

# **FIRE** AUSTRALIA

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# **SPEND SMARTER**

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# PERTRONIC F220 Fire Alarm Panel

Identifies  
Exact  
Location of  
Alarm

One Key Access to Alarm List View

Pertronic: F220 Friday 11 March 2016 10:57

Alarm Events

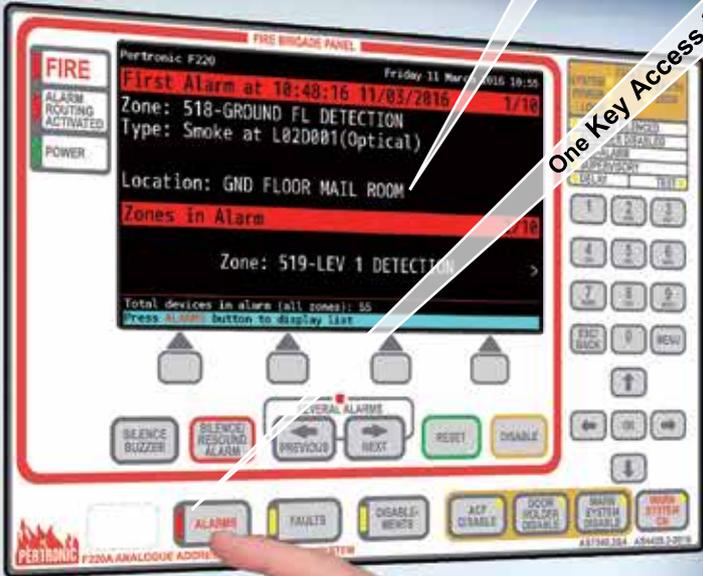
Event	Zone	Location	Type
46	530	GYMNASIUM	Heat Alarm
47	505	LEV 1 APARTMENTS SPRINKLER	Smoke Alarm
48	524	LEV 6 DETECTION	Smoke Alarm
49	530	GYMNASIUM	Smoke Alarm
58	524	LEV 6 DETECTION	Smoke Alarm
51	525	LEV 7 DETECTION	Smoke Alarm
52	530	GYMNASIUM	Smoke Alarm
57	530	GYMNASIUM	Smoke Alarm
54	525	LEV 7 DETECTION	Smoke Alarm

Alarm Point: 58 of 55

Item: OPT at LEVEL 6 ELECT CUFB (L020071)  
Time: 10:48:21, 11 March 2016

Total zones in alarm: 18

Page Up Page Down F181 Page



## Vital Information during Critical Incidents

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The large, 7-inch (180 mm) display allows the F220 to exceed the requirements of AS 7240.2. When the F220 detects an alarm condition, the display automatically shows the exact location of the alarm activation in big, 5mm text, in addition to the zone information required for AS7240.2 compliance.

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# OUTREACH AND THE RESEARCH FUTURE

BY  
**DR RICHARD THORNTON**

Chief Executive Officer,  
Bushfire and Natural  
Hazards CRC



On 1 July this year we marked three years of operation for the Bushfire and Natural Hazards CRC, with the research program running for about two and a half years.

So what have we done? And how can we use it? These are two questions I am frequently asked, and it was heartening to have our largest-ever attendance at our Research Advisory Forum in May in Hobart to hear directly from the researchers about the results of the studies so far, along with insights on research utilisation from our dedicated agency partners.

There are substantive and substantial outcomes this far into the research program, and many project presenters gave examples of where their research is already being used, which is

very promising for the future.

Some of this is on show in this issue of *Fire Australia*, with important research on mitigating future risks now (see p. 14) and fire modelling (pp. 24 and 32), and a look at our PhD student placement program (p. 42). There are also important updates on work underway at AFAC and FPA Australia.

Sustainability of the national research centre for natural hazards has been a crucial part of the CRC's strategic plan since day one back in 2013, and this continues to be the case.

It is integral to fire, emergency services and land management that the capacity for research continues after the current funding ends in 2021, and the CRC Board is focused on ensuring this capability is maintained. And in the midst of all this, the CRC has been holding many workshops across the country to determine the future national priorities for a natural hazards research agenda, which will serve as a basis for a refresh of the CRC research program over the next few years.

