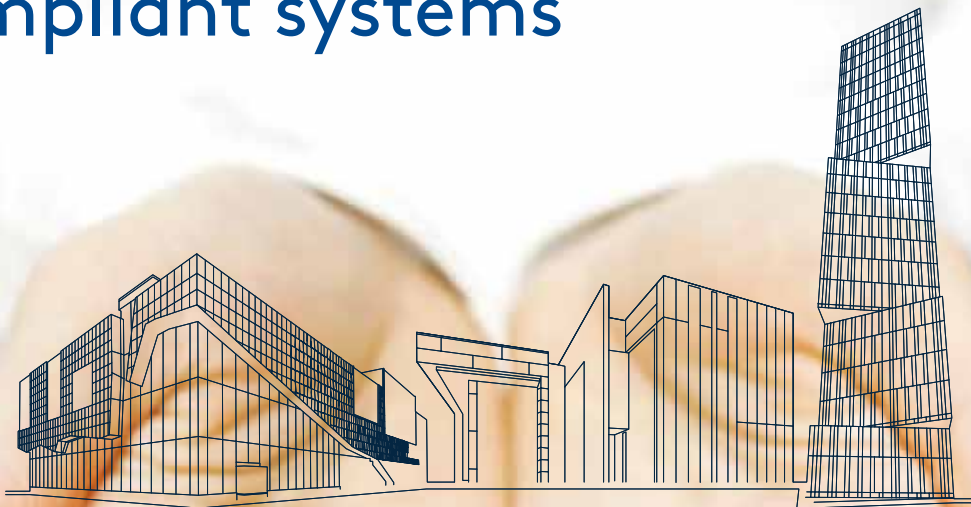
Immediately after the fire, damaged concrete floors were repaired, at least 100 kilometres of cables were replaced and ten million electro-mechanical relays were cleaned. Despite the heavy damage, clean up and equipment replacement was accomplished within 30 days. Telephone services to most emergency facilities in the affected area were restored within 24 hours of the fire, and full service was reinstated in another 24 hours. However, as with many fires, it took decades to understand the impact on firefighters and its contribution to long-term respiratory problems. ■

Telecommunication installations are good examples of mission-critical facilities. They have experienced some disastrous fires in the past. Prominent among them are:

- ◆ the 1975 fires in New York City and Asahikawa, Japan
- ◆ the much-discussed Hinsdale, Illinois (US) cable tray fire in 1988, which disrupted telephone services and air traffic control towers at O'Hare International Airport. Service was not restored to Chicago-area customers until a month after the fire
- ◆ the 1993 telecommunications building fire in Jakarta, Indonesia, which cut off thousands of telephone lines in eastern Jakarta, including phone and fax services to two local newspapers and a national news agency
- ◆ the 1994 Pacific Bell telephone exchange in Los Angeles, US, which interrupted 911 services in the city for 16 hours.

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BY **IAN FINDLAY**

Technical Officer – Projects and Standards, FPA Australia

STANDARDS

CE-030 Maritime structures

Work on AS 3962 (Marinas) continues.

FP-002 Fire detection and alarm systems

Work on the revisions of AS 4428.16 (emergency warning CIE) and AS 1603.17 (warning equipment for people with hearing impairment) continues. Other possible projects are also beginning.

FP-004 Automatic fire sprinkler installations

Work on Amendment 2 to AS 2118.1-2017 continues, with work on previously approved projects for AS 2118.2, AS 2118.6 and HB 147 (sprinklers simplified) kicking off in March 2019.

FP-008 Fire pumps and tanks

AS 2304 (tanks) is awaiting publication.

FP-009 Fire hydrant installations

Work continues on the development of AS 2419.4 (new standard for STORZ connections).

FP-011 Special hazard fire protection systems

Work on the revision of AS 4587-1999 (water mist systems) kicked off in late March.

FP-018 Fire safety

FP-018 met in mid-March to discuss possible new projects.

LG-007 Emergency lighting in buildings

AS/NZS 2293.2 is expected to be published shortly.

TS-001 Building commissioning

A new project to develop a Technical Specification on building commissioning has been established.

TECHNICAL ADVISORY COMMITTEES

The most recent round of Technical Advisory Committee (TAC) meetings was held in November, with the next round to be held in March.

TAC/1 Maintenance of fire protection systems and equipment

The draft technical documents on fire doors and exit doors, replacement of detection devices, and external barriers to evacuation were reviewed, with the fire doors document to be expanded.

TAC/2 Fire detection and alarm systems

TAC discussed a possible technical document to address confusion regarding fire detection and alarm systems for car parks.

Work on the speaker layout document to start up again now AS 1670.4-2018 has been published.

Discussions are continuing on ways by which the fire services could gather more information from fire detection systems.

TAC/3/7 Portable and mobile equipment

The TAC discussed the disposal and recycling of dry chemical powder extinguishers, as well as the project proposals suggested at FP-003.

