

FIRE AUSTRALIA

A new approach to bushfire mapping

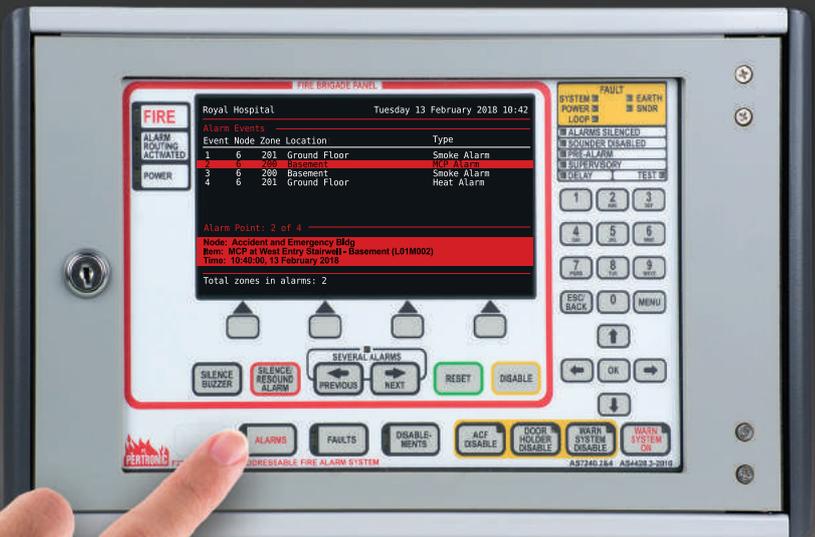
The way ahead at Fire Australia 2018

Coastal erosion undercutting policy

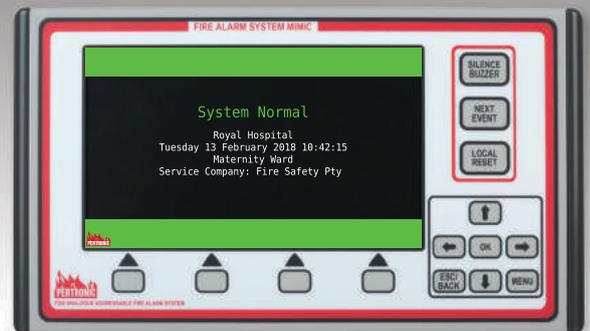
Tasmania shares prescribed burning approach



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REAL-WORLD RESEARCH VITAL FOR THE FUTURE

DR RICHARD THORNTON

Chief Executive Officer,
Bushfire and Natural
Hazards CRC



As a sector, it is important that we prepare for the future by learning from past experiences and effectively utilising research. This is the approach the Bushfire and Natural Hazards CRC takes, and it has been a busy few months. We have attended conferences and workshops in New Zealand, Canberra, Sydney, Brisbane, Melbourne, Coffs Harbour, Newcastle, Townsville and the Gold Coast, where we have created new links and partnerships with stakeholders from across the country. These conferences and stakeholder events also provide us with the perfect opportunity to strengthen our current links and learn of new ways to best apply our research to practice.

One of these high-level talks included breakfast at Parliament House in Canberra, where we briefed parliamentarians and key stakeholders on the benefits of our scientific research. Opportunities such as these allow a small organisation like the CRC to create big impacts on policy-makers, enhance the progression of emergency management policy, and help to create a more disaster-resilient Australia. As we develop new and exciting ways to implement and adapt our research, these partnerships will only strengthen our capacity to do so.

In this edition of *Fire Australia*, you can read about this innovation and research. Our researchers have provided a snapshot of the future in a new StoryMap on coastal erosion. The research investigates coastal erosion policy in two distinct parts of the Australian coast (see page 28).

You can also find out about new mapping software that provides better information on the soil moisture in vegetation, which is helping fire managers to better plan for prescribed burns and assess the risk of bushfires occurring. Discover this exciting new development on page 18. We have also partnered with Indigenous communities in remote parts of the Top End to develop natural hazards training that suits their needs, taking into account their cultural obligations (see page 36).

Our research, along with the latest knowledge from across the emergency management sector, will also be showcased at AFAC18 powered by INTERSCHUTZ in Perth on 5–8 September. The conference will open with the CRC's Research Forum, which provides the perfect opportunity to interact with our researchers and learn more about how to implement research into your business. This year also sees an exciting addition, with the the inaugural Australian Disaster Resilience Conference included as part of the broader conference program.

While these conferences and events are a key component of what we do at the CRC, there is a lot more to it than that. We have collectively achieved a great deal over the last five years, and there are many good examples of how our research is making a difference to the way our partners carry out their business. Listening to our partners and ensuring our research can be used in the real world is the key—there is still more to do.

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FIRE AUSTRALIA



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OUR COVER

Firefighters working to contain the edge of a blaze in Western Australia.

PHOTO: DEPARTMENT OF FIRE AND EMERGENCY SERVICES, WESTERN 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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Fire Australia magazine is printed by a printer with ISO 14001 Environmental Management System Accreditation using vegetable-based inks onto FSC-certified paper.

ISSN 1032-6529 (Print)
ISSN 2200-9221 (Online)



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AUSTRALIA JOINS EUROPEAN BUSHFIRE RESEARCH AND RESPONSE NETWORK

A European-based research project is linking several major organisations, including the Bushfire and Natural Hazards CRC, on bushfire research and response.

The GEO-SAFE project has created a network to enable Europe and Australia to exchange knowledge, ideas and experience in dealing with bushfires. The project began in 2016 and brings Australia together with 17 partners and six European countries.

In Australia, the CRC will conduct joint research and promote academic and educational exchanges of information with RMIT University.

“These sorts of linkages help to broaden the research available to the CRC’s partners, as well as position the CRC as a leading research body internationally,” said CRC CEO Dr Richard Thornton.

The CRC will provide connections for European researchers visiting Australia.

Researchers from Spain’s Pau Costa Foundation recently travelled to the areas affected by the 2015 Wye River fire to learn about the best practices and tools used by first responders.

The project is coordinated by the Fire Safety Engineering Group at the University of Greenwich, and is partly funded by the European Union.

The objectives of the project include creating a database of human responses to bushfires, developing a large-scale evacuation model and embedding the model into simulation training exercises.

The project will conclude in 2020. ■

PHOTO: JOAO CLERIGO (CC BY-NC 2.0)



The Hon Angus Taylor MP provided the official address at the national memorial service.

PHOTO: RICHARD W FORSHAW



Minister Taylor, Commissioner Paul Baxter and Stuart Ellis at the unveiling of the memorial wall.

PHOTO: RICHARD W FORSHAW

FIRE AND EMERGENCY SERVICE PERSONNEL RECOGNISED

The Hon Angus Taylor MP, Minister for Law Enforcement and Cyber Security, formally opened the National Emergency Service Memorial Wall in Canberra on Tuesday 1 May 2018 at the National Memorial Service for fire and emergency service personnel.

The new wall lists the names of 505 personnel who have lost their lives while keeping communities safe in Australia and New Zealand since records began. The wall was a joint funding initiative of the Australian Government and AFAC, the National Council for fire and emergency services in Australia and New Zealand.

The intent of the new wall is to honour the sacrifice that these people made, and to provide a place of national significance where family, friends and colleagues can reflect in a more personal way. AFAC has created a new

webpage with a search function to view the names that have been inscribed, which correspond to a panel on the wall.

“How we honour and recognise those who have died while on duty serving their community is a reflection on how we respect our current workforce,” said AFAC CEO Stuart Ellis.

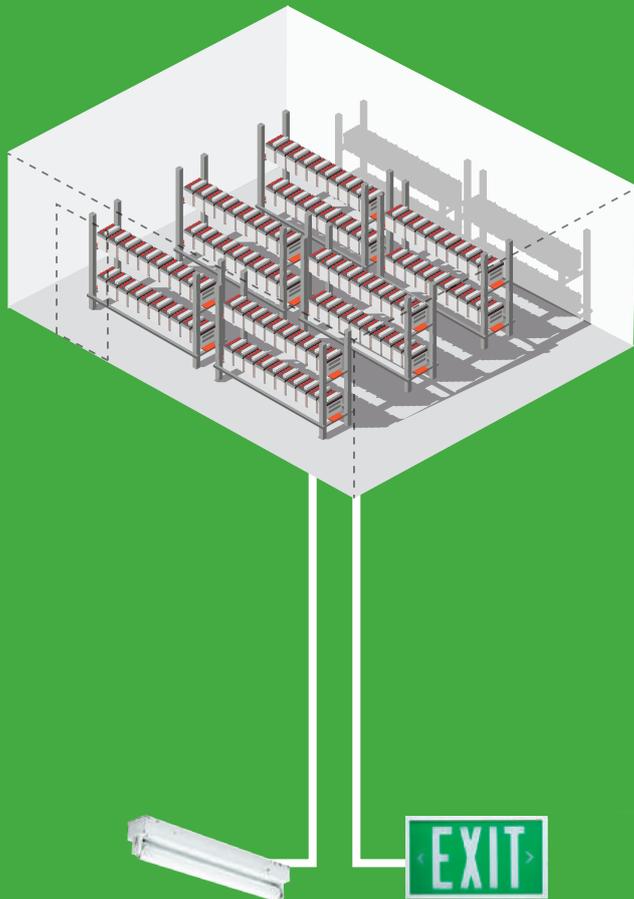
“The addition of a memorial wall to the National Emergency Service Memorial provides a national, permanent place of recognition for those who have paid the ultimate sacrifice.”

More than 300 people attended the service, during which AFAC memorial medallions were presented to families of those who have lost their lives in the line of duty. ■

A full list of the names listed on the memorial is available at www.afac.com.au/memorial.

OLD

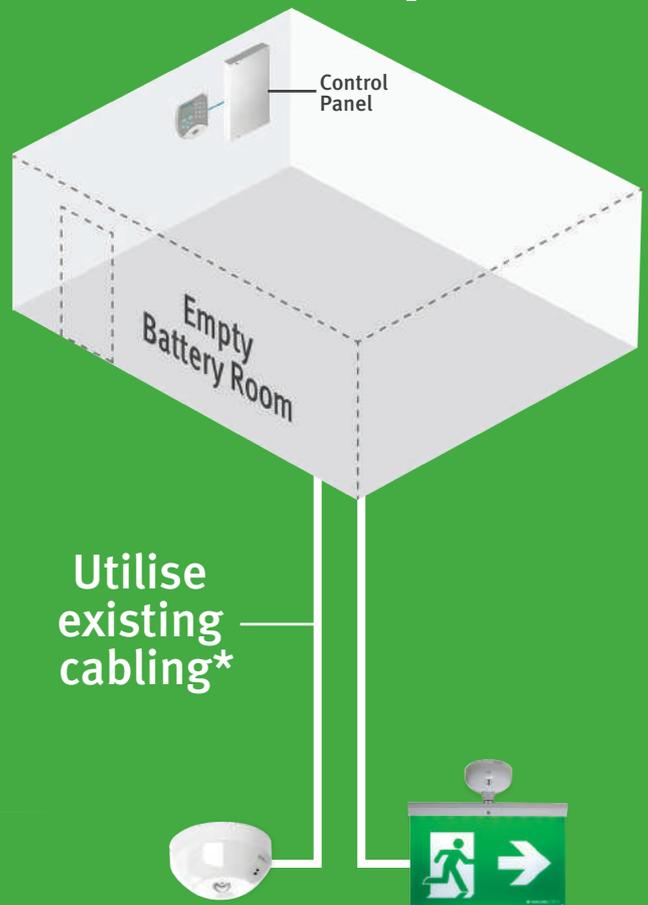
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WHAT IS THE BUSHFIRE OUTLOOK ACROSS NORTHERN AUSTRALIA?

Released in mid-July by the Bushfire and Natural Hazards CRC, the *Northern Australia Seasonal Bushfire Outlook 2018* shows a mixed picture across northern Queensland, northern Western Australia and the Northern Territory.

CRC CEO Dr Richard Thornton said variable wet season rainfall is behind the bushfire conditions this year.

"It is a bit of a mixed bag this year across northern Australia. Western Australia had a good wet season and the vegetation growth behind that is driving the above normal fire potential in the north-west, while other areas did not receive as much rain," Dr Thornton said.

"Northern Australia is extremely fire prone, and it is important to remember normal fire conditions will still produce fast-running fires. Everyone across the north, including the many holiday-makers enjoying the dry season conditions, should ensure that they are fire ready and have fire plans in place well ahead of time. When the conditions are right, hot and windy days, with dry vegetation, fires will occur."

◆ Western Australia had its third-wettest wet season on record, resulting in strong vegetation growth. Above normal fire potential is expected for the Dampierland, Pilbara and Carnarvon regions, as well as parts of the central Kimberley and Ord Victoria Plain.

◆ In Queensland, the rain fell early last wet season, but conditions have been dry to average since April. Above normal fire potential is expected in forested areas impacted by *Cyclone Debbie* last year, and *Cyclone Marcia* in 2015, due to the changes in the vegetation structure. Savanna country north of Normanton also has above normal fire potential due to strong vegetation growth from the wet season rainfall.

◆ The Northern Territory is expecting normal fire potential due to average fuel (vegetation) loads and effective mitigation burning. ■

View the full *Northern Australia Seasonal Bushfire Outlook 2018* at: bnhrc.com.au/hazardnotes/49.

PHOTO: AUSTRALIAN ACADEMY OF SCIENCE



Professor Vivienne Tippett at the Australian Academy of Science

QUEEN'S BIRTHDAY HONOURS FOR CRC RESEARCHER

Bushfire and Natural Hazards CRC researcher Professor Vivienne Tippett has been recognised for her efforts and contributions to science with a Queen's Birthday Medal of the Order of Australia (OAM).

The OAM recognised Prof Tippett's contribution to medical education, where she has worked for more than 10 years as a researcher in the area of pre-hospital care

Dr Richard Thornton, CRC CEO, said the recognition was well deserved.

"Receiving an OAM is a fantastic achievement by Vivienne. On behalf of all at the Bushfire and Natural Hazards CRC, I'd like to congratulate Vivienne on all of her achievements over her extensive career," said Dr Thornton. ■



Mr Paul Leslie of Xtralis (left), with Mr Barry Lee (right). Mr Leslie retired in July after a successful career.

ASSOCIATION CELEBRATES PAUL LESLIE'S LONG CAREER

Fire Protection Association Australia (FPA Australia) would like to thank Paul Leslie of Xtralis for his long service to the industry, following his retirement in July.

Mr Leslie has made significant contributions of time and expertise to the industry, most recently with positions on FPA Australia's TAC/1 and TAC/2 committees, as well as serving as the Chair of the Queensland Leadership Team.

"Paul has given so much back to the industry, and we've been privileged to work with him over so many years," said Matthew Wright, FPA Australia's General Manager—Technical Services/Deputy CEO.

"His knowledge and contributions in the aspirating smoke detector field,

in particular, have been a real asset to the industry through his involvement with FPA Australia, Standards Australia and the International Organisation for Standardisation. Paul has also been a consistent contributor to the broader industry beyond his core skill set, however, and has devoted personal time and effort in supporting improved understanding and collaboration amongst those involved in the fire protection community."

In recognition of his contributions, the Association presented Mr Leslie with the Meritorious Service Award in 2011.

"On behalf of a grateful industry, we offer congratulations on a successful and meaningful career. Thank you, and all the best for your well-earned retirement," said Mr Wright. ■

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CRC IS FOCUSED AND ENGAGED: REVIEW PANEL

An independent review of the achievements, governance and management of the Bushfire and Natural Hazards CRC over its first four-and-a-half years has been completed. Commissioned by the CRC Board, the review was carried out to ensure that the CRC understands what it is doing well and not so well, thereby improving the way it operates. The review was also asked to consider plans for the future of the CRC beyond the current funding period.

In general, the independent review panel confirmed that the CRC is progressing well with its research, utilisation and outreach activities, and is on the right track to defining its longer-term future.

Led by Professor Mary O’Kane AC and including Euan Ferguson AFSM and Dr Tracey Arklay, the review panel heard from staff, researchers, end users and PhD students in May on current work and on the future directions of not just

the research, but the centre itself.

The panel gave its opinions on progress and the direction of the research program, and provided advice and options on moving forward. It found that the research is of very good quality, and that end users find CRC work important in building their appreciation of the value of research—particularly strategically focused research.

The review panel made recommendations on options for transitioning from a CRC to a research centre after the CRC funding ends in 2021.

This guidance was timely and helpful, explained CRC CEO Dr Richard Thornton.

“This review was an opportunity to gain key insights from independent experts on how we are tracking and where we need to head,” Dr Thornton said.

“We have collectively achieved a great deal over the last four years, and there are many good examples of how

our research is making a difference to the way our partners carry out their business. But there is still more to do, and the findings of the review will help us continue to build an ongoing research capability for the sector.”

The review took place on 9–11 May. While a fourth-year review is no longer an official requirement of the Commonwealth CRC program, the CRC Board felt that an independent review would still be useful as an opportunity for external reviewers to comment on governance and management arrangements, research and outputs, and utilisation activities, as well as provide suggestions for current operations and opportunities for its future structure.

The CRC will now use the findings of the review to inform its practices in research and science innovation. The recommendations will be discussed by the Board at its next meeting in August. ■

VALE DAVID MICHEL

Fire Protection Association Australia (FPA Australia) wishes to offer its sympathies to the family, friends and colleagues of David Michel, who recently passed away. Mr Michel was a project manager at Standards Australia for many years. He contributed to the fire protection industry as a member of several committees and through his work on a variety of standards, including AS 1851. He was a great supporter of the fire protection industry, with his service being recognised by FPA Australia with the AV Viscogliosi Award in 2007 for outstanding service to fire protection. Mr Michel’s contributions to the industry will be remembered. ■

Korah Parackal presents at Showcase 2017.