We must continue to identify what we do not know and the means to finding that knowledge through dedicated research—that is the role of research and the mission of the Bushfire and Natural Hazards CRC.

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# FIRE AUSTRALIA



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## OUR COVER

Ensemble-based fire predictions allow fire spread across the landscape to be defined in terms of probabilities, such as likelihood of burning and risk to assets.

PHOTO: NEW ZEALAND FIRE SERVICE

## 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: joseph.keller@fpaa.com.au.

For more details on submitting a contribution, please contact the editors.

## JOINT EDITORS

**Joseph Keller (FPA Australia)**  
TEL +61 3 8892 3131 joseph.keller@fpaa.com.au  
**Nathan Maddock (Bushfire and Natural Hazards CRC)**  
TEL +61 3 9412 9600 nathan.maddock@bnhrc.com.au  
**Collette Farley (AFAC)**  
TEL +61 3 9419 2388 collette.farley@afac.com.au

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## WORMALD AUSTRALIA JOINS FPAS

FPA Australia is extremely pleased to announce that Wormald, and co-owned company National Fire Solutions, has committed to accrediting all of its inspect and test technicians under the Association's Fire Protection Accreditation Scheme (FPAS). Both businesses will also move towards FPAS Recognised Business status.

The move will mean more than 600 technicians around the country will soon gain accreditation. It reinforces Wormald and National Fire Solution's position as industry leaders committed to ensuring their technicians receive professional recognition for their training and competency.

FPA Australia CEO Scott Williams said Wormald and National Fire Solutions had made an important commitment to the future of the industry. "Wormald has a proud history of excellence in Australia and is still the largest fire protection, inspection and testing business in the country. It is fitting then that they, along with National Fire Solutions, have taken

the important step to highlight the training and competence of their fire protection personnel through FPAS," he said.

"This announcement not only demonstrates industry leadership, but is a strong show of support for the Association's 2020 Vision of having all technicians in the industry accredited. It is a clear demonstration of Wormald and National Fire Solutions helping to raise the standard of work undertaken in this industry, which in turn promotes better safety outcomes for the community."

General Manager of Wormald Business Support Services John Lynch said the scheme is an important benchmark for individuals in the fire protection industry.

"Wormald has undergone significant positive changes recently and we are undergoing a rejuvenation across all areas of the business. An important element of this is ensuring that our highly trained and competent technicians are appropriately recognised and FPAS is the ideal way of achieving this." ■



### RESEARCH FOCUS IN HOBART

A packed house assembled in Hobart for the first Bushfire and Natural Hazards CRC Research Advisory Forum of 2016, with more than 130 end users, researchers and PhD students from around the country gathering to discuss the latest research findings.

Opened by the Deputy Secretary of the Tasmania Parks and Wildlife Service, Peter Mooney, the two-day event was the largest Research Advisory Forum ever. It featured presentations from projects within the Resilience and Policy themes of the CRC's research program, as well as in-depth workshops between end users and researchers on transitioning the research to utilisation.

Each project team gave a 30-minute presentation, which included an overview on the state of the project and findings so far. End-user representatives also discussed how they thought each project was going and where it was headed in terms of research utilisation.

The first day of the Research Advisory Forum also coincided with Wear Orange Wednesday, with many attendees dressing in orange in support of the State Emergency Service.

The Research Advisory Forum supports both the research and utilisation aims of the CRC, allows for a more intensive discussion on the progress of each project and provides more opportunities for informal networking. ■

## BUSHFIRE PRACTITIONER ACCREDITATION LEVELS ADDED

The Western Australian Government has announced that FPA Australia is now recognised as a Level 1, 2 and 3 accrediting and training body for bushfire practitioners operating throughout Western Australia.

The State Government is committed to developing a professional training and accreditation system for bushfire practitioners to inform land use planning and building decisions in bushfire-prone areas.