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

The TAC discussed the ongoing impact from changes to Regulation 164B of the NSW Environmental Planning & Assessment Regulation as part of the NSW reforms. Pathways into sprinkler system and hydrant system design and certification (as well as FPAS accreditation for these) were also discussed.

TAC/11/22 Special hazards fire protection systems

Work continues on drafting project proposals for the revision of AS 3772 and AS 5062.

Ongoing work on updating IB-06 was discussed, along with recent international developments in firefighting foams.

TAC/17 Emergency planning

TAC/17 discussed a Standards Australia forum held on their catalogue of security, risk, resilience and governance standards (of which AS 3745 is a part). The possibility of a revision of AS 3745 was discussed but no project proposal yet developed.

The fire hazards of ethanol heaters were discussed, as was the potential development of an FPA Australia position on this.

TAC/17 highlighted that IB-11 needs updating for Amendment 2 to AS 3745-2010.

TAC/18/19 Passive fire protection

TAC/18/19 discussed the progression of stalled projects, including technical documents (polyurethane foams, access panels and intumescent fire dampers), and developing training on the installation of passive fire protection.

TAC/20 Bushfire safety

TAC/20 reviewed stalled or outstanding technical documents, including ones on sarking and on visiting sites as part of a site inspection.

FIRE AND FUELS CONFERENCE 2019

29 April–3 May 2019, International Convention Centre Sydney, and Albuquerque, US, and Marseille, France

All things fire will be in focus at the 6th International Fire Behaviour and Fuels Conference, held concurrently in Sydney, Albuquerque and Marseille. This International Association of Wildland Fire conference, with support from the Bushfire and Natural Hazards CRC, NSW Rural Fire Service and the Bureau of Meteorology, will showcase the latest in bushfire behaviour, fire prediction software and all things fuels and fuel modification. Delegates will hear experts showcase research and share lessons learned, alongside streams covering fire ecology, fire weather and risk modelling, with keynotes live streamed between locations.

For more information, visit:
<http://sydney.firebehaviorandfuelsconference.com>.

NATIONAL MEMORIAL SERVICE

1 May 2019, National Emergency Services Memorial, Canberra

AFAC will hold the fifth National Memorial Service for fire and emergency service personnel at the National Emergency Service Memorial in Canberra. An AFAC Memorial Medallion will be presented to families and service will also acknowledge names added to the memorial wall, which lists all who have died in the line of duty since records began. The service is a free event, open to AFAC Members and the general public.

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

FIRE AUSTRALIA CONFERENCE & TRADESHOW 2019

14–16 May 2019, Melbourne Convention and Exhibition Centre

Fire Australia is the largest dedicated fire protection industry event in Australasia. It provides a platform for information exchange, showcasing new services and technology and providing solutions to the challenges facing the industry. This year features an exciting new program, with international expert speakers, exclusive offsite visits and tradeshow demonstrations.

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

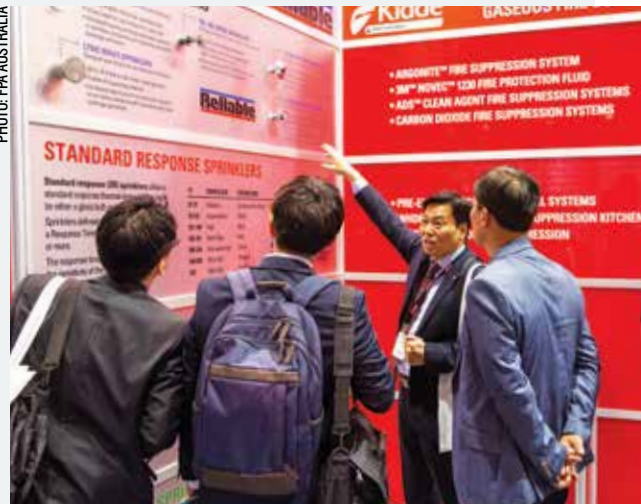
12TH AUSTRALASIAN NATURAL HAZARDS MANAGEMENT CONFERENCE

17–19 June 2019, Canberra

The 12th Australasian Natural Hazards Management Conference will stretch your thinking on what is possible and what needs to be done in natural hazards management to prepare for the future that we are likely to face. Delegates will help develop a strategic view on whether research and formal reviews of natural hazards from around Australia, New Zealand and across the globe are providing us with the best knowledge to deal with the extreme hazards of our future. Attendance at this conference will be limited to allow for plenty of discussion and debate, both in a plenary format with expert speakers and in facilitated breakout sessions. This conference is hosted by the Bushfire and Natural Hazards CRC, with support from the Australian Institute for Disaster Resilience and the UN Integrated Research on Disaster Risk.

For more information, visit: www.bnhcrc.com.au/events/2019-anhmc.