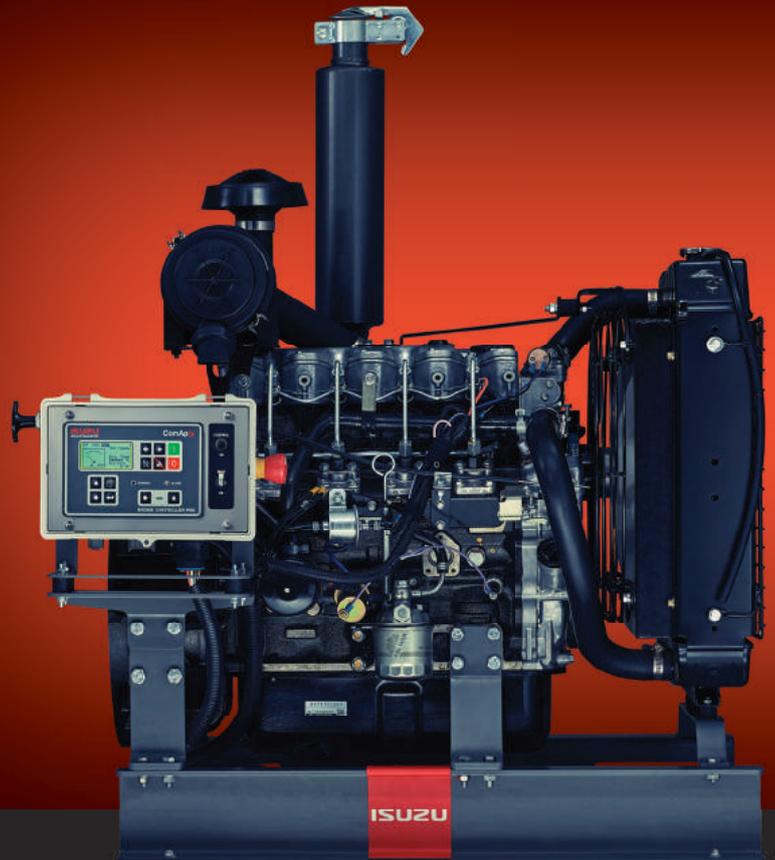
PHOTO: BUSHFIRE AND NATURAL HAZARDS CRC

CYCLONE SCIENCE SHORTLISTED

Bushfire and Natural Hazards CRC PhD student Korah Parackal was a finalist for an award that recognised both his research and his communication skills. Mr Parackal, from James Cook University, was one of six finalists in the CRC Association’s Showcasing Early Career Researchers competition, held on 14–15 May at its annual conference in Sydney. By making the finals, Mr Parackal demonstrated that he could convey the aims of his research clearly and effectively, with a 30-second video describing his research on strengthening roofs to withstand cyclones. He gave a five-minute presentation on his research at the conference. The winner, Chuhaio Liu from the Rail Manufacturing CRC, was selected by an audience vote. ■

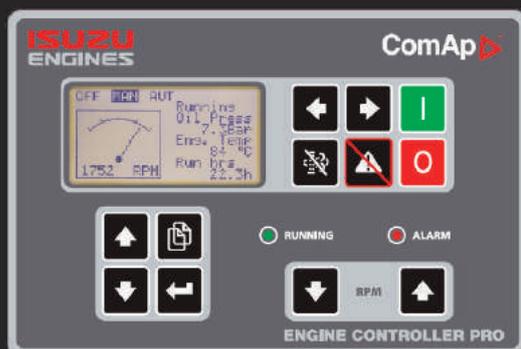


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ANIMAL RESEARCH AWARDED

Bushfire and Natural Hazards CRC research on how to best plan for animals in an emergency has taken out the inaugural Emergency Media and Public Affairs (EMPA) research award, while another project on emergency warnings has been highly commended.

Led by Dr Mel Taylor from Macquarie University, the Managing Animals in Disasters project received the award at EMPA's annual conference, held in Melbourne on 3–5 June. The project was recognised by EMPA as leading research that advances emergency communication by improving community resilience, increasing the effectiveness of communication during an emergency response, and enabling agencies to better support communities recovering from a disaster.

The research has identified best-practice approaches to animal emergency management, enabling emergency management agencies to obtain the data they need to make better informed decisions on planning and targeting of resources.

The project was a true team effort, explained Dr Taylor. "It is a real honour for the project to be recognised by EMPA. The team has achieved a lot over the last four years, and we've worked with many organisations to not only undertake the research, but to help get the findings implemented into practice," Dr Taylor said.

"I'd like to particularly thank the Blue Mountains Animal Ready Community, the Springwood Neighbourhood Centre, the Mountains Community Resource Network and the NSW SES for their support."

CRC CEO Dr Richard Thornton said the award was well deserved.

"This was a really important project for the CRC, and for the emergency

management sector. When the CRC began, our partners told us there was a real gap in knowledge in this area. For the project to win EMPA's research award really helps to show that not only was the research high quality, but that the findings have been taken up by the industry and are making a real difference in how they operate."

Along with Dr Taylor, the Managing Animals in Disasters team includes Dr Kirrilly Thompson and Dr Lisel O'Dwyer (CQUniversity), Dr Penny Burns (Australian National University), Dr Megan McCarthy (Macquarie University), Greg Eustace (RSPCA Queensland), Rachel Westcott (Western Sydney University) and Dr Brad Smith (CQUniversity).

CRC research on emergency warnings and flood fatalities was highly commended by EMPA. Led by Professor Vivienne Tippet (Queensland University of Technology) and Dr Katharine Haynes (Macquarie University), this research is shaping public warnings and information campaigns that prepare and protect communities from flood, fire, heatwave and other natural hazards in Australia. Insights have combined to equip emergency service agencies around Australia with better-targeted, long-term public safety campaigns, as well as urgent warning messages delivered to at-risk populations in the face of imminent natural hazards.

While both projects share the goal of improving community warnings and safety messages distributed by emergency service agencies, each came to the problem from a different perspective—one looked at language structure and content, while the other drew from historical records of fatalities. ■



Dr Mel Taylor with the EMPA research award.

PHOTO: EMERGENCY MEDIA AND PUBLIC AFFAIRS

"It is a real honour for the project to be recognised by EMPA. The team has achieved a lot over the last four years, and we've worked with many organisations to not only undertake the research, but to help get the findings implemented into practice."

— Dr Mel Taylor

BMF COMPLIANCE AND ENFORCEMENT REPORT RELEASED

The long-awaited report from Professor Peter Shergold and Bronwyn Weir into the compliance and enforcement systems for the Australian building and construction industry has been released, after being presented to the Building Ministers' Forum (BMF) in May.

Commissioned in 2017 by the BMF, the report explores the shortcomings in implementation of the National Construction Code (NCC) and makes 24 recommendations for improvements.

"The compliance and enforcement systems have not been adequate to prevent these problems from emerging and they need to change as a matter of priority," the report stated.

"There is no panacea or 'silver bullet' to resolve these problems. Our 24 recommendations are intended to operate as a suite of solutions which will address weaknesses in a comprehensive manner."

Fire Protection Association Australia's comments are recognised multiple

times in the Shergold–Weir report, reflecting the strength of input provided. The Association is working with other industry stakeholders who are conscious of these recommendations—and those of Dame Judith Hackitt in the UK—to develop a response that supports government initiatives for improved national administration and implementation of the NCC. ■

See page 15 for more information.

SAFETY LESSONS FROM 2009

A groundbreaking report from the Bushfire and Natural Hazards CRC on what people did during the 2009 Black Saturday fires in Victoria has been acknowledged for its impact on current community safety messages during emergencies.

The report combined an examination of the 173 deaths in the fires with 611 interviews with survivors to produce an in-depth analysis on human behaviour before, during and after the fires.

Doug Hart of Victoria Police was relocated to the offices of the CRC shortly after the fires to write the report, initially as a coronial brief.

He drew on the work of the police under the Phoenix Taskforce, plus the Bushfire CRC Research Taskforce, which looked at human behaviour, fire and weather behaviour, and structural impacts of the fires. An edited version, *Lessons Learnt from the Black Saturday Bushfires*, was later distributed to all directors of community safety at Australian fire, land and emergency service agencies, so that the insights could inform agency and national policy and guidelines.

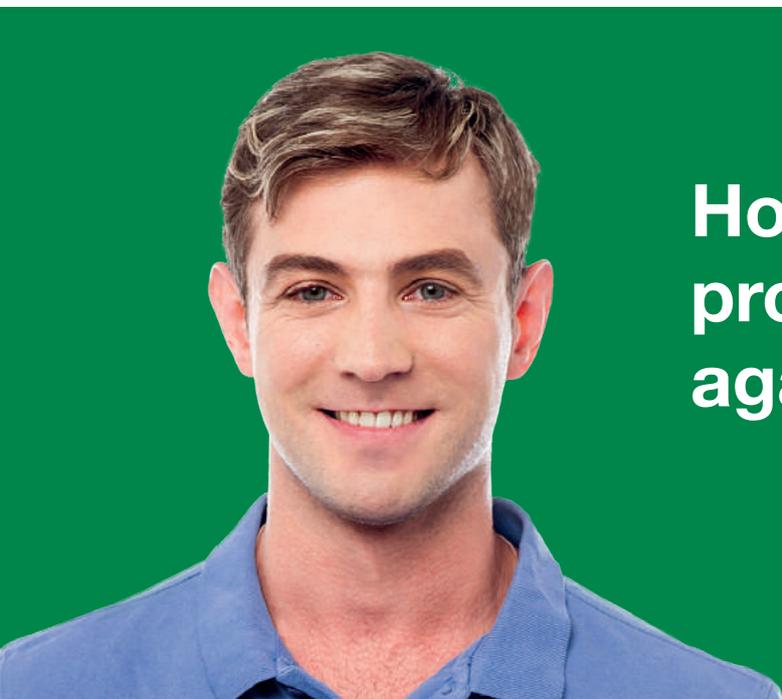
The outcome of this process was AFAC's further publication, in late 2016, of *Community Safety Messaging for Catastrophic Bushfires: Lessons Learnt from Black Saturday Bushfires, Victoria 2009*. This distils the key points of the report into readily useable statements and guidelines for community safety managers around Australia.

Mr Hart was formally acknowledged for his work by the AFAC Community Safety Group chair, Andrew Stark. ■

Doug Hart (left) is acknowledged for his Black Saturday report by the chair of the AFAC Community Safety Group, Andrew Stark.



PHOTO: DAVID BRUCE, BUSHFIRE AND NATURAL HAZARDS CRC



How does Jack protect a small premise against fire?

FORUM TO BRING TOGETHER KNOWLEDGE, LEARNING AND INNOVATION

The 2018 Lessons Management Forum will bring together lessons management practitioners and those interested in sharing good practice, learning and innovation.

Hosted by AFAC and the Australian Institute for Disaster Resilience, the two-day Forum, in August, will focus on sharing and implementing lessons. Presentations will be given by emergency services, research, defence and humanitarian organisations. Delegates will also have the opportunity to register for breakout workshops in the afternoon of each day.

The Forum will include face-to-face networking opportunities to enhance the expanding community of practitioners working in the lessons management area. ■



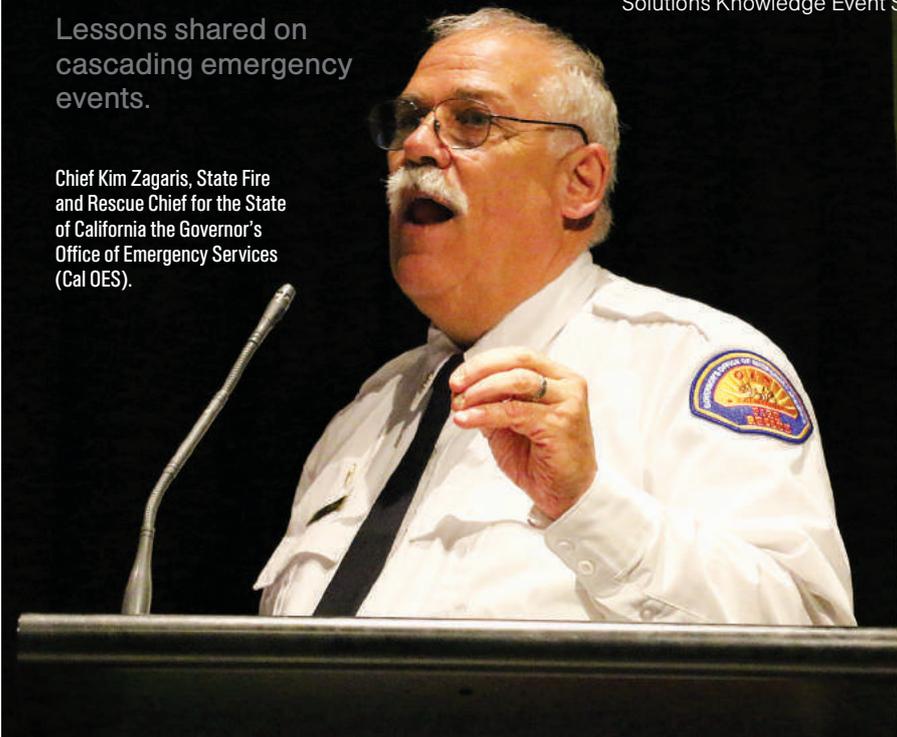
The 2018 Lessons Management Forum will be hosted by AFAC and the Australian Institute for Disaster Resilience.

To register, go to www.afac.com.au/events.

MOTOROLA KNOWLEDGE EVENT SERIES

Lessons shared on cascading emergency events.

Chief Kim Zagaris, State Fire and Rescue Chief for the State of California the Governor's Office of Emergency Services (Cal OES).



Chief Kim Zagaris, State Fire and Rescue Chief for the State of California the Governor's Office of Emergency Services (Cal OES), recently toured Australia and New Zealand as part of the Motorola Solutions Knowledge Event Series.

In 2017, after a five-year drought, California endured its worst year of wildfires on record. These were followed by heavy rains, causing landslides and flooding.

Chief Zagaris provided detailed insight into the cascading events that occurred and the response to each, the benefits of mutual aid, and how California is working to clean up and recover. He also shared lessons learned and answered questions from attendees.

The series kicked off in Wellington on 18 May and travelled to Hobart, Melbourne, Brisbane, Sydney, Adelaide, Darwin, finishing in Perth on 1 June. More than 600 people from across the emergency management sector registered to attend the series, which was free of charge thanks to the support of Motorola Solutions. ■

SHINING A LIGHT ON HAZARDS

Predict, respond, recover: science and natural disasters—this was the theme for Science at the Shine Dome 2018, the flagship annual symposium for the Australian Academy of Science. The Bushfire and Natural Hazards CRC was invited to be a partner for this prestigious event, which was held on 22 May as part of a week of activities for fellows of the Academy and the general public. The day provided an opportunity to explore the critical role that science plays in predicting, mitigating, responding to and recovering from natural hazards and extreme weather events.

The program featured many CRC speakers, including CRC CEO Dr Richard Thornton, who spoke on the need to define the main scientific questions. New CRC Board member Mark Crossweller, who leads the National Resilience Taskforce for the Australian Government, discussed the global future of natural hazards and their relation to climate change and national policy.

CRC researcher Associate Prof Jason Sharples, from the University of New South Wales, spoke of his work modelling the dynamics of bushfire, while another CRC researcher, Prof Vivienne Tippet from the Queensland University of Technology, closed the day with a talk that brought together much of the science on natural hazards into warnings and information messages for the public. Other speakers addressed issues on heatwaves, marine heatwaves, earthquakes, severe weather systems, and mental health impacts on young people. The day concluded with the Academy inducting its new fellows, among them former Bushfire CRC project leader Prof Alan Andersen. This is one of the highest recognitions for a scientist in Australia and the CRC congratulates Prof Andersen for this great achievement. ■



Science at the Shine Dome 2018.

PHOTO: AUSTRALIAN ACADEMY OF SCIENCE



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NSW RELEASES FIRE SAFETY STATEMENT FAQ

The NSW Department of Planning and Environment has released a set of frequently asked questions (FAQs) about the new annual fire safety statement form included as part of the NSW building and fire safety reforms released last year.

The FAQs answer some of the questions Fire Protection Association Australia (FPA Australia) has been asking the Department since the implementation of the reforms.

The most significant point in the FAQs is the clarification of who should issue the annual fire safety statement. The FAQs

clarify that the 'competent fire safety practitioner' who completes the annual fire safety assessment should not issue the statement on behalf of the building owner. The statement must be issued by the building owner, or by a separate agent on their behalf, in order to minimise potential conflicts of interest:

The Regulation allows an agent to issue the annual fire safety statement on behalf of the building owner. The agent who issues the statement may be a competent fire safety practitioner, however that person should not be involved in the assessment of any of

the measures or the inspection of the building for the purposes of the statement.

This statement is in line with the advice FPA Australia has provided in its own NSW reforms FAQs, launched prior to the reforms coming into effect on 1 October 2017, which advise fire safety practitioners not to sign fire safety statements as the issuing agent.

FPA Australia will continue to seek clarification from the Department on several issues within the reforms, in response to questions raised by our members. ■

PRESTIGIOUS MALAYSIAN FIRE SERVICE HONOUR FOR ROB LLEWELLYN

Rob Llewellyn, former AFAC Built Environment Consultant and fire protection industry advocate, has been awarded the prestigious Malaysian Pingat Kebesaran Tertinggi Jabatan Bomba Dan Penyelamat (PKPB) medal.