FPA Australia has been working with the State Government to support the implementation of the recently released bushfire reforms. The accreditation scheme supports planning and building for bushfire reforms, including the Map of Bush Fire Prone Areas, Building Regulations, State Planning Policy 3.7—Planning for Bushfire Prone Areas and Guidelines, and Local Planning Scheme Amendment Regulations 2015. ■



### CSIRO RELEASES FACADE SAFETY GUIDELINES

CSIRO has recently released an important document to assist in clarifying fire safety requirements for external walls. *Fire safety guideline for external walls* has

been compiled by CSIRO's Infrastructure Technologies team along with external stakeholders including FPA Australia. This document is intended to aid building practitioners

in understanding the fire hazards of external wall materials and pathways to demonstrate compliance with the requirements of the National Construction Code. ■

You can read more about this important document on p. 28 of this issue of *Fire Australia* magazine.

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## ADVICE ON GETTING TO THE PHD FINISH LINE

The CRC held its latest PhD student development day in Hobart, with 14 CRC PhD students attending.

Hosted by the Antarctic Climate and Ecosystems CRC, Bushfire and Natural Hazards CRC students spent the day becoming wiser on everything it takes to see a PhD through to the finish line, along with advice from those who have made it.

The day was structured around what happens after a PhD, the Bushfire and Natural Hazards CRC research program and the role of research in emergency management. Students gained insights into completing a PhD from former Bushfire CRC PhD students Dr Steve Curnin and Dr Briony Towers (Dr Towers is now a Bushfire and Natural Hazards CRC researcher), moving research into policy and practice from former Bushfires NT Director Steve Sutton (Mr Sutton is now a CRC PhD student) and preparing for life after PhD completion from Dr Tom Remenyi of the Antarctic Climate and Ecosystems CRC.

The Bushfire and Natural Hazards CRC Contract Research and Education Manager, Lyndsey Wright, said the CRC is looking forward to celebrating with the students the achievement of completing a PhD.

“It is exciting to be talking to our scholarship recipients about life after their PhD, knowing that a number of them will complete their studies this year,” Ms Wright said. ■

Learn more about the CRC’s education program at: [www.bnhrcc.com.au](http://www.bnhrcc.com.au)

“It is exciting to be talking to our scholarship recipients about life after their PhD, knowing that a number of them will complete their studies this year,”

Lyndsey Wright

## NEW EXTERNAL WALLS STANDARD —AS 5113

Standards Australia recently completed the development of AS 5113 *Fire propagation testing and classification of external walls of buildings*.

The Standard sets out procedures for testing and classification of external walls according to their tendency to limit the spread of fire across their surface and between neighbouring buildings. It can be applied to external vertical surfaces and external wall systems. AS 5113 also integrates international standard test methods where practicable.

According to the independent Chair of the Technical Committee, Paul England, the expected outcomes for Australia are:

- ◆ improved fire safety through appropriate classification of the performance of external walls
- ◆ improved energy efficiency
- ◆ improved selection criteria for facade materials and/or system for the building industry

- ◆ net saving by reducing compliance costs and facilitating the use of cost-effective facade systems.

“The standard will facilitate quantification of performance in the area of fire safety consistent with ABCB [Australian Building Codes Board] initiatives. It will assist with the compliance of the energy efficiency requirements of the NCC [National Construction Code] while contributing to the maintenance of acceptable levels of public safety,” Mr England said. The Standard was prepared by Technical Committee FP-018, Fire safety. This committee includes representatives from industry associations, fire authorities, testing laboratories and the ABCB.

FPA Australia understands that the ABCB is considering changes to the NCC to adopt AS 5113; however, no decision on timing has yet been announced. ■

## BIG IDEAS FOR RESILIENT CITIES

Our emergency services take a lead role in creating resilient cities, especially in times of natural disasters. This was evident in Brisbane in March when the Commissioner of the Queensland Fire and Emergency Services, Katarina Carroll, represented the Bushfire and Natural Hazards CRC in a public discussion that was recorded by ABC Radio’s *Big Ideas* program.