PHOTO: FPA AUSTRALIA



2019 LESSONS MANAGEMENT FORUM – ARE WE LEARNING?

30–31 July, 2019, Novotel Sydney Central

The 2019 Lessons Management Forum will again bring together lessons management practitioners, those interested in this area and those new to the area to share good practice, learning and innovations. Presentations will cover lessons that have been identified as well as how to manage lessons. The forum is open to everyone and new members are encouraged to join.

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

The Fire Australia Tradeshow is a must-see for conference goers.

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Dr Katherine Woodthorpe AO

Dr Katherine Woodthorpe AO has commenced as Independent Chair of the Bushfire and Natural Hazards CRC. Dr Woodthorpe brings to the CRC a wealth of experience in innovation and research across many sectors, including the Cooperative Research Centres program, technology-oriented industries, private equity and finance. She is the current Chair of the Antarctic Climate and Ecosystems CRC and the HEARing CRC (both terms end in June 2019), and she is a director of several other organisations, including the Olivia Newton-John Cancer Research Institute. Dr Woodthorpe is also Chair of the National Climate Science Advisory Committee through the departments of Environment and Energy, and Industry and Science.



Lloyd Bailey

Lloyd Bailey has retired as Deputy Commissioner, Operations Department of Fire and Emergency Services, WA. Mr Bailey took up the Deputy Commissioner Operations role in 2012.

Mr Bailey has dedicated 44 years to WA's emergency services and is one of the department's longest serving members of staff. During his career he was involved in the establishment of Urban Search and Rescue and assisted in rescue operations during the 1997 Thredbo landslide.



Bronwyn Jones PSM

Bronwyn Jones PSM retired from NSW Rural Fire Service in February 2019 where she held the role of Executive Director, Membership and Strategic Services. Ms Jones commenced with the NSW Rural Fire Service in November 2008, bringing extensive senior-level experience in strategic planning and reporting, human resource management and project delivery.

During her time she implemented key reforms and projects in association with human resource management, volunteer recruitment and retention, organisational planning, strategy and risk management, health safety and welfare, professional standards, mentoring and leadership.

Her colleagues at NSW Rural Fire Service wish her a long and happy retirement.



Rob Porter

Rob Porter returned to Airservices Australia in January 2019 to take on the role of Executive General Manager, Aviation Rescue Fire Fighting Services (ARFFS).

Mr Porter brings more than 30 years of experience in the aviation industry, including almost two decades with Airservices ARFFS in operations, progressing from aviation fire fighter to Chief Fire Officer. Mr Porter has also spent time managing operations at busy regional airports and has actively supported the Australian Airports Association as Queensland Director and Deputy Board Chair.

Airservices Australia acknowledges both Craig Oakley and Michelle Bennetts for their time acting in the role of Executive General Manager.

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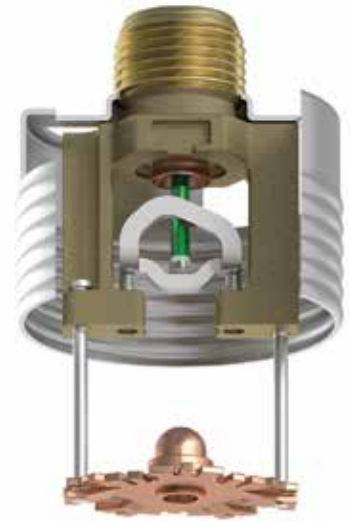
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Residential | Freedom® VK494 Flat Plate Concealed Pendent Sprinkler

The new Freedom® Model VK494 is Viking's next generation residential concealed pendent sprinkler, featuring "ultra-fast" glass bulb technology. The 4.9 K-factor sprinkler is the first residential concealed sprinkler with the same cULus Listed flow rates for both ordinary and intermediate temperature ratings. As a result, you can now standardize on an intermediate temperature-rated sprinkler without sacrificing either performance or aesthetics.

Rated for ambient temperatures up to 150°F, the intermediate temperature VK494 model offers greater flexibility when positioning sprinklers around potential heat sources.

- Flat plate concealed design with a nearly unlimited variety of custom color finishes, for a smooth ceiling look that doesn't compromise aesthetics.
- Available in both ordinary (155°F) and intermediate (200°F) temperature ratings.
- Minimum achievable flow rates for 16' x 16', 18' x 18', and 20' x 20' coverage areas at both temperature ratings (0.05 gpm/sq. ft. density requirements).
- Because VK494 ordinary and intermediate temperature flow rates are identical, you can standardize on the intermediate temperature models, simplifying inventory and reducing job site confusion.

Model Number: VK494

Base Part Number: 20759

Listings/Approvals: cULus

K-factor: 4.9 (70.6)

Connection: 1/2" NPT

Temperature: 155°F (68°C)
200°F (93°C)

Operating Element: Glass bulb

Finish: Brass

Technical Datasheet: F_012116

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