The award is one of Malaysia's highest honours in the fire service industry. Mr Llewellyn was presented with the award by the Fire and Rescue Department of Malaysia, known as Bomba, at a ceremony during the

International Fire Conference and Exhibition. The conference was held from 27–29 March 2018 in Kuala Lumpur, Malaysia.

Mr Llewellyn was honoured for his service to the fire protection industry in the Asia-Pacific region. In addition to his work with AFAC, Mr Llewellyn is also Chair of the Confederation of Fire Protection Associations—Asia (CFPA—Asia).

The CFPA—Asia is the regional council for fire protection organisations with an interest in fire, life safety, fire prevention, fire protection or fire suppression from countries generally recognised by the United Nations Economic and Social Commission for Asia and the Pacific and the Arabian Peninsula. ■



Rob Llewellyn was honoured for his service to the fire protection industry in the Asia-Pacific region.

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FPA AUSTRALIA CALLS FOR TASKFORCE TO IMPROVE NCC IMPLEMENTATION

Fire Protection Association Australia (FPA Australia) is calling on the Building Ministers' Forum (BMF) to establish a new taskforce to develop a national administrative code to harmonise building legislation. The call comes following the release in May of the Shergold–Weir *Building Confidence* report into Australia's compliance and enforcement systems for the building and construction industry.

The 24 recommendations made by the report set out a road map to improve future compliance and enforcement of the National Construction Code (NCC) to ultimately improve the safety and quality of Australian buildings.

While FPA Australia is broadly supportive of these recommendations, the Association believes their success is critically reliant on nationally consistent implementation. The current fragmentation of administrative legislation between states and territories is a significant cause of confusion and complexity, leading to less compliance and reduced life safety of Australian buildings.

FPA Australia is therefore calling on the BMF to establish a new National Construction Code implementation task force (NCCIT), drawing together government and industry to manage the development of a model NCC administrative code to harmonise requirements and compliance with the NCC across all states and territories wherever possible.

"We envisage a process not dissimilar to the development of the NCC itself, except instead of technical provisions we will concentrate on improving the consistency of administrative requirements such as documentation, approval and referral processes, recognition of roles and competencies, consistent terminology and lifecycle compliance," said Matthew Wright, FPA Australia's General Manager – Technical Services / Deputy CEO.

"The tragic Grenfell fire in London last year has forced a review of processes globally. In the UK, a review by Dame Judith Hackitt found shortcomings in compliance and enforcement processes that can only be addressed with a nationally consistent approach. The core

challenges are very similar in Australia, as are the solutions."

The Association intends to present a formal proposal to the BMF to establish the task force during an industry forum in August.

FPA Australia is also speaking with other industry groups and administrative bodies about the task force concept and collaborating to make it a reality. ■

The full report can be reviewed online:

<https://industry.gov.au/industry/IndustrySectors/buildingandconstruction/Documents/Shergold-and-Weir-Report-BMF-Expert-Assessment.pdf>.



PROPOSED NCCIT CONCEPT

1 Acknowledge that the extent of the problem requires the formation of a new body provisionally referred to as the National Construction Code implementation task force (NCCIT) collectively supported by each jurisdiction and industry.

2 The members and terms of reference for the NCCIT are determined by the BMF in consultation with industry but include as a minimum:

- ◆ To develop a model NCC administrative code (NAC) to support implementation of the NCC, which each jurisdiction would reference and implement.
 - To develop this model NAC:
- ◆ Review of the issues and recommendations identified by the Shergold–Weir report and also those identified by Dame Judith Hackitt, where applicable; and
- ◆ Taking into account the current requirements of each jurisdiction, prioritise the issues and systematically develop the components of the model NAC, which are expected to include, but are not necessarily limited to:
 - ◆ roles and responsibilities;
 - ◆ competency requirements and recognition pathways;
 - ◆ documentation requirements and expectations;
 - ◆ design, inspection and approval process requirements, including referrals;
 - ◆ product compliance requirements;
 - ◆ essential life cycle safety processes;
 - ◆ enforcement capability and expectations;
 - ◆ data collection, sharing and information management; and
 - ◆ transitional provisions.

3 Develop and table reports for each of the proposed model NAC components (above) and ultimately consolidate the agreed-to recommendations of these to become the model NAC.

4 The NCCIT is co-chaired by a government and industry representative appointed by the BMF and is made up of government and industry representatives seconded from their current roles for designated periods, including Australian Building Codes Board staff.



TASMANIA SHARES PRESCRIBED BURNING APPROACH

PHOTOS: AUSTRALIAN INSTITUTE FOR DISASTER RESILIENCE

Building prescribed burning capability across jurisdictions is central to the vision of the Centre of Excellence for Prescribed Burning.

BY **DEB SPARKES, PAUL BLACK, ROCHELLE RICHARDS** AND **JACQUI DOUGLAS**

Since January, the Centre of Excellence for Prescribed Burning (CoE) has facilitated knowledge sharing through a monthly webinar series, featuring presenters from different states and territories. In April, the CoE embarked on its first face-to-face clinic in Tasmania, with support from Parks and Wildlife Tasmania (PWS), Tasmania Fire Service (TFS) and Sustainable Timber Tasmania. The clinic gathered participants from both the public and private sectors across four jurisdictions, representing Department of Water (SA), Parks Victoria, Forest Fire Management Victoria, ACT Rural Fire Service, HP Plantation (Queensland) and Fireland Consulting (Queensland).

The clinic commenced with a full-day workshop to give participants insight into the challenges and opportunities for prescribed burning in Tasmania. The Tasmanian Fuel Reduction Unit presented on its cross-agency role in assessing and reducing risk for the state, in the context of key legislation and lessons learned. Other presentations outlined the Tasmanian Coordinated Smoke Management System, and the 'unbounded burning' used to manage the unique buttongrass moorlands in the state's west.

Since 2013, the Tasmanian approach to statewide risk reduction has centred on developing a coordinated, strategic cross-tenure burn program. The program is delivered according to a strict set of priorities: the preservation of life, and the protection of critical community infrastructure, residential property, business assets and the natural environment. The unit cooperates with government agencies, interest groups and individual landowners, making formal agreements where needed.

As part of the program, regular bushfire risk modelling and analysis is conducted in the Tasmanian landscape. This aims to identify both high-risk areas and areas where bushfire risk has been reduced through fuel-reduction burning. Plans are developed to identify and prioritise the reduction of risk to 'values'—such as communities or ecosystems. There is a strong focus on fuel-reduction burning to reduce the rate of spread and intensity of bushfire. Carried out in strategic locations, this approach to fuel reduction results in safer conditions for firefighting and

allows for a broader range of firefighting tactics. Fuel-reduction burning complements a broader suite of risk management strategies for bushfire in Tasmania, including other forms of fuel management, community protection and response planning, and activities designed to help communities increase their resilience to bushfire.

The workshop also featured a comprehensive CoE presentation on the national guidelines and frameworks developed by the National Burning Project. This segment was also attended by local PWS and TFS staff, who joined participants in a scenario exercise to develop a burn plan using the national principles. This activity created an opportunity for identification of similarities and differences of approach across jurisdictions, and discussion around further implementation of the National Burning Project outcomes.

Over the following two days, participants attended various prescribed burns across Tasmania, observing cross-agency cooperation in practice. The group saw many of the workshop's themes play out in action. These included cross-tenure burning, burning close to residential properties, the daily system of smoke allocation bids and management of public perception.

Clinic participants gained insight into the flexible working of the smoke management system, observing the processes undertaken by the PWS State Fire Manager in making a considered decision to proceed with a burn despite an unsuccessful smoke bid. On the fireground, local staff demonstrated the use of drones to monitor smoke behaviour in real time.

The Tasmanian Coordinated Smoke Management System is a voluntary system for fire agencies designed to mitigate the public nuisance posed by smoke. The system works to equitably distribute the smoke-absorbing capacity of a given airshed, based on atmospheric conditions such as predicted smoke dispersion. Agencies bid for the Fuel Weight Index (FWI) units they require for each day of a planned burn. The number of units available in the 11 airsheds is dependent on the predicted Ventilation Index and temperature inversion height as predicted by the Bureau of Meteorology.

The FWI units themselves are derived from the vegetation type that is to be burnt. In some cases, an agency may carry out a burn despite not receiving its requested smoke allocation; the voluntary nature of the system acts as a guide for these discretionary decisions.

In the evenings, the group enjoyed Hobart's local dining scene—although conversation rarely strayed from prescribed burning. Discussions reflected key takeaways from the week, particularly the positive working relationships between the Tasmanian agencies and how the state is increasingly engaged in cross-tenure burning. Another topic of interest was the local approach to weather as a mechanism to maintain control of a burn and the opportunity this offered to expand burning windows. The local system for smoke management sparked important conversations around managing public perception of smoke, as well as conflicts increasingly arising between prescribed burning schedules and local tourism and agricultural interests.

The CoE was thrilled to host this event with the generous support of the Tasmanian fire agencies. Learnings will be directed towards development of future clinics and forums as the CoE continues to foster increasing national connectedness of people to each other and to country. ■

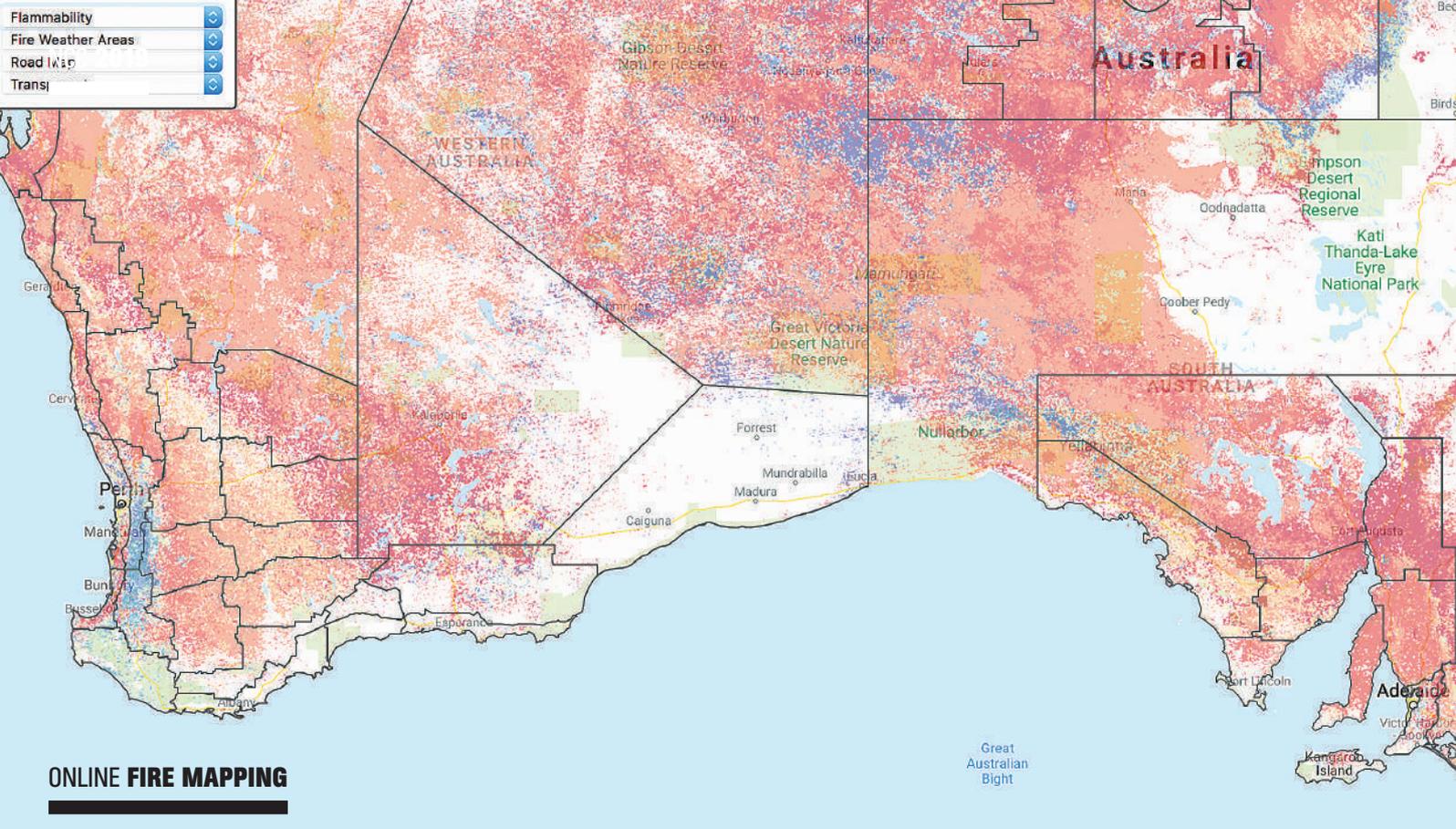
Authors of this article are from the Centre of Excellence for Prescribed Burning (Deb Sparkes), Tasmania Parks and Wildlife Service (Paul Black), Tasmania Fire Service (Rochelle Richards) and the Australian Institute for Disaster Resilience (Jacqui Douglas).

CoE clinic participants from around Australia observed several Tasmanian prescribed burns.



The Tasmanian Coordinated Smoke Management System is a voluntary system for fire agencies designed to mitigate the public nuisance posed by smoke.





Satellites to help show when the bush is ready to burn

Soil dryness and flammable vegetation are two of the primary factors affecting the severity of a bushfire. A new interactive map is providing better information that will help fire managers undertake prescribed burns more safely and assess the risk of bushfires occurring.

BY **COSTA HARITOS**

Bushfire and Natural Hazards CRC

Fire and land managers are set to benefit from a new vegetation condition and flammability online mapping tool—the first of its kind to be introduced in Australia.

Effectively providing a clearer picture of immediate fire risks, the Australian Flammability Monitoring System uses satellite data to collect information on moisture content in highly flammable vegetation, such as fallen bark, leaf litter and grass. It then displays this information on an interactive map, which will help fire managers in their prescribed burning efforts and positioning of firefighting resources.

Dr Marta Yebra, from the Australian National University (ANU), leads a team of researchers who developed the mapping tool.

“Bushfires have been part of the Australian landscape for a long time,” said Dr Yebra. “However, these days, with climate change, the fires are becoming more frequent and more severe.”

A first in Australia

Dr Yebra’s interactive map is the first web-based system in Australia. It was developed as part of the Mapping Bushfire Hazards and Impacts research project with the Bushfire and Natural Hazards CRC.

Emergency services and land management agencies can use the system’s different filters and settings to evaluate the risk of a bushfire occurring in certain parts of the country, based on the dryness of soil and fuels and the flammability of vegetation.

“The displayed fuel moisture content and flammability maps have been generated using freely available satellite data,” said Dr Yebra.

The prototype system used the satellite data to provide a clear picture of the landscape where there are high levels of vegetation and soil dryness, which are the perfect conditions for a severe bushfire. The satellite data was then used to formulate an algorithm for fuel moisture content. This algorithm was based on Dr Yebra’s PhD studies on fuel moisture content in Spain.

Dr Yebra is now looking at ways that fire and land management agencies can use the tool during bushfire seasons.

“The very first step is to make people aware that this tool exists, and then to give them some ideas on how they could use it,” she explained.

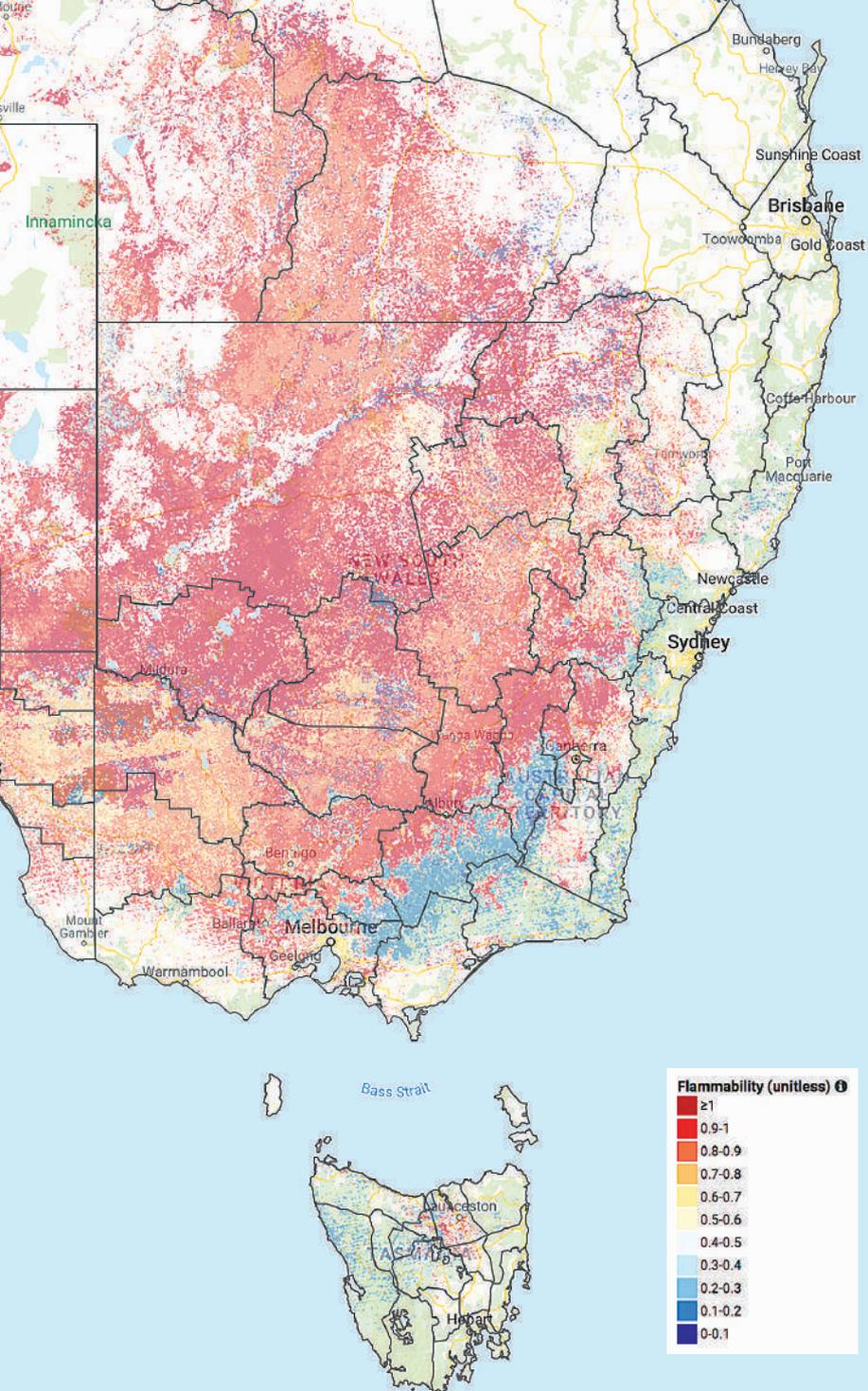
One such way could be as part of preseason planning, when fire agencies and land management departments formulate their seasonal outlook for fire and map at-risk areas.