Five years ago, the Brisbane Convention and Exhibition Centre was under water. The tally of costs of the 2011 Queensland floods was high: more than 30 people died, at least 200,000 were severely affected and the 40,000 individual insurance claims for more than \$1.5 billion were just the start of the economic impact.

A first-time voter at the recent federal election has lived through the ten warmest years on record—more than half their lives. Global temperature rise and increasing urbanisation spell major changes for our cities, as well as for those who plan, build and manage innovation for better, more resilient cities.

At the CRC Association Annual Conference in Brisbane, ABC Radio’s Paul Barclay hosted a conversation with a panel of experts tasked with planning our cities of the future and coping with managing those cities and communities when disaster hits. ■

The full discussion is now on the [ABC Big Ideas website](http://www.abc.com.au/bigideas).

### RESILIENT CITIES PANELLISTS

- ◆ Katarina Carroll PSM, Commissioner of the Queensland Fire and Emergency Services (QFES)
- ◆ Tony Wong, Chief Executive, CRC for Water Sensitive Cities
- ◆ Helen Lochhead, Dean of the Built Environment, University of NSW
- ◆ Peter Newman, Professor of Sustainability, Curtin University.

## FREE TRANSITIONAL ACCREDITATION SEES A SURGE

Members have shown great interest in our free transitional FPAS accreditation offer. Since launching the promotion, more than 200 companies have signed up to have their technicians accredited for free. We are busy sorting through registrations made using the online registration tool. Over the coming weeks we will be contacting all companies that have registered in order to get your applications underway and processed. Please be patient as we work through this process. The overwhelming response has even led to the Association taking on more resources in order to help process all the applications. If your business conducts inspect and test activities and you have yet to take advantage of the free transitional accreditation offer, now is the time.

For Association members to begin the process, simply log in to the CONNECT portal with your company login. From there you can register the details of your technicians and either complete the individual FPAS accreditation application forms or wait for a member of our team to contact you. Once accreditation of your technicians has been completed your company will be eligible for up to 40% off the standard cost of inspect and test training. There has never been a better time to enjoy the benefits of accreditation to your business. ■

Register your technicians today and start enjoying the benefits of FPAS. Visit: [www.fpa.com.au](http://www.fpa.com.au) to find out more.



L to R—Senator Lee Rhiannon, Brett Staines, Matthew Wright, Senator Alex Gallacher and Senator David Fawcett.)

## FPA AUSTRALIA APPEARS AT SENATE INQUIRY HEARING

On 7 April, representatives from FPA Australia—Chief Technical Officer and Deputy CEO Matthew Wright and TAC 11/22 Chair Brett Staines—appeared before the Senate Inquiry hearing into Defence Force use of firefighting foams in Australia.

The Inquiry has been set up to address the

issue of PFOS and PFOA contamination at the RAAF base in Williamstown, NSW, and other Australian Defence Force facilities.

FPA Australia's submission focused on the recommendations in our Information Bulletin published 1 July 2014 and called for a national policy position on firefighting foams based on risk management principles.

FPA Australia highlighted the need for Australia

to ratify the Stockholm Convention's position of listing PFOS as a persistent organic pollutant and banning foams containing PFOS. Also, any national policy needs to be built on the premise that all firefighting foams will have an environmental impact and that any foam must be demonstrated as fit-for-purpose and its use managed, including training practices.

FPA Australia was pleased to present evidence at the Inquiry and the Association continues to advocate for national action to be taken by the Federal Government to clarify best practice for the selection and use of firefighting foams in Australia. ■

You can read more about the Association's position on the selection and use of firefighting foams at: [www.fpa.com.au/technical](http://www.fpa.com.au/technical)

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The National Construction Code (NCC) does not provide guidance for testing external wall materials and systems that are combustible. However recently developed standard AS 5113-2016, provides a framework for the classification of external wall systems and refers to test methods BS 8414 Part 1 and 2 2015, ISO 13785-2 and AS 1530.4-2005 Appendix B7.

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AS 5113-2016 Now Published

# FIRE AND EMERGENCY SERVICES PERSONNEL HONOURED



Wreaths laid at the National Memorial for Emergency Services.