“In comparison to previous years, they can get an idea of how severe the bushfire season may be and therefore they can be better prepared for a given location,” Dr Yebra added.

“If you compare the current dryness values for a location with the values of previous weeks or months, you can have a sense of how much drier the land is than it was last season, for example, and that may give you an idea of how much danger could be in your specific area.”

This could be particularly useful for planning and undertaking prescribed burns.

“They [fire managers] need to know



the moisture content of the planned burn area to know whether it is going to be successful, because if it is too wet it will not burn, but if it is too dry it can be over-burned or escape,” she said.

Implementing the map

End user Dr Stuart Matthews is a senior project officer at the NSW Rural Fire Service. He thinks the fire mapping tool will provide some useful applications.

“Over the next few months we will work with Marta on how to use it,” he said.

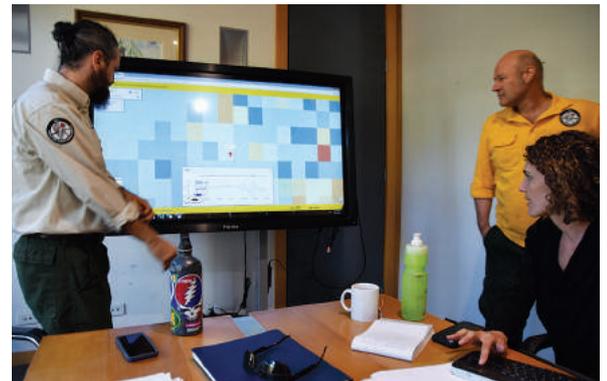
Dr Matthews said implementing the prototype into organisations including the NSW RFS is a gradual process. He is looking forward to using it more thoroughly during the upcoming fire season, since the map was developed during the previous season.

Where to next?

Data on the map is currently updated around every four days, but the research team is looking at a ways to ensure the content is even more up to date. Refreshing data on the map is currently a tedious process—satellite data needs to be collected before the algorithm is run, and then downloaded onto the national computing infrastructure at ANU. Dr Yebra said the idea is to make the map update automatically, with live data provided daily.

Dr Matthews said that while NSW RFS currently receives and provides daily updates on soil dryness in summer periods, gaining the confidence and understanding of the tool will be of utmost importance moving forward.

“There needs to be a group of



With Dr Marta Yebra in the driver’s seat (right), ACT Parks and Conservation Service staff Brian Levine (left) and Dr Adam Leavesley (middle) investigate soil and vegetation dryness using the mapping software.

operations people who understand what the numbers mean. A weekly estimate makes scientific sense, but it would be interesting to see daily data,” he said.

For now, the core audience for the system is fire managers, but in the future Dr Yebra hopes that use of the mapping could expand to individual community members, such as farmers. Those on the land could use the mapping to assess how dry their patch is when preparing for the fire season.

While there has been interest from community groups on how the mapping can be used at a local level, Dr Yebra said people will always take time to trust and use a new information system.

Associate Professor Geoff Cary and Professor Albert van Dijk from ANU, alongside student researcher Li Zhao and two associate students, Wasin Chaivaranont and Andrea Massetti, make up the research team. The team has already attracted interest from government agencies and multinational organisations, including Boeing.

The team is testing the system in its present state before identifying where it can be used by fire managers and the community. Dr Yebra is sharing her findings with key stakeholders to gain feedback on the map through seminars and workshops. She has also taken part in a briefing through a webinar coordinated by AFAC. These types of education events will help inform fire and land managers of the benefits of using a tool such as the Australian Flammability Monitoring System in their organisation.

Dr Yebra was awarded the Max Day Environmental Science Fellowship from the Australian Academy of Science in 2017 for her work on the project and in other related areas. ■

You can see the fire mapping tool online: <http://wenfo.org/afms>.

EMERGENCY MANAGEMENT PROFESSIONALISATION SCHEME

BY **PAUL CONSIDINE**

Emergency Management Professionalisation Scheme

Since 2015, the Emergency Management Professionalisation Scheme (EMPS) has been certifying incident controllers in Australia and New Zealand who have demonstrated their expertise, in terms of training and experience, to an assessment panel made up of senior practitioners.



Arduous bushfire fighting in Tasmania.



The EMPS initiative has been well-supported: published figures indicate that about 300 Level 3 incident controllers are working in Australia, and more than 40 of them have been through the certification process.

Participant feedback has emphasised the benefits for individuals and their agencies in holding a nationally recognised incident management credential. Now, EMPS is expanding to offer these benefits to a broader cross-section of the emergency management community.

Approved national credentialing scheme

The AFAC National Council has authorised EMPS to provide registration and certification aligned to professional standards that have been through a rigorous development and consultation process. EMPS is the only scheme recognised by the National Council as

providing credentials to emergency management practitioners who can provide evidence of extensive training and experience.

Certification and registration

From April 2018, the existing cohort of certified practitioners is being joined by colleagues who have been through a registration process. While certification requires the submission of a portfolio of evidence and a panel interview, registration is based on applicants having been assessed as competent in their field according to nationally agreed criteria, along with a period of experience in which they have demonstrated their skills and the endorsement of their agency.

The ability to become a registered practitioner will be attractive to many proficient practitioners working in emergency management roles across the country. These practitioners would not necessarily describe themselves as 'expert' or wish to go through a certification process, but would still appreciate recognition of their proven abilities, and the ability to demonstrate that their level of competence suits them for activities such as interstate and international deployment.

Range of EM roles on offer

The incident controller role was the first to be recognised by EMPS through the Certified Incident Controller credential. It is now possible to apply for certification in the role of Public Information Officer, and registered credentials are available for all incident management team (IMT) roles except operations officer (due to be made available later in 2018) and investigation officer.

EMPS will also target a limited range of roles outside incident management that would benefit from a nationally recognised benchmark for proficiency in terms of skill and experience. The first of these to be made available is Registered Arduous Bushfire Firefighter, which captures the requirements for deploying internationally in frontline firefighter roles. Additional roles may cover areas as diverse as aviation, fire investigation and swift water rescue.

If the same proportion of Level 3 incident controllers who have applied for the Certified Incident Controller credential is reflected in applications for registration across the broad range of roles to be made available, participation in EMPS could number in the thousands

within the next two to three years. But the potential reach of the Scheme extends beyond incident management.

EMPS and the broader emergency management community

One of the strengths of EMPS is that the concept on which the original Scheme credentials were built—nationally endorsed benchmarks for both training and experience in an operational environment—can be readily adapted to practice fields beyond incident management. For example, emergency managers working in industry, local government or non-governmental organisations involved in relief and recovery may also be able to recognise from national credentials that benefit from national credentials that recognise training and experience in their field.

To develop national standards beyond incident management, EMPS will engage with practitioners and training providers and identify suitable subject matter areas. The structure of the Scheme requires all credentials to be underpinned by nationally available training that represents a consensus in terms of curriculum and assessment criteria. One of the indirect benefits of EMPS may be the development of suitable training courses that replicate the national reach of the Public Safety Training Package for fire and emergency service workers.

The future of emergency management as a profession

As emergency managers, we are generally seen as 'professional' in what we do, but not as members of an established 'profession'. 'Professional' in this context has nothing to do with whether we are compensated for our activities. Instead, it refers to the standards of skill, judgement and ethics we hold ourselves to—and both employed and volunteer personnel can be 'professional' in the way they think, speak and act.

Other occupations, such as teaching, nursing and paramedicine, have developed over time to be viewed as professions in their own right, with nationally agreed standards of education, experience and ethics. The goal of EMPS is to achieve similar status for emergency management as a recognised profession. National certification and registration is not an end in itself, but will create a centre of gravity for professional practice that we hope, in time, will lead to the community and government recognising the emergency management profession as a critical contributor to public safety in Australia and New Zealand. ■



NSW Rural Fire Service state control centre.

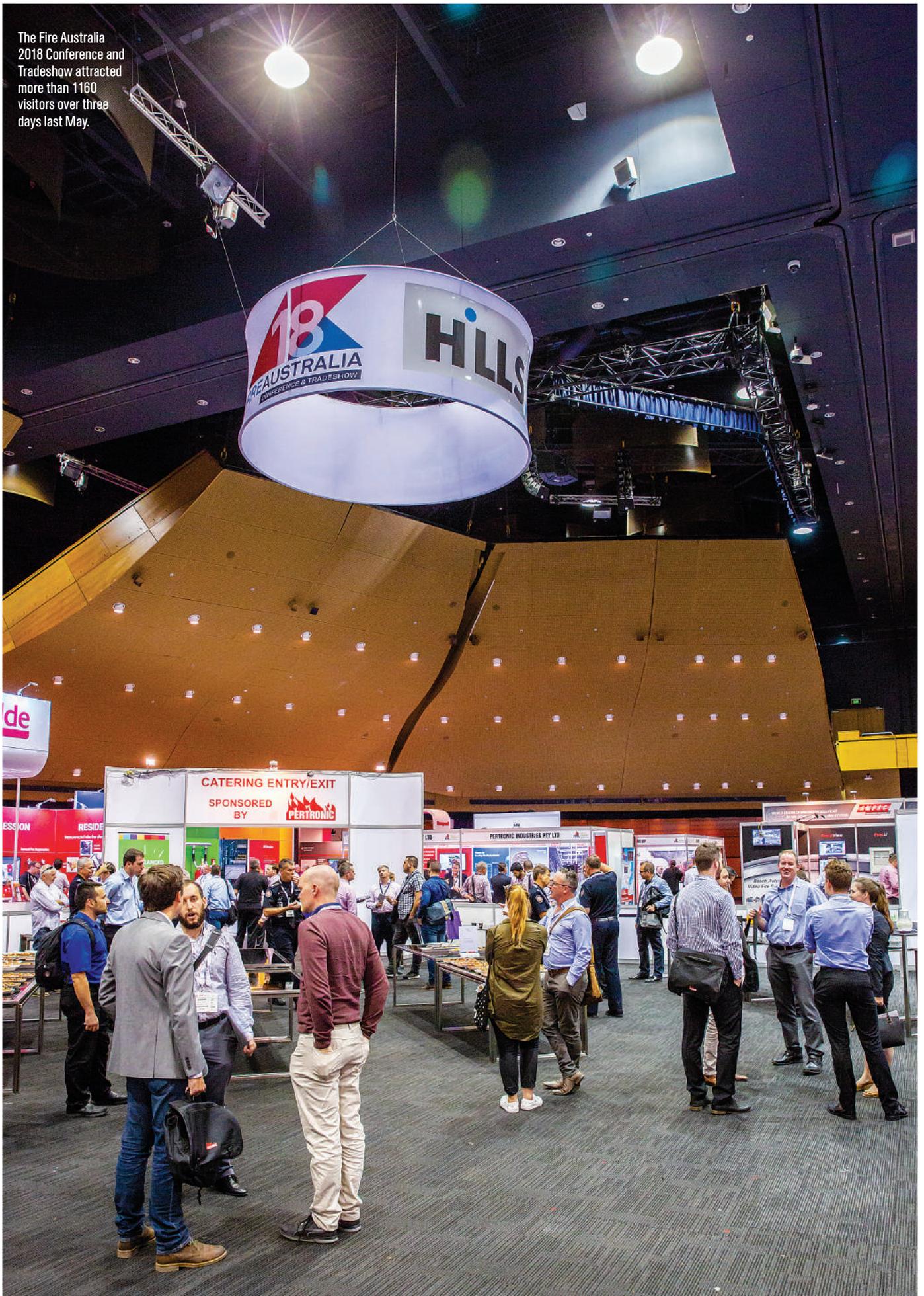


NSW RURAL FIRE SERVICE



PHOTO: WARREN FRET

The Fire Australia 2018 Conference and Tradeshow attracted more than 1160 visitors over three days last May.



THE WAY AHEAD AT FIRE AUSTRALIA 2018

A challenging but necessary path forward was laid out at Fire Australia 2018, the nation's premier event dedicated to the fire protection industry.

BY **TOM BICKNELL**

FPA Australia

The Fire Australia 2018 Conference and Tradeshow attracted more than 1160 visitors over three days last May. It was a great success for the latest edition of the largest event dedicated to the fire protection industry in the Southern Hemisphere. Held at the Brisbane Convention and Exhibition Centre, the event drew in 45 speakers and 53 exhibitors from across Australasia, Europe, Asia and North America.

"We were extremely pleased with the quality of visitors who attended the event this year," said Mark Potter, General Manager of Engagement and Events at Fire Protection Association Australia (FPA Australia), the show's host.

If there was a single theme for the event, it was about the way forward for an industry facing challenges with compliance, competence and consistency.

"Many of the conference presentations over the three days of the event have challenged the industry to do better, leading to quality building outcomes that protect our community," said FPA Australia CEO Scott Williams.

"We are undergoing a time of significant change in the fire protection industry, and events like Fire Australia are increasingly important to draw the industry together to share ideas and solutions, and make sure we are all working towards the same goals.

"It is also an increasingly competitive market. The feedback from exhibitors was very positive about the number and quality of enquiries they experienced during the trade show. We'd like to thank our tradeshow exhibitors, conference speakers, sponsors, conference delegates and tradeshow visitors for making this event possible," Mr Williams said.

Looking ahead to next year, Fire Australia 2019 will return to Melbourne on 14–16 May. With more than 50% of exhibition space already booked into a new and improved floorplan, the event is looking to be the largest ever Fire Australia conference. ■

CHARITY DINNER RAISES FUNDS FOR BURNS TREATMENT

As part of Fire Australia 2018, Fire Protection Association Australia held a charity dinner to raise funds for the Fiona Wood Foundation, the Association's official charity partner, hosted by TV personality and author Andrew Daddo. The dinner featured charity auctions and, for the first time, a cross-Tasman quiz, with the New Zealand team narrowly taking the prize over the Australians. Attendees also heard from David Fyfe (pictured), a Fiona Wood Foundation Board member and Bali bombing survivor. The event raised \$25,500 for the Foundation, which will contribute to the organisation's work to reduce the devastation caused by the physical, psychological and social impacts of burn injury. FPA Australia would also like to recognise the generous support of James Law, of Brisbane, and the Firefighter Cancer Foundation Australia, as well as Gina Patrick of Plus Passive Fire, who donated auction goods.



BRETT BASSETT Queensland Building and Construction Commission (Australia)

Commissioner Brett Bassett of the Queensland Building and Construction Commission officially opened the Fire Australia conference program. He set the tone with an encouragement that while increasing the competency of the fire protection industry was difficult, it was worth the effort.

"To achieve our life safety objectives, it's important to ensure we have minimum competencies, but the road to develop and implement this regime has been challenging," Commissioner Bassett said.

CONTINUED
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FROM PAGE 23

KATHLEEN ALMAND National Fire Protection Association (US) and **SIGURJON INGULFSSON**, Arup (Australia)

Kathleen Almand and Sigurjon Ingulfsson jointly presented on the newly released risk assessment tool EFFECT: Evaluating fire risk in high rise buildings with combustible façade systems.

Providing both a workshop on its use and a detailed presentation on its development, Ms Almand and Mr Ingulfsson explained how governments and other managing authorities in the US and around the world were using EFFECT to prioritise the remediation of combustible cladding on at-risk building stocks numbering in the thousands.

"NFPA [National Fire Protection Association] developed the EFFECT tool in response to a need expressed to us from authorities around the world faced with a building inventory that they were unsure about, and no means to really take a look at where they should be prioritising their efforts," said Ms Almand.

Released on 1 February 2018, the tool's enthusiastic adoption has been a reflection of the scale of that need.

As of the start of May, there were more than 250 registered users of the tool globally, with significant uptake in Australia.

"The use is worldwide—perhaps a third [of users] in the US, and about 25% in Australia, and then the Middle East and the UK are the other main users," Ms Almand added.



NEIL SAVERY Australian Building Codes Board (Australia)

Neil Savery, CEO of the Australian Building Codes Board (ABCB), spoke about the critical need to address the problem of non-compliance in the building and construction sector.

"There's no point having a construction code with all its wonderful rules if we haven't got the rest of the infrastructure sitting around it working effectively," Mr Savery said.

"The combustible cladding problem is simply a symptom. It's a horrible symptom, but it's just one from a much broader problem in implementation of the code.

"The fix will be a long-term thing, because sitting behind all of this is culture—and culture is the hardest thing to change."



AL RAMIREZ Underwriters Laboratories (US)

Al Ramirez, from global safety consulting and certification company UL, covered a range of international trends in the fire safety sector. The key shift he saw globally was the increasing use of active fire protection.

"Passive protection is the preferred method I see in construction across the globe, and compartmentation is number one," said Mr Ramirez. "Unfortunately, that's often because of economic considerations. But active protection is growing. It's very good to see growing use of sprinklers.

"Fire protection does cost, but it's not something that should be taken into consideration at the last stage of a project."

ROSEMARY KILLIP Building Networks (NZ)

Rosemary Killip, director and learning facilitator of Building Networks in New Zealand, gave a passionate presentation on the need for compliance in the building and construction sector. Ms Killip stressed the need for collaboration between jurisdictions on codes and standards, with huge potential benefits from the adoption of best-practice options already in place in other countries.

"If there's an international solution already available, why aren't we doing more to get that into our own countries, when the issues are all the same?" Ms Killip asked.



INTRODUCING SPARK: A NEW KNOWLEDGE-SHARING PLATFORM FOR FIRE PROTECTION

At the end of March, Fire Protection Association Australia (FPA Australia) officially took the covers off SPARK—a new online community developed for Association members to share advice, experience and resources with more than 10,000 other fire protection industry professionals.

SPARK is a private and secure community forum and library where Fire Protection Association Australia members can:

- ◆ share knowledge and experience with others
- ◆ provide information, files and answers to challenging questions
- ◆ ask questions and have discussions with thousands of industry professionals
- ◆ research solutions to challenging problems or issues to make your job easier
- ◆ gain knowledge and access to useful and informative discussions and document libraries.

SPARK includes forums on key areas of interest, including bushfires, building fire safety, and fire protection systems and equipment. It also has a members' lounge. Special-interest forums are available for seminar attendees, Fire Protection Accreditation Scheme and Bushfire Planning and Design-accredited individuals, and Technical

Advisory Committee (TAC) members, among others.

The forum began development in 2017 and was generously beta-tested by TAC members over several months.

SPARK represents a major new benefit for FPA Australia members. No similar platforms exist for Australian fire protection, or in fact for most Australian industries.

"There is a huge amount of detailed knowledge and experience out there in the fire protection sector, and industry members have historically been very generous in sharing that with each other for the benefit of the profession," said Mark Potter, FPA Australia's General Manager Engagement and Events.

"SPARK will make that sharing easier and more accessible, generate discussion and allow collaboration, all of which will help improve the knowledge of the industry, the development of best practice, and ultimately better fire protection outcomes."

The SPARK platform is already generating interesting conversations. Recent topics have included heat collectors in sprinkler systems, an update to Victorian bushfire-prone area listings, use of fire pumps in series, break tanks for hydrant systems and more. ■

Visit spark.fpa.com.au to join the discussion.

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A place to engage with your colleagues in a private online community

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- Testing of Fast Response Automatic Sprinkler Samples (Sprinklers with an RTI rating of 50 or less) to: AS1851-2012 + (ISO 6182-1)
- Testing of Foam Concentrate to NFPA 11A



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AFAC18: CHANGING LIVES IN A CHANGING WORLD

At AFAC18 powered by INTERSCHUTZ, researchers, practitioners and leaders will meet to discuss how to thrive in an ever-changing, complex environment.



AFAC18 will feature entertaining and informative keynote speakers.

BY **ZOE KENYON**

AFAC

We live in a world where change is the new normal.

On a daily basis, we are being asked to learn and adapt to new developments across the emergency management sector. New science and research demonstrate improved ways of working. Reviews and inquiries influence sweeping change, and our organisations are under increasing political and economic pressure.

Advances in innovation and technology mean that change is more prolific than ever, with each idea promising to deliver in better ways. The environments in which we operate—the

natural, the built and the political—are all changing. We need to be able to adapt and respond to these changes.

So how do we navigate this complex world? What is the future for emergency management, and how can we better predict, navigate, manage and lead through change?

At AFAC18 powered by INTERSCHUTZ, researchers, emergency management practitioners and leaders from Australia and around the world will gather in Perth to discuss how we can all thrive in an ever-changing and complex environment.

With a program of more than 130 presentations over three days, delegates will learn about cutting-edge emergency management and natural

hazards research, listen to internationally respected keynote speakers and take part in lively and interactive forums.

In addition to the two-day, five-stream program and one-day Research Forum by the Bushfire and Natural Hazards CRC, AFAC18 delegates will be able to access the inaugural Australian Disaster Resilience Conference, hosted by the Australian Institute for Disaster Resilience.

Speakers include local and internationally renowned emergency management professionals. Keynote speakers include:

- ◆ Craig Fugate (US), Senior Advisor at The Cadmus Group and former Administrator, US Federal Emergency Management Agency (FEMA). Mr Fugate served with FEMA from 2008



AFAC18 PANEL DISCUSSIONS

Complementing AFAC18's keynote and invited speaker program are interactive panel discussions, including:

- ◆ Chiefs for change on gender equality and inclusion—an open and authentic discussion on how the Fire and Emergency Male Champions of Change (MCC) program has progressed in its inaugural year. Chaired by Convenor Kristen Hilton, the MCC representatives will share their experiences and the backlash they have received during this disruptive approach to culture change.
- ◆ Challenges for prescribed burning in a changing climate, which will address questions that arise from different approaches to prescribed burning and how they will be affected by climate change. The panel will explore the implications for agencies and their ability to meet targets, ecological responses, and the potential for a national approach.

to 2017 and led the agency through numerous major disasters and emergencies.

- ◆ Mark Croweller AFSM, First Assistant Secretary, National Resilience Taskforce, Department of Home Affairs. Mr Croweller leads the taskforce responsible for developing a five-year national disaster mitigation framework to reduce the impact of disasters.
- ◆ Professor Dana Born (US), Lecturer in Public Policy at Harvard Kennedy School of Government and Co-Director of the Centre for Public Leadership. Prof Born is a former Brigadier of the US Air Force with 30 years of service, and an expert in public leadership who talks about how to use vulnerability as a strength. ■

AFAC18 will be held at the Perth Convention and Exhibition Centre, 5–8 September 2018. To register, go to www.afacconference.com.au.



Researchers gathering information on beach sediment, a primary factor in the severity of coastal erosion.

COASTAL EROSION UNDERCUTTING POLICY

Eighty percent of Australians live near the coast. Researchers have now paved the way for future sustainable policy by gathering important data that shows just how much is at risk for coastal dwellers.

BY **COSTA HARITOS**

Bushfire and Natural Hazards CRC

The Australian dream of owning a beachside property is slowly falling apart as the threat of coastal erosion on our favourite Australian beaches becomes a primary concern for coastal managers. Severe storms can cause significant damage to coastal towns, infrastructure and properties. This is a threat to many of the 80% of Australians who choose to live near the coast.

Erosion can be a complex beast. For those who live at the beach, it is not always as simple as assuming what happens at one location is the same elsewhere—local geography can play a huge role in determining just how detrimental erosion can be.

But researchers involved in the Bushfire and Natural Hazards CRC's Resilience to Clustered Disaster Events

at the Coast: Storm Surge project have now conducted fieldwork and modelling to help save Australia's pristine beaches at two sites where beach erosion is an ongoing management issue.

The research team, based at Geoscience Australia and the University of Queensland, has been conducting extensive research since 2015. They have now created a StoryMap as a way of explaining their discoveries, engaging coastal managers and interacting with communities.

"The StoryMap can be used by coastal communities to get an introduction to what causes coastal erosion, and how it can vary from location to location," said project leader Dr Scott Nichol, from Geoscience Australia. Dr Nichol has worked as a coastal geomorphologist and sedimentologist for 25 years, specialising in marine geoscience research.

The research team conducted

research at Old Bar on the NSW central coast and at Adelaide's metropolitan beaches. Specifically, the project looked at the response of beaches to successive storms known as storm clusters, which can cause extensive damage to the coast over time.

"These locations were active erosion hotspots that had posed some challenges for coastal managers," Dr Nichol said.

Textile sheets, sandbags and dune-stabilising plants had been placed before the study began along the Old Bar coast to mitigate wave undercutting. This occurs when the sand gets so wet that it collapses—a particular danger when a house or road is built on top. The saturation of soil and sand reduces the strength of the ground, increasing the chances of landslides and erosion.

The two case studies are a way of demonstrating a national method to understanding coastal erosion in two

distinct coastal environments.

"The important thing is that this information gets people thinking and asking questions," explained Dr Nichol.

The StoryMap shows the dune crest at Old Bar continuing to shift further back over time. It predicts that more than 20 buildings will be at risk of damage by the changing sand dunes in the next 50 years, with a further nine buildings predicted to be within 10 metres of the dune crest in the same period.

For Old Bar alone, this has vast implications for these residents, as well as any future development in the town.

The researchers calculated the results by investigating the annual exceedance probabilities, which measure the amount of erosion from storm clusters over 12 months and the probability of that number being exceeded each year. The team analysed wave buoy data from Old Bar to classify any wave height exceeding 2.93 metres as a storm. They also conducted surveys on the size of sand grains, the height of waves, and the depth of beach sediment, which is measured by a radar that penetrates the subsurface of the ground.

James Guy, from South Australia's Department for Environment and Water, is an end user for the project. He explained the research team has provided a body of knowledge around the shoreline response to clustered storms.

"The new data, modelling tools and summary information for the Adelaide metropolitan beaches and Old Bar are essential reference materials for coastal managers," Mr Guy said.

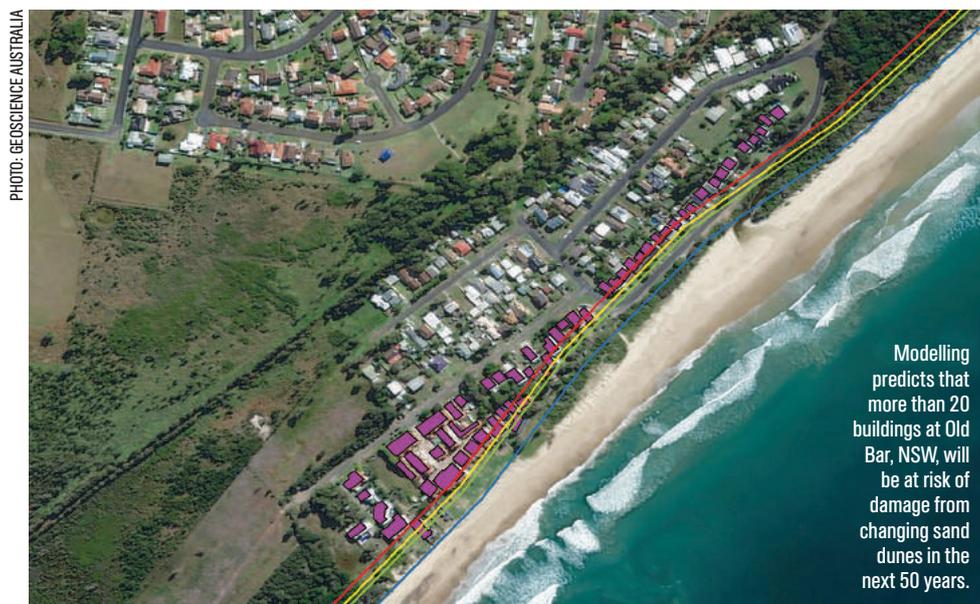
While the modelling does not consider rising sea levels or changes in the intensity of storms, Dr Nichol stresses that the conversations occurring now are key.

"The project provides information for decision-makers, who will need to assess the risk of erosion in the context of other factors before taking action," he said.

The research team hopes that the information will provide decision-makers with the tools they need to assess the risk of erosion and help fast-track policy formulation.

Coastal managers can use the methods presented in the StoryMap at other beach locations nationwide where sufficient data is available. This can improve their planning and response to severe storms.

Researchers on the team say there is a continuing need for data and a greater understanding of how successive storms can affect a beach. This will



Building footprints — Current dune position Annual Exceedance Probability: — 10% — 5% — 2%



benefit the estimated 700,000 residents across the country who live within three kilometres of the coast and less than five metres above the average sea level, where erosion could have life-changing consequences.

The Department for Environment and Water in South Australia will begin using the outcomes of the research to refine its annual beach replenishment program in Adelaide. The program is part of Adelaide's Living Beaches Strategy, which identified beach erosion as an ongoing management issue in the 1970s. The Strategy, which aims to reduce the impact of erosion by continuing beach replenishment and recycling sand more effectively, will reduce the cost of managing Adelaide's coastline by up to 20%.

The Victorian State Government will also use some of the research methods from the project as part of a coastal compartments study led by

its Department of Environment, Land, Water and Planning. The Victorian study is funded for four years, with \$3 million pledged by the state government. This will provide communities with information on coastal conditions and the long-term impact of climate change on the beach landscape.

Dr Nichol said the open data and tools developed through the research need to be matched with the right support and technical expertise from governments.

Through sustainable development and the right actions, the Aussie beachside dream can still be alive for future generations. For now, though, it is up to policy-makers to prevent that dream from washing away.

The research project concluded in June 2018. ■

Research methods from the project are now being used in different state government programs and initiatives.

View the StoryMap online:
www.bnhcrc.com.au/news/2018/helping-coastal-managers-plan-better-future-storms.

MULTI-AGENCY LEADERSHIP TAKES FLIGHT AT BANKSTOWN

Emergency services in NSW are currently reviewing their leadership development initiatives. However, the skills required to motivate, communicate and lead are common across the agencies.

BY **GILLIAN ANDREWS**

Leadership Development Specialist, Fire & Rescue NSW

Since 2013, operational staff from NSW State Emergency Service, the NSW Rural Fire Service, Fire & Rescue NSW, NSW Ambulance and other agencies have participated in a multi-agency leadership program. This two-day program, which builds connections, skills and trust across NSW, is run every two months.

The program opens with activities to build self-awareness, emotional intelligence and reflection. The second day applies leadership theories and practices, with the final activity generating projects for further interagency collaboration.

The multi-agency program gives frontline leaders new skills and insight. Networks of respect and trust are built between personnel from different emergency service agencies. Participants value the vigorous discussion—sharing problems and finding solutions together—often showing that different organisations have the same goals and challenges. By understanding and valuing our differences, participants can cooperate to serve our communities better.

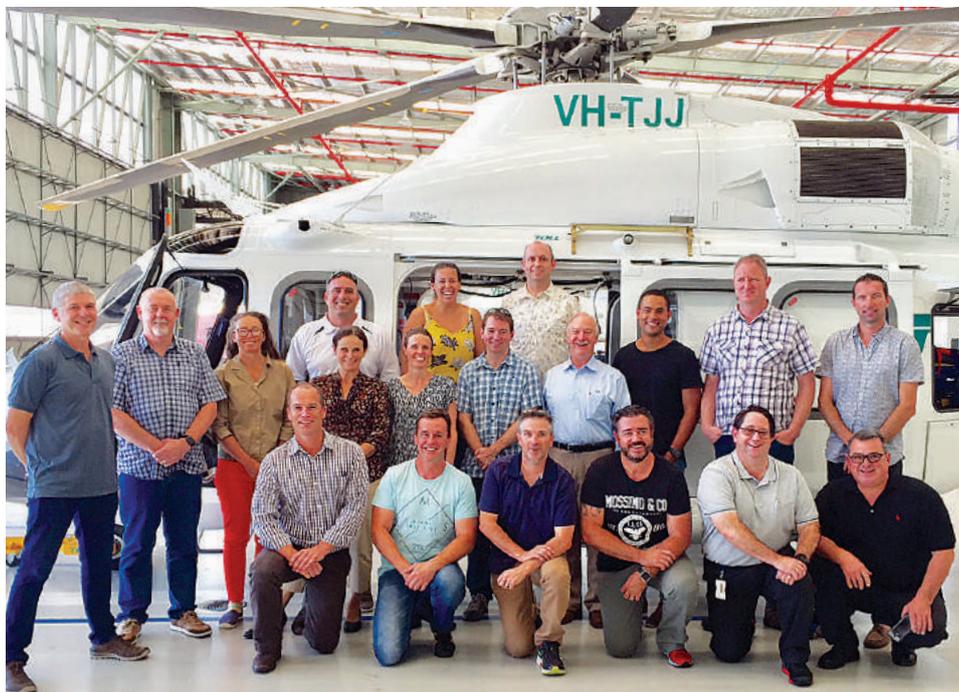
Coordination of the event rotates between agencies. By sharing facilities and trainers, the costs of the program are reduced and accessibility is increased for participants located in regional areas.

The most recent event was held at Bankstown Aeromedical Centre and was hosted by NSW Ambulance. Other recent events have been held in Sutherland, Coffs Harbour, Wagga Wagga, Armidale, Batemans Bay and Bathurst.

Participant feedback on the program has been encouraging.

"I attended an MVA two days after this course and ran into one of the participants," said Braden Hamilton from NSW Ambulance. "It was great to see a familiar face and instantly we were able to work together to get the trapped person released and off to hospital. This is proof that these courses work."

Other participants commented on the value of the experience in its ability



The multi-agency program gives frontline leaders new skills and insight. Networks of respect and trust are built between personnel from different emergency service agencies.

to bring about real change.

"I think that providing this experience to people who work at the coal face increases morale and productivity and reinvigorates a sense of pride and belonging."

Leadership development in the emergency services could be viewed as strong tartan fabric—with vertical, agency-specific training overlaid with horizontal, cross-agency leadership development programs.