On 29 April, the Attorney-General of Australia, Senator The Hon George Brandis, representing the Prime Minister, joined more than 200 family, friends and supporters of emergency services personnel at the National Memorial Service in Canberra.

Fire and emergency services personnel attend more than 2,000 incidents daily across Australia and their service is often unrecognised. It is more apparent when responding to catastrophic bushfires, tropical cyclones, floods, search and rescue operations or major structure fires. Sometimes fire and emergency service personnel are placed in dangerous situations and tragedies occur. The memorial service provided an opportunity to reflect and remember those who have passed away while protecting our communities.

This year's service featured six commemorations:

- ◆ Trevor Vallance, First Officer, Weranga Rural Fire Brigade, WA
- ◆ Paul Sanderson, Deputy Captain,

PHOTOS: GARY HOOKER, ACT/ESA



Families and loved ones alongside agency representatives



Memorial Medallion.

- ◆ North Rothby Rural Fire Brigade, NSW
- ◆ Peter Witton, Deputy Captain, Kyogle Rural Fire Brigade, NSW
- ◆ Ross Fenwick, Fire Control Officer, Kalgan Bushfire Brigade, WA
- ◆ Thomas Orr, Firefighter, Forestry Tasmania
- ◆ Archie Hamilton, Senior Firefighter, Canberra Fire Brigade.

Senator Brandis and AFAC President and Fire & Rescue New South Wales Commissioner Greg Mullins presented AFAC Memorial Medallions to family members of those commemorated at the service. "We hope this service and the presentation of an AFAC Memorial Medallion to the families of those who have been killed, hopefully, in some small way, provides a level of comfort to those who have lost so much. We want these families to know that our industry and our country acknowledge their loss and that we offer our support," AFAC CEO Stuart Ellis said.

Paul Baxter, Deputy President of



Attorney-General Senator The Hon George Brandis addressed the crowd during the National Memorial Service.

AFAC and Chief Executive/National Commander of the New Zealand Fire Service, paid tribute to those who have lost their lives on duty. "Though the significance of their sacrifice cannot be captured in words, their service speaks for itself, and it can be some small comfort to friends and family to know their loved ones died in brave defence of their community and country."

Mr Baxter also acknowledged that many of those who had died on duty were volunteers, who turned out to emergencies in spite of the inherent danger in their jobs. "For that kind of selflessness we can never be grateful enough, because our communities depend on it."

The National Memorial Service is an annual event held on the Friday prior to 4 May (International Firefighters Day) at the National Emergency Services Memorial in Canberra. The service honours the courage, commitment and sacrifice of fire and emergency services personnel who have lost their lives on duty in Australia and New Zealand. ■

1980

1992

1997

2004

2015



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# FIRE BEHAVIOUR AND FUELS— GLOBAL LINKS

The field trip to see the unique bushfire risk on the edge of Melbourne was a highlight of the conference.

A joint panel discussion between experts in Australia and the USA on fuels management was a highlight of a Bushfire and Natural Hazards CRC-sponsored conference in April.

The 5<sup>th</sup> Fire Behaviour and Fuels Melbourne conference was held both in Melbourne, Australia, and Portland, Oregon, USA, with the CRC and its Victorian partners hosting the event for the first time.

Around 280 people attended the International Association of Wildland Fire conference in Melbourne, with a further 350 in Portland.

The time difference between Melbourne and Portland allowed for some sessions to overlap with live presentations at one venue linked to the other by video. Keynote presentations by the International Association of Wildland Fire's Ron Steffens (in Portland) and Dr Kevin Tolhurst (in Melbourne) were shared, while a joint panel discussed the international aspects of planned burning and took questions from the audiences at both venues.

In Melbourne, the full program featured two workshops, 76 speakers, an international panel session, three PhD Three Minute Thesis presentations, two field trips and plenty of networking.

The conference also started with two workshops at the Bureau of



Meteorology—on grassland fuels and fire weather—and ended with two field trips to assess bushfire risk in the Dandenong Ranges or to view the mountain ash forests burnt by the 2009 Black Saturday fires.

The CRC also organised for visiting US Forest