There are few multi-agency development opportunities for executives and operational personnel. By increasing these opportunities, and



Participants at the multi-agency leadership program focused on the vision—'we are stronger as a fabric, than as a thread'.

combining them with agency-specific training as an integrated approach to leadership development, we will build stronger and more unified leaders in our emergency services. ■

Application for upcoming events is through each agency's Learning and Development team.

PERFORMANCE-BASED DESIGN AS AN NCC COMPLIANCE OPTION

Five real-life examples demonstrate the advantages of performance-based design for improving fire safety in large buildings.

BY **MARIANNE FOLEY**

ABCB Subject Matter Expert (fire safety), Fellow and Principal Fire Engineer, Arup

One of the ways that the Australian Building Codes Board (ABCB) is trying to assist practitioners in raising awareness and competent use of performance-based design is through developing case studies to meet the National Construction Code (NCC) Performance Requirements.

The following real-life examples show how performance-based solutions have successfully addressed fire safety-related issues.

Example one: OFFICE BUILDINGS, SYDNEY

In a refurbishment of the office building at 50 Martin Place, floors were opened up to an atrium to create 10 interconnected floors, rather than the deemed-to-satisfy (DTS) two floors. The result improved natural light, air quality and connectivity for the building's staff. Smoke curtains and a bespoke smoke-exhaust system—along with sprinklers, detection and warning systems, and generous exit widths for the number of staff—formed the fire safety strategy. In the resulting space, staff productivity increased, offsetting the cost of the refurbishment.

Structural fire engineering analysis was also used in the design of another office building, 1 Shelley Street, to reduce the required fire protection to an external structural diagrid. This reduced the amount of intumescent paint required, which saved both time and cost and improved the quality of finish that was achieved. Reducing construction materials also provided sustainability benefits.

Example two: NATIONAL PORTRAIT GALLERY, CANBERRA

In a building that houses precious works of art, the DTS smoke-exhaust system was replaced in the fire strategy with sprinklers and compartmentation. This avoided the regular loss of carefully climate-controlled conditions as the

smoke-exhaust system was tested. This approach reduced the risk of damage to the artworks while meeting architectural vision and improving security.

Example three: ROYAL NORTH SHORE AND BLACKTOWN HOSPITALS

In high-rise hospitals, both sprinklers and a zone smoke-control system are required under the DTS provisions. Achieving compliant system performance for a zone smoke-control system in a hospital is notoriously difficult, given the high degree of compartmentation, limitations on door-opening forces and special pressurisation requirements for infection control. Bespoke smoke-control designs were used to improve reliability and reduce both capital and maintenance costs. This reduced precious healthcare spending, allowing it to be used for better healthcare outcomes.

Example four: HERITAGE BUILDINGS

Many heritage buildings have been protected and preserved by using performance-based fire engineering in adaptive reuse. The office building at 39 Hunter Street features a bespoke atrium suppression system using infrared detection and open head sprinklers to keep potential fire sizes low in the case of an atrium fire. This allowed interconnection of eight floors with an open atrium, as well as using heritage fire stairs with non-complying (DTS) bounding construction. The atrium was part of the ecologically sustainable development strategy for the building, allowing good natural light, ventilation and improved energy use. This was the first heritage building to achieve a six-star Green Star rating in Australia.

Example five: UNIVERSITY BUILDINGS

University research buildings, such as Sydney University's Charles Perkins Centre and UNSW's Tyree building, benefit from performance-based fire engineering. Reduced fire ratings for laboratories allow compartmentation using glazing, and wall wetting from multi-floor open circulation spaces.

This approach allows greater visibility into research spaces, as well as greater connectivity between researchers and students, creating better conditions for innovation and attracting world-class researchers to Australia.

Consider your options

Performance-based design comes with some challenges—particularly education, clarity of outcomes and building approvals. But while the 'tick box' approach of DTS is far easier to manage, these real-life examples demonstrate the benefits that can be achieved using performance-based design. ■

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The Macquarie office building.

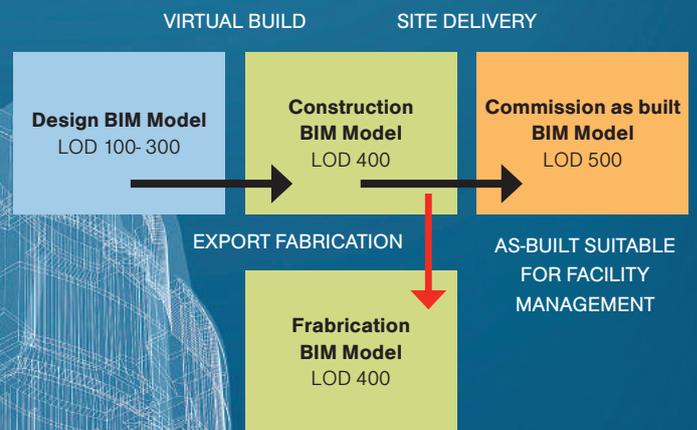


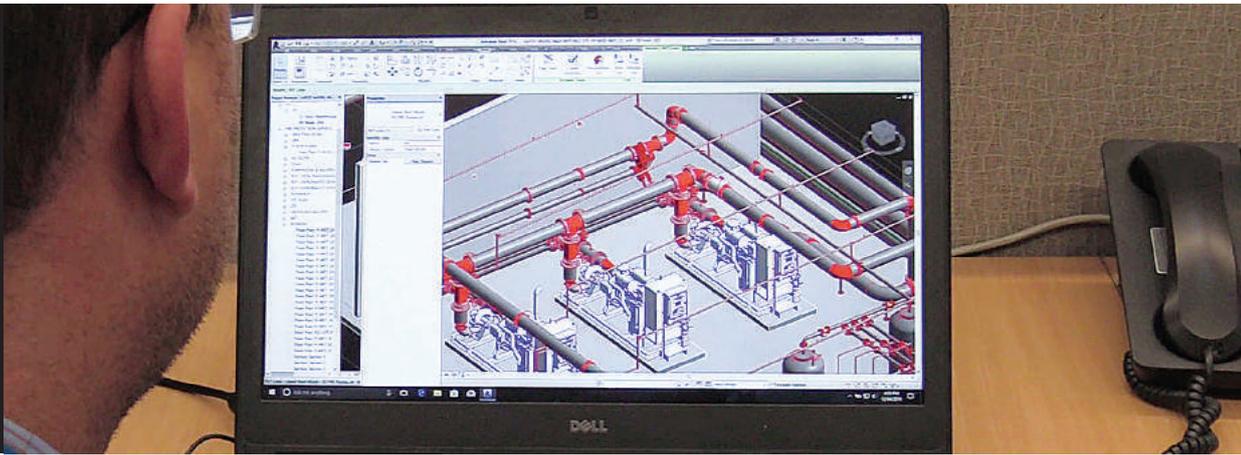
The National Portrait Gallery has benefitted from replacing its old DTS smoke-exhaust system with sprinklers and compartmentation.

BIM ME UP, SCOTTY!

Building information modelling has an important role to play in the future of fire protection.

Figure 1 BIM-MEP^{AUS} overall workflow





BIM is already in use by many parts of the construction industry.

BY **GEOFF FLOWER**

AG Coombs Advisory/Walker Fire Protection

Building information modelling, or BIM, is increasingly being used for design of buildings, particularly by architects, structural engineers and mechanical engineers. BIM has many potential advantages, and these disciplines have been early adopters—leaving the fire protection industry behind to play catch-up. While many projects that have adopted BIM include fire protection, mostly it is just to fit in with the rest of the building design and we are not getting the real advantages.

So what is BIM—and how is it different from traditional CAD? Both are forms of computer-aided design, but while CAD is essentially a tool based on manual drawing, BIM is a process based on data and transfer of that data. This data forms the 'information' part of BIM.

Put simply, a CAD drawing comprises lines and symbols arranged to represent a system, while BIM is a model of a system represented by lines and symbols.

The difference is that unlike CAD, the model knows that components of a system are connected to each other. For instance, a BIM model of a fire sprinkler system may comprise several sprinkler heads connected to pipework, which is connected to a sprinkler control valve assembly that is supplied from a static water storage tank via a fire pump-set. Each of the components knows it is connected, and there is the opportunity to include data within each component of the model.

The types of data or information that can be included in a BIM model are as follows:

- ◆ geospatial (3D): information about dimensional and relative location of the component
- ◆ time (4D): time attributes such as delivery lead times, installation times
- ◆ cost (5D): cost data of the component
- ◆ design parameters: information

relating to the basis of design, e.g. occupancy or hazard classification

- ◆ detailed material and equipment attributes: e.g. cable cross-section area, pump duty point
- ◆ commissioning results: data obtained during commissioning, e.g. sound levels obtained during emergency warning and intercommunication system commissioning.

Much of the focus on BIM to date has been around the geospatial information or 3D building design to avoid clashes between large building elements during construction. This avoids rework and significantly reduces costs. Other potential benefits include:

- ◆ undertaking calculations based upon the model (don't need to model twice)
- ◆ computer-aided manufacture—export model directly to fabricators
- ◆ computer-aided installation—providing significant safety benefits.

BIM promises significant benefits.

However, several challenges still need to be addressed. One of the key challenges is training, since the tools and approach used to create BIM models are significantly different from traditional CAD. Much of the recent focus on training in the fire industry has been on site installation and maintenance personnel, but the adoption of BIM will require a significant investment in training of design and drafting personnel.

Putting the issue of training aside, the bigger challenge is barriers that prevent the flow of information between building designers. This is due to issues such as:

- ◆ use of different software tools
- ◆ development of proprietary elements
- ◆ incompatible workflows
- ◆ different terminology.

One advantage of being a late adopter is that the fire protection industry can take advantage of the work undertaken by the early adopters so that we can reap the benefits more quickly.

Of particular relevance is an initiative

of the Air Conditioning and Mechanical Contractors' Association, known as 'BIM-MEP^{AUS}'. While initially focused on air-conditioning systems, it has been developed with broader building services in mind. MEP is the term used in the US for 'mechanical electrical plumbing', which in Australia and the UK is generally referred to as building services.

In the early days of BIM adoption in Australian building projects, each party in the design and installation team developed their own proprietary content. This significantly disrupted the flow of information between project stakeholders and eroded the benefits of BIM adoption. To put this in perspective, a 2004 National Institute of Standards and Technology report¹ estimated that the cost of inadequate interoperability in the US capital facilities industry was at least US\$15.8 billion.

In 2010, the BIM-MEP^{AUS} initiative was formed with two initial objectives: achieving seamless interoperability of building model information from the design team to the construction team, and integration with the supply chain, such as fabricators and product manufacturers. BIM-MEP^{AUS} publishes standards and templates comprising workflows, guideline documents, specifications and models. When adopted by all project stakeholders, these resources mean that the process is clearly defined, and that each party understands the information they are expected to both provide and receive.

This means that the model developed by the design team is passed directly to the construction team, which can issue it to fabricators and update the design to 'as-built'. The commissioning team adds commissioning data to the model before handing it over to the building owner, who can then use the building model for ongoing maintenance of the building (Figure 1).

The BIM-MEP^{AUS} standards for

heating, ventilation and air conditioning and for mechanical services are now well established, but the equivalent standards for fire protection are not. The good news is that the overall system and workflow are established, and all that is required is some effort to use the mechanical templates as a basis for preparation of specific standards that suit fire protection systems. So what is required?

The model has four main components:

- ◆ BIM-MEP^{AUS} naming convention
- ◆ BIM-MEP^{AUS} Revit template add-in
- ◆ BIM-MEP^{AUS} specifications
- ◆ BIM-MEP^{AUS} shared parameters.

Of these, the naming convention is most fundamental. While it is not common within the fire protection industry to use naming conventions, mechanical and electrical services often use naming conventions for plant and equipment. For example, a series of stair pressurisation fans may be SPF-1, SPF-2, or an electrical distribution board may be DB-1.1, DB-1.2. Part of the reason we don't often use similar naming conventions in fire protection is typically because there is not much plant and equipment to keep track of—a couple of fire pumps, a fire panel and some sprinkler control valves, for example. To take advantage of the benefits promised by adopting BIM as standard, however, a well-defined naming convention is essential.

While it sounds like a simple exercise to prepare a basic nomenclature, several issues will crop up. It should also be stated from the outset that there will always be situations where a standard nomenclature will not adequately cover a particular need. However, the key is to develop a naming convention that will suit the vast majority of applications.

The BIM-MEP^{AUS} naming convention is based upon a hierarchy that starts with definition of a system, which is then made up of plant, equipment,

fittings and interconnected services. Fire protection has several systems, including those in Table 1.

One of the first challenges in defining the nomenclature is to decide if the special hazards systems need to be defined separately, or should be simply categorised as one fire-suppression system. Furthermore, most special hazards systems incorporate a fire detection and alarm system, so it would need to be considered how this fits in. Another similar issue is that of combined suppression systems, such as a combined sprinkler and hydrant system, which use common infrastructure.

Then we need to consider plant. In the context of BIM-MEP^{AUS} standards, plant refers to major components of a system that are typically associated as part of the system infrastructure. For fire protection, this may be pumps, static water storage tanks, fire detection control and indicating equipment, and gaseous suppression-agent storage containers. Issues that will need discussion and resolution in relation to plant include the following:

- ◆ is an ancillary pump (e.g. jacking pump) considered different from a fire protection pump?
- ◆ are fire pump controllers and fuel tanks separate plant?
- ◆ do we use long-established abbreviations, such as FIP for fire indicator panel and EWIS for emergency warning and intercommunication system, or do we adopt the current standard abbreviations of FDCIE (fire detection control and indicating equipment), EWCIE (emergency warning control and indication equipment) and EICIE (for emergency intercommunication control and indication equipment)?
- ◆ is a fire fan control panel a separate plant to the FIP/FDCIE?
- ◆ are sprinkler control valves plant or equipment?

◆ is a gaseous-suppression local control station considered as plant (part of the control and indicating equipment)?

Equipment includes valves, pressure/flow switches, booster assemblies, fire hydrants, fire hose reels, fire detectors, emergency warning speakers and fire extinguishers. Fittings would include elements such as sprinkler heads and cable junction boxes. However, there are several potential grey areas as to whether an element is classified as equipment or a fitting; for instance, in the previous description, fire detectors have been identified as equipment while sprinkler heads are classified as fittings.

While the classification of equipment and fittings will need further debate, one of the guiding principles is the type of information that needs to be associated with the component and the need to schedule the components. Equipment will typically be scheduled with information about commissioning or other attributes, whereas fittings typically would not be scheduled. For example, a schedule of fire extinguishers with the type, capacity and rating of each extinguisher is important baseline data, whereas a schedule of every sprinkler head is not normally of much benefit.

Fire Protection Association Australia has recently signed a memorandum of understanding with BIM-MEP^{AUS} to support the initiative. It is intended that BIM-MEP^{AUS} will host several fire protection industry forums in which FPA Australia members will be invited to participate. This is our call to action and chance to have our say in the founding documentation for the Australian industry standard for BIM as applied to fire protection. Look out for the announcements, as this is an opportunity not to be missed. ■

1. <https://nvlpubs.nist.gov/nistpubs/gcr/2004/NIST.GCR.04-867.pdf>

Table 1 Fire protection systems

Fire-suppression systems	Sprinkler (including wet, dry, pre-action and deluge) Fire hydrant Fire hose reel Portable fire extinguishers
Fire detection and alarm systems	Fire detection Emergency warning system Emergency intercom system Fire alarm monitoring system
Special hazards suppression systems	Gaseous suppression Water mist Foam suppression Wet chemical kitchen suppression Condensed aerosol fire suppression



Geoff Flower spoke about BIM at the recent Fire Australia Conference & Tradeshow 2018.

NEW DISCOUNTS ON VEHICLES AND FIT-OUT FOR FPA AUSTRALIA MEMBERS

A new partnership between FPA Australia and Stratton Finance will help Association members with their business vehicle costs.

BY **TOM BICKNELL**

FPA Australia

Fire Protection Association Australia (FPA Australia) announced in May a major new member benefit in partnership with Stratton Finance, part of the carsales network.

FPA Australia Corporate and Organisation members will now be eligible for significant and exclusive discounts on pricing, financing and fit-out of vehicles and other assets through Stratton Finance and its partners, carconnect and Caddy Storage. A dedicated Stratton Finance helpline and website make it easy for members to access these services.

Stratton Finance is already a trusted partner to the fire protection industry, and several FPA Australia members have used the service for years.

"We've been getting all our vehicles through Stratton for about four years—several different types of utes and a couple of vans. Sourcing and financing through Stratton Finance has saved us a significant amount of money," said David Groth, Director of Alform Fire & Electrical, an FPA Australia Corporate Silver Member.

"They're fantastic to deal with. It's definitely working for us. The service through Stratton could not have been better—from start to finish we couldn't be more happy with the process."

The new partnership is a response to feedback from members, who told the Association they wanted more help with vehicle purchasing.

"We're really pleased to be able to offer support to our members with their business costs, and for the fire protection industry the cost of vehicles and their fit-out can be significant," said Leo Mautone, FPA Australia's General Manager of Member and Industry Services.

"The partnership with Stratton Finance is part of a renewed push to help our members with their daily business operations." ■

FPA Australia Corporate and Organisation members can access the new services at: stratton.com.au/fpaa.

STRATTON FINANCE

Stratton Finance is one of Australia's largest asset finance brokers. It works with a panel of trusted lenders to find FPA Australia members the right deal for their circumstances. It can also source vehicles through its partner carconnect. Stratton Finance will help you find the best price on your new, used or demo vehicles by getting prices from hundreds of dealers across all vehicle manufacturers, including access to fleet discounts. They will also organise trade-ins to keep the process as easy as possible. To celebrate the new partnership, every FPA Australia Corporate and Organisation member who settled their finance contract before 30 June 2018 received a \$500 gift card. Watch out for future promotions.

CADDY STORAGE

Caddy Storage provides premium custom vehicle fit-outs and storage solutions, catering to everyone from sole traders to national fleets. FPA Australia Corporate and Organisation members are eligible for an exclusive 10% discount on any purchase from Caddy Storage. Large fleets may be eligible for further discounts.



Toby Simmons from Stratton Finance with FPA Australia's CEO Scott Williams.

The new partnership is a response to feedback from members, who told the Association they wanted more help with vehicle purchasing.



REMOTE INDIGENOUS COMMUNITIES WELCOME TWO-WAY TRAINING



PHOTO: BEV SITHOLE

In a world far removed from most of Australia, a unique project has developed a pilot training program for remote Indigenous people in Arnhem Land, based on what local people have said they need.

BY **STEVE SUTTON**

Bushfire and Natural Hazards CRC and Charles Darwin University

Although Australia's National Strategy for Disaster Resilience seeks equity in fire and emergency management across the nation, remote communities in northern Australia are at a severe disadvantage when it comes to managing natural hazards.

Inadequate infrastructure unsuited to wet season conditions—combined with remoteness—isolates communities for up to six months per year, while socioeconomic measures show that remote community inhabitants are in the lowest tiers of Australian health, education and income. Yet all remote communities are expected to contribute to the 'shared responsibility' for disaster risk reduction. In Australia's far north, however, many communities have never had an effective dialogue with government agencies. This has led to profound misunderstandings on both sides about capacities and responsibilities.

This project, run through the Bushfire and Natural Hazards CRC, was brought

about through concerns expressed by Indigenous people in some remote Northern Territory communities about the inadequacy of fire and emergency management training in northern Australia. The project has national significance. It has highlighted the need for greater awareness of the profound cultural differences between bureaucracies and Indigenous people, and the desire by communities to have non-Indigenous emergency management training that builds on Indigenous knowledge and delivery of hazard management practices.

Following informal conversations initiated by Indigenous people, researchers consulted community members in three Arnhem Land communities: Ramingining in Central Arnhem Land, and Maningrida and Manmoyi, both in West Arnhem Land (see map, page 38). The objective was to document the issues and develop training that meets their requirements and aspirations. For many Indigenous participants, this was the first time they had been consulted by a non-Indigenous person about Indigenous understanding of natural hazards, resilience, leadership and decision-making.

Community members' understanding of their risk profile and resilience was also assessed. Remarkably, it was discovered that many of the participants had never heard of 'natural hazards management'. Nor did they understand the term 'resilience' in this context: that is, the ability of individuals and communities to adapt to environmental changes and to continue a fulfilling existence on country.

How did the project happen?

The three remote Arnhem Land communities were selected because:

1. they were located near emerging fire and land management projects
2. they were affected by two cyclones (*Nathan* and *Lam*) in early 2015
3. community members had strongly advocated for training.

Initially, the strategy was to adopt a qualitative approach to determine what local people felt was needed in training. This strategy proved to be overly specific and of a limited scope. Subsequently, it evolved and broadened as the researchers worked with the project's participants.

The project began with interviews that were unstructured conversations



The importance of including the whole community in training has been a key finding from this project.



NEED TO KNOW

ARPN (Aboriginal Research Practitioners Network): a coordinated Indigenous team, trained in participatory action research. Members are contracted to conduct research, evaluation and planning activities using qualitative and quantitative research methods. For each project, ARPN members work with the lead researcher to clarify the research objective and frame the approach. ARPN research is then conducted in the participants' first language, with due attention to local cultural sensitivities.

Balanda: white people; term derived from 'Hollander'.

about fire and emergency management, and the training that people required to access emerging opportunities in greenhouse emissions abatement and commercial land management in the region. A series of workshops were then held to investigate land management practice and knowledge, which culminated in two workshops targeting leadership and decision-making. The workshops were facilitated by practitioners from the Aboriginal Research Practitioners Network (ARPN), a coordinated team of Indigenous people who have been trained in participatory action research (see 'Need to Know' box).

The ARPN team used the languages of the community members, as well as English, to generate a deeper understanding of the issues. This dramatically improved the project's progress by generating excitement among participants, including people who would usually rarely attend meetings with 'balanda' (white people). Conducting research in the participants' first language, with recognition of and deference to Aboriginal cultural settings, showed that the researchers were committed to addressing

each community's training needs. In particular, it emerged that the limited scope of the research was, in fact, itself constrained by the preconceptions of the research team—and that a much deeper set of lessons were contained within the research findings.

What did we find?

This project has identified lessons for all interactions between emergency management agencies and Indigenous people. The research team found that effective training should respect the local Indigenous culture by working within the non-hierarchical decision-making matrix of each community. Figure 1 (next page) shows the matrix for the Central and West Arnhem Land communities that participated in the research (note, their term for 'people' is Bininj). In this system, no individual has the authority to make a decision regarding land or hazard management—instead, input is usually sought from key members across the matrix, which might include different language groups. A key insight is that Indigenous people believe that only a person born of the country in question should be able to make decisions about that country.

With regard to the training, Indigenous participants wanted to continue the existing training, with its focus on safety and non-Aboriginal conceptions of fire and response. However, they also expressly required that training include their own understandings of fire and practices and use their own 'professors'—senior community members with ceremonial and practical qualifications in fire and land management. They insisted that training should integrate with their existing wisdom to build a wider, intersecting understanding of their role in fire and emergency management.

Indigenous participants preferred to have training conducted on their community lands ('on country'), rather

FEEDBACK ON THE TRAINING

Elders who attended a training pilot in 2017 have provided feedback (for cultural reasons, they have not been identified).

“Family they saw what I was doing with all them projects, I bin go here and get that training and that training, this bin different from any other training workshop.”

—Elder 1, Malnyangarnak

“I bin invite im your mob [the trainers] to come and I just need to keep talking to families because this is important. They gotta come and see and hear for themselves, im need that knowledge, im fire is everything for us mob. I bin cry for this. Old man tell me go bla to school, but I bin stupid one, I bin caught by im police. Then one day im good spirit tell me to go read and write. Come on family you gotta come, ngayam, we sing im look after our people and our land.”

—Elder 2, Malnyangarnak

(Translation: I have invited the trainers to come, I just need to keep talking to the families because this is important. They have to come and see and hear for themselves, they need that knowledge, that fire is everything for us. I have been crying for this. The old men told me to go to school but I was the stupid one, I was caught by the police. Then one day a good spirit told me to go and learn to read and write. Come on family you must come, ngayam, we sing for country and look after our people and our land.)

FIGURE 1. LEADERSHIP AND DECISION-MAKING MATRIX FOR INDIGENOUS BININJ (PEOPLE) OF CENTRAL/WEST ARNHEM LAND

BININJ FIRE, LAND AND EMERGENCY LEADERSHIP AND DECISION MAKING MATRIX



FIGURE 2. Location map of participating Arnhem Land communities



than in towns or cities, and to use a mix of interactive techniques to operationalise the knowledge. The training structure would ideally combine action, discussion and review in their language, led by elders as well as with balanda. It should be part of a cyclic training program spread over days (a week would be best). Where technology is used (for example, GPS, GIS), it should be introduced and reviewed in ways that allow individuals to become comfortable with their use: for example, familiarising themselves with the technology during breaks or in the evening over a family discussion.

The training should also target the people who will conduct the on-ground work, such as local rangers, and training must also be provided to their extended family or clan (parents, grandparents, children and cousins). The inclusion of this latter group is vital. It builds a pyramid of comprehension of the training and fosters a discussion that bridges 'new' knowledge and existing traditional frameworks. It also establishes a broader, deeper understanding in the general community that will support the rangers in times of stress or conflict.

The inclusion of this extended learning group in the training also supports the

maintenance of traditional leadership and decision-making frameworks (see Figure 1). Proper decision-making about land and natural hazards in remote Indigenous communities relies on a complex governance structure that balances matrilineal and patrilineal hereditary ownership and authority with multiple threads of totemic and practical knowledge (of fire, for example). Introducing 'new' knowledge to selected trainees would destabilise community understanding and lead to conflict and substandard decisions. Inviting the wider clan group to train ensures that a community can develop its own version of 'shared responsibility' without damaging the social aspects of their resilience.

Where to now?

The project's findings are being applied to refine both the content of training and the style of delivery for Indigenous people in communities in Central and Western Arnhem Land. This training is tailored to the respective communities, and would need to be adjusted to suit other regions after preliminary discussions with local people. ■

Find out more about this project at: bnhrcr.com.au.



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THE EXPANDING ROLE OF NITROGEN IN

MITIGATING SPRINKLER PIPE CORROSION

Compressed air is out. Nitrogen is in.

BY **CLINT WILLIAMSON**
AND **JIMMY O'CONNOR**

South-Tek Systems LLC

The use of high-purity nitrogen as a supervisory gas is not new to fire protection. The use of high-pressure cylinders can be traced as far back as the 1970s, while the industry has used nitrogen generators—machines that separate high-purity nitrogen from the atmosphere to create an inexhaustible source of the gas—for more than a decade. But in the past few years, the technology has experienced exponential growth in its adoption rate. Specifying engineers and installing contractors alike have now seen the impact of replacing compressed air with high-purity nitrogen in dry and

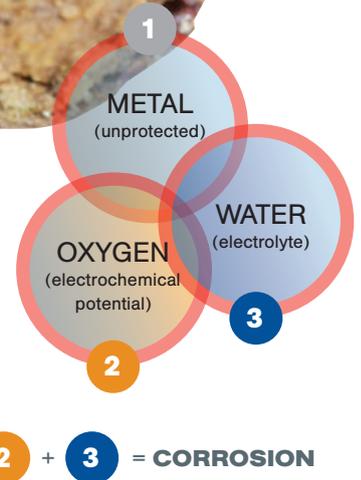
pre-action systems. For those unaware or unfamiliar with the technology, the following provides an introduction to what is rapidly becoming the standard across the industry.

Why nitrogen?

The science behind why nitrogen is superior to compressed air for use in dry and pre-action fire protection systems is simple. Just like the fire triangle, there is also a corrosion triangle (shown above). Electrochemical corrosion takes place whenever unprotected metal interacts with moisture (electrolyte) and oxygen (electrochemical potential). You cannot avoid the metal in this equation. Even in dry and pre-action systems, you cannot dodge the moisture aspect. Therefore, the most effective way to inhibit

corrosion is to replace the compressed air (oxygen) with high-purity nitrogen.

Corrosion tests performed by metallurgists and corrosion experts have shown just how effective this process is in terms of extending sprinkler pipe service life. The industry's longest running third-party exposure test¹, conducted in 2009, compared the performance of black and galvanised steel sprinkler pipe in compressed air and nitrogen environments. The test environment comprised six schedule 10 black and galvanised steel sprinkler pipe assemblies. Each pipe was half-full of water and individually subjected to either compressed air, 95% nitrogen or 98% nitrogen supervision. At designated time intervals, one-foot sections were removed for evaluation. Based on the



difference between the remaining wall thickness and nominal thickness for the diameter of pipe, the corrosion penetration rate and projected pipe service life were calculated. The results showed that the use of nitrogen at 98% purity tripled the expected service life of schedule 10 black steel—from 20 years to more than 60. Likewise, it showed that nitrogen can take schedule 10 galvanised steel from 10 years of service life to more than 170.

These controlled tests mirrored what contractors and fitters have experienced in the field for years; under compressed air supervision, pinhole leaks occur sooner in galvanised steel than in black steel pipe. However, the test also proved that 98% pure nitrogen not only mitigates that issue, but when used in conjunction with galvanised steel, can extend the service life of the piping beyond the expected life of the building itself.

The use of 98% nitrogen gas supervision in real-world installations has demonstrated the same success achieved in clinical testing. Thousands of installations across North America are proving that the future is bright for nitrogen generators in the fire protection industry. Property owners and facility managers are looking for viable, cost-effective measures to minimise the ongoing cost of sprinkler pipe replacement. In addition to third-party certifications, such as FM Standard 1035, UL 508A ICP and CE, this is driving the industry's acceptance and widespread use of nitrogen.

The majority of nitrogen generators are being installed into pre-existing facilities. As most of these have experienced corrosion-related failures, a large emphasis has been placed on designing a unit that is 'plug and play'. Following are some key considerations to note before specifying or procuring a nitrogen generator.

Understanding nitrogen generation systems

Dual-bed pressure swing adsorption (PSA) nitrogen-separation technology

The efficiency and longevity of nitrogen generators designed for use in fire protection applications have improved dramatically over the past decade with the introduction of dual-bed PSA technology. Unlike membrane systems of the past, dual-bed PSA nitrogen generators use an adsorption process in which compressed feed air passes through pressure vessels called sieve beds, which are filled with carbon molecular sieves (CMS). Under pressure, the CMS material adsorbs oxygen, water

vapour and other impurities from the feed air. This allows the nitrogen to pass through and into the fire protection system.

The PSA process requires less feed air to generate the same amount of nitrogen as a membrane system, and allows the feed-air compressor to run at lower pressures and temperatures—ultimately maximising the life of the feed-air compressor and other integral components. It is 33% more efficient than a membrane system, as it yields a 2:1 air to nitrogen ratio (vs a 3:1 ratio for a membrane system). In terms of longevity, CMS material does not break down nearly as fast as the hollow fibres do within a membrane. As a result, the nitrogen generator requires less frequent maintenance and provides 98%+ purity for more than 20 years—nearly double that of a properly designed and maintained membrane system.

Another consideration regarding longevity is how the manufacturer sizes a nitrogen generator. To ensure maximum system longevity, nitrogen generators should be sized to at least NFPA 25 leak rates (36 psi [2.5 bar] loss over 24 hours). Some manufacturers size their equipment to leak rates as low as 1.5–6 psi (0.1–0.4 bar) loss over 24 hours, meaning those systems could run upwards of 18 hours daily on sprinkler systems conforming to NFPA 25 leak rates. If leak rates exceeded NFPA 25 standards, those nitrogen generators would be outpaced over 24 hours. Simply put, a properly sized nitrogen generator will produce more nitrogen, run less frequently than a compressed air system and be less susceptible to runtime failure on a fire sprinkler system with an excessive leak rate.

Web-enabled software and user interface

The digital age also requires the fire protection industry to change with the times. Software and user interfaces allow control, testing and troubleshooting capabilities, as well as remote access. One example of this kind of software is South-Tek Systems' own SMART-Trak technology. Valuable data—such as the trending fire protection system leak rate, equipment runtime, time in air bypass mode, current equipment operational status and nitrogen purity levels—can be tracked and stored on a removable SD card.

As the supervisory gas source, a nitrogen generator can tell you a lot about the state of a fire protection system. For instance, logs of average daily and monthly system leak rates ensure progressively increasing leak-

rate trends do not go unnoticed. Another convenient tool is the operational status screen. This displays real-time gas flow animations and symbols to indicate if a component is working properly. It provides a quick reference point for system diagnostics, and links with the patent-pending 'BlastOff III—Early Warning System' to both alarm and pinpoint the location of a significant leak.

Sequence of operations

While the design of the technology has improved, the way a nitrogen generator operates remains simple. Regardless of the size of the generator, the start-up process remains the same.

- ◆ An air compressor brings the sprinkler system up to pressure within 30 minutes per NFPA code.
- ◆ After the fill process is complete, the nitrogen generator then takes over supervisory pressure.
- ◆ The nitrogen is stored in a low-pressure receiver tank, which acts as a buffer and prevents the generator from short cycling.
- ◆ The nitrogen flows from the receiver tank to an air-maintenance device with a regulator, not a pressure switch.

Every dry or pre-action system has at one point been at atmospheric pressure or initially filled with compressed air, making it imperative that the oxygen is depleted from the system to effectively inhibit corrosion. Therefore, an automatic purging device is installed at a remote section of the sprinkler-piping network to displace the oxygen. This device contains a calibrated orifice that creates a minute purge, allowing fresh nitrogen to constantly cycle throughout the fire protection system. This is the key to maintaining 98% or greater purity at all times. In general, this arrangement is very similar to that of a traditional air compressor, but the corrosive oxygen is being displaced within the piping by introducing high-purity nitrogen in lieu of air.

Conclusion

While many new design and build specifications already call for nitrogen generators, in our experience, 55–65% of installations occur in pre-existing facilities. If a customer has experienced ongoing corrosion issues, selective pipe replacement with the addition of a nitrogen generator is the most cost-effective and proven means of arresting corrosion and maximising the life of the sprinkler system. This is an excellent alternative to wholesale pipe replacement.

In some cases—where the present air compressor is still operable, and

Corrosion tests proved that the use of nitrogen at 98% purity tripled the expected service life of schedule 10 black steel from 20 years to more than 60, and schedule 10 galvanized steel from 10 years to more than 170.

FIGURE 1. SCHEDULE 10 GALVANIZED STEEL (7.9 YEARS)



FIGURE 2. SCHEDULE 10 BLACK STEEL (7.9 YEARS)



the total capacity is less than 6,245 litres—a nitrogen generator can be simply installed between the existing air compressor and air-maintenance device. The existing air compressor can meet the 30-minute fill requirement of the largest zone, and the nitrogen generator can maintain supervisory pressure during normal operation.

Having covered the ease of installation, we should mention the basic maintenance requirements of a nitrogen generator. These are little more than those of a standard air compressor. The

maintenance items include:

- ◆ changing the filters once per year or every 1,000 hours (whichever comes first)
- ◆ checking for 98% or greater nitrogen purity at the purge devices
- ◆ monitoring the equipment runtime, which should not exceed three hours per day.

With countless installations in high-visibility projects around the world, there is no shortage of references when looking for proof of the success of nitrogen generators in the fire protection

industry. From data centre pre-action systems to attic systems in assisted-living facilities or parking garage dry systems, nitrogen generators can be found in every region and every market. The results are there both in science and application. ■

1. Van Der Schijff OJ, Bodemann SC, 2013, 'Corrosion of piping in dry and preaction fire sprinkler systems: Interim results of long term corrosion testing under compressed air and nitrogen supervision'. *Sprinkler Age*, 32(10)

MISSED THE NCC SEMINARS? CATCH THE WEBCASTS

During February and March 2018, the Australian Building Codes Board (ABCB) visited all capital cities to deliver the National Construction Code (NCC) seminars. Practitioners who were unable to attend the seminars in person have not missed out—the 2018 webcasts are now available.

The NCC webcasts have been divided into six segments:

1. NCC 2016 Volume One, Amendment 1
2. The NCC 2019 Public Comment Draft
3. An update on the improved CodeMark Australia Certification Scheme
4. Performance Based Design
5. Performance Based Design; A Case Study
6. An update on the Plumbing Code of Australia (PCA).

As well as addressing critical information about NCC Volume One, Amendment 1 and the 2019 Public Comment Draft, webcast videos 4 and 5 also provide a valuable insight into the application of performance-based design, including how to develop a performance-based solution. Video 6 provides an outline of contemporary PCA developments.

Complementing the ABCB's significant range of free education materials, the webcasts keep practitioners and code users informed of forthcoming change and provide an important opportunity to learn more about the competent use of performance-based design. ■



The NCC Seminars 2018 webcasts are available here: ow.ly/NwPN30kl8fd.



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PERSPECTIVES ON THE SECTOR WITH COMMISSIONER SMETHURST

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 NSW State Emergency Service Commissioner Mark Smethurst DSC, AM.



BY **STUART ELLIS AM**

Chief Executive Officer, AFAC

You came to NSW SES after a distinguished career in the Australian Defence Force. What attracted you to the organisation and role?

Choosing to join the NSW SES originates from my desire to serve the community. This is probably not dissimilar to what motivates most NSW SES members. The NSW SES is a highly respected organisation, and I want to be challenged as part of a team that serves and works with the community. Like any organisation, we have challenges before us—be they environmental, internal, social, economic or political. I am particularly interested in bringing my command and leadership experience to not only meet these challenges, but to be well ahead of them.

What were your first impressions of NSW SES and how are you addressing these?

Starting with the NSW SES in late February 2017, it was important to bring focus to the organisation. I refined the five-year strategic plan and outlined my three priorities to volunteers and staff alike: volunteer recruitment and retention, training improvement, and operational capability. This has aligned with the start of our Organisational Transformation Program, our newly adopted mission—NSW SES saving lives and protecting communities—and our vision: be the best volunteer emergency service in Australia.

A great deal of effort has been dedicated to my priorities, and I am pleased to see significant inroads have been made. Volunteering Reimagined—a new, more flexible approach to volunteering—was launched six months ago and continues to be successfully implemented. It has resulted in a 10% increase in volunteer numbers. A review of the training model was finalised and an overhaul of our training system has commenced. The introduction of the incident management operational mode is increasing our operational capability and enabling us to better serve the community.

How important are the working arrangements with Fire & Rescue NSW and NSW Rural Fire Service?

Critical. The impact of floods and storms in NSW cannot be effectively combatted by a single agency response. Leveraging each agency's skill sets ensures that the NSW community receives the best possible service during these events, and that the emergency response is as effective and efficient as possible. This includes incident management capacity, hazmat, aviation resourcing and general people power. Local connections with communities are also of great value, no matter the hazard. For instance, in smaller communities, the relationships with NSW RFS brigades provide a community connection that only strengthens community resilience during flood events, particularly where isolations are prevalent.

Where do you see NSW SES in five years?

Put simply, as Australia's leading volunteer emergency service. In five years (which in my opinion, all volunteer agencies should aim for):

- ◆ our 20,000 members are equipped with the tools, knowledge, systems and skills they need to deliver an effective capability to our communities
- ◆ community participation is central in all aspects of emergency management
- ◆ our organisation understands the challenges of our changing world and proactively adapts to ensure our ability to respond
- ◆ we have a modern sector leadership that instils a safe, positive workforce culture and promotes learning
- ◆ we are a leading organisation that is innovative, sustainable and transparent, delivering end-to-end excellence.



“The NSW SES is a highly respected organisation, and I want to be challenged as part of a team that serves and works with the community.”

— Commissioner Smethurst



You are operating out of a new headquarters. How important is that infrastructure?

Our new headquarters is at the forefront of emergency management, allowing staff and volunteers to provide the best service for communities across the state. In addition to state-of-the-art technology and communications, it is the first time our facility has been built to welcome the community, with a dedicated visitor experience area. Our building represents the proud future of an organisation with a proud past.

SES organisations have been members of AFAC for some years. What can AFAC do to better integrate SES?

Too often, SES seem to be an afterthought in AFAC programs. Floods and storms cause the most costly disaster impact on Australian communities. A recent Deloitte report found that emergencies are costing Australia \$18.2 bn per year, and this is growing at a rate of 3.4% annually. By 2050, total costs are expected to be \$39 bn per year. In NSW, the total economic cost of disaster is \$3.2 bn per annum, growing to \$10.6 bn by 2050. Accordingly, AFAC programs should formally recognise the contribution and value of the SES. ■

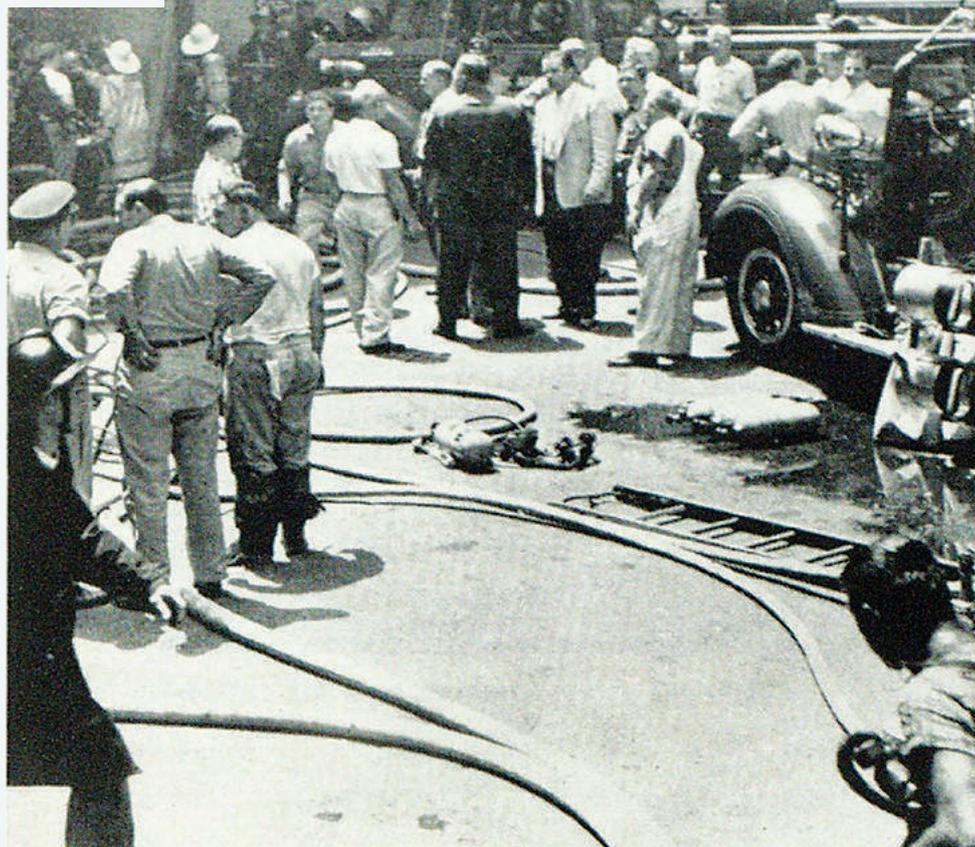
NSW State Emergency Service Commissioner
Mark Smethurst DSC, AM.



Started by a temporary light bulb igniting a fibreboard ceiling, the fire went on to burn an area of 370 m².

Three hundred firefighters attended the Pentagon blaze, which destroyed millions of dollars' worth of computing equipment.

PENTAGON COMPUTER FIRE—1959



BY **BARRY LEE, OAM**

On 2 July 1959, the Pentagon—headquarters of the US Department of Defence—experienced its biggest and costliest fire prior to 11 September 2001. Caused by a temporary light bulb igniting a fibreboard ceiling, the fire occurred in a ground-level area of the defence complex occupied by the Air Force Statistical Division data centre. It required five-and-a-half hours to control and burnt an area of 370 m² containing three computers and some 7000 rolls of acetate magnetic tape, destroying more than US\$7 M worth of computing equipment. The fire buckled concrete floors, burst water pipes, forced the evacuation of 30,000 employees and sent 25 firemen for medical treatment. In the fire area, the partitions

consisted of gypsum wallboard on timber studs finished with low-density, combustible fibreboard. The suspended ceiling was similarly constructed with low-density, combustible acoustic tiles. The computer machines were installed on raised plywood flooring. The building was not sprinklered, in accordance with the then-prevalent concern about water damaging electrical equipment. However, it did have small-diameter standpipes and hoses with non-standard couplings.

An alarm was transmitted at 10.45 am. Air Force personnel tried to use extinguishers and standpipe hoses to control the fire, but could not prevent it spreading above the ceiling. Subsequent alarms summoned the Arlington County Fire Department,

and later on additional brigades from Virginia and Maryland. A total of 34 fire companies, 71 fire appliances and 300 firefighters attended. Firefighters using self-contained breathing apparatus designed for 30-minute use could only work for about 10 minutes, due to the length of time needed to get to and from the fire through the Pentagon's smoke-filled corridors.

Following this landmark fire, US industry body the National Fire Protection Association (NFPA) developed a standard for the 'protection of electronic data processing equipment', officially adopted as NFPA 75 in 1962 and regularly revised ever since. Today, this widely used reference document is titled NFPA 75, Standard for the Protection of Information Technology Equipment. ■

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BY IAN FINDLAY

Technical Coordinator, FPA Australia

FP-002 Fire detection and alarm systems

The revisions of AS 1670.1, AS 1670.3 and AS 1670.4 have gone through committee ballot. However, publication has been delayed until December 2018 to allow time for adoption of updated, direct text adoptions of ISO standards. The revision of AS 4428.6 and Amendment 2 to AS 3786 have both gone through committee ballot and should proceed to publication shortly. Work continues on revisions of AS 1603.11 and AS 1603.17.

FP-004 Automatic fire sprinkler installations

The project kick-off meeting for Amendment 2 to AS 2118.1:2017 was held 8 May. The next meeting is scheduled for late July/early August.

FP-008 Fire pumps and tanks

AS 2304 went to combined procedure (public comment and committee ballot) and closed 19 June.

FP-011 Special hazard fire protection systems

AS 4214:2018 (the revision and recombination of the AS 14520 series) was published on 16 April.

FP-017 Emergency management planning—facilities

Amendment 2 to AS 3745 has gone through committee ballot with minor changes identified and with the committee to confirm before proceeding to publication.

FP-018 Fire safety

AS 5113 Amendment 1 went to combined procedure and closed 29 May. AS 1530.8.1 and AS 1530.8.2 went to combined procedure and closed 5 June.

FP-020 Construction in bushfire-prone areas

AS 3959 has gone to committee ballot. There are several negative votes that Standards Australia is seeking to resolve.

LG-007 Emergency lighting in buildings

The revisions of AS/NZS 2293 Parts 1 and 3 (Emergency escape lighting and exit signs) have been through combined procedure and are awaiting committee resolution. AS/NZS 2293.2 has gone to combined procedure and closed 2 July.



TECHNICAL ADVISORY COMMITTEES

The most recent round of Technical Advisory Committee (TAC) meetings was held in March. All TACs considered the NCC Public Comment Draft 2019 changes relevant to their subject area.

TAC/1 Maintenance of fire protection systems and equipment

A variety of issues and potential short new technical documents have been discussed regarding exits and travel to exits.

TAC/2 Fire detection and alarm systems

The smoke alarm Good Practice Guide has now been reviewed by the TAC and is being prepared for wider review.

TAC/3/7 Portable and mobile equipment

Work on AS 2444 has been put on hold as more installation and servicing company input is sought. Focus has returned to the AS/NZS 1841 series and AS/NZS 1850.

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

TAC/4/8/9 reviewed the public comment for our draft Sprinkler Technical Specifications for Class 2 and 3 buildings less than 25m in effective height to help FPA Australia identify how to resolve these comments.

TAC/11/22 Special hazards fire protection systems

Technical Advisory Note TAN-04 Changing to fluorine free or C6 foam has been recently published to provide advice on changing foams in vehicle foam-water spray systems, and in portable and wheeled foam fire extinguishers.

TAC/17 Emergency planning

TAC/17 did not meet this round. However, they have provided feedback on a draft new unit of competency CPPFPM3113 Inspect, test and verify critical emergency evacuation system elements.

TAC/18/19 Passive fire protection

The TAC has been focused on reviewing proposed changes to the National Construction Code (NCC), including proposed changes to C3.15 as well as the use of tests to previous editions of test standards.

TAC/20 Bushfire safety

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

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AFAC and the Bushfire and Natural Hazards CRC are delighted to announce AFAC18 powered by INTERSCHUTZ will return to Perth for the first time in six years.

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- ◆ AFAC18 gala dinner
- ◆ professional development program.

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

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

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

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20-21 September 2018, Park Royal (Darling Harbour) Hotel, Sydney

The HAZMAT Conference 2018 is run in conjunction with the Australasian Institute of Dangerous Goods Consultants. This year, HAZMAT returns to a standalone format and brings together speakers and exhibitors from across the hazardous materials industry.

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Michelle Bennetts

Michelle Bennetts
Michelle Bennetts has moved on from the AFAC National Council to take on a new role at Airservices Australia. Ms Bennetts is now the Executive General Manager of the newly created Customer Service Enhancement Group.



Dan Stephens

Dan Stephens
Dan Stephens was appointed Chief Officer/Chief Executive Officer of the Victorian Metropolitan Fire and Emergency Services Board on 28 May. Joining Merseyside Fire and Rescue Service (UK) in 1990, he was promoted to various roles before being appointed Chief Fire Officer at Merseyside in 2011. Mr Stephens will also join AFAC as a member of the National Council.



Dr Alex Cockram

Alex Cockram
Dr Alex Cockram has completed her term as interim Chief Executive Officer of the Victorian Metropolitan Fire and Emergency Services Board, which she began on 29 January 2018.

Mark Crowweller
Mark Crowweller, former Director-General of Emergency Management Australia, has been appointed First Assistant Secretary of the National Disaster Resilience Taskforce at the Department of Home Affairs. The taskforce will lead nationwide reforms to reduce the impact and financial burden of disasters on our communities and economy. Mr Crowweller also joins the Board of the Bushfire and Natural Hazards CRC, replacing Katherine Jones PSM after she stepped down earlier this year. Mr Crowweller has an extensive background in the sector as the former Director-General of Emergency Management Australia, Commissioner of the ACT Emergency Services Agency and various Assistant Commissioner roles at the NSW Rural Fire Service.



Katherine Jones PSM

Katherine Jones PSM
Katherine Jones PSM has finished up with the Bushfire and Natural Hazards CRC Board after two years. Ms Jones served in the federal Attorney-General's Department, where she was responsible for a wide range of matters relating to emergency management, national security and counter terrorism. Her new position is Deputy Secretary, Business Enabling Services in the Australian Government Department of Finance.



Mark Crowweller



Fire Protection
Association Australia
Life. Property. Environment.

TRAINING WITH FPA AUSTRALIA

WHETHER YOU'RE NEW TO THE INDUSTRY OR WANTING TO EXPAND YOUR KNOWLEDGE & SKILLS, FPA AUSTRALIA OFFER AN EXTENSIVE RANGE OF TRAINING TO SUIT YOUR NEEDS.

Take part in training that makes a difference:

- Enhance your career
- Develop new skills
- Achieve formal qualifications
- Maintain professional, competent & qualified employees.

FPA Australia provides training through:

- A self study learning environment that is appropriate for technicians who are already working in the industry or new staff who have access to a mentor
- Face to face training courses held at our various training facilities in Australia
- Customised training to suit your specific training requirements.

FPA Australia provides Nationally Recognised Training in these areas:

- Routine service of:
 - Fire protection systems and equipment
 - Fire sprinkler systems, pumpsets and fire hydrant systems
 - Fire detection and special hazard systems
 - Passive fire and smoke systems
 - Portable fire equipment and hose reels
 - Exit & emergency lighting systems
- Extinguisher Agent Handling Licences

FPA Australia provides training that is not nationally recognised in these areas:

- Determination of Bushfire Attack Level
- Bushfire Planning and Awareness

MORE INFORMATION

03 8892 3182 or training@fpaa.com.au

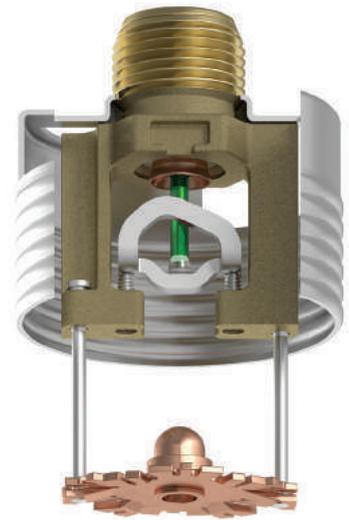
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NATIONALLY RECOGNISED
TRAINING

RTO Code: 20851



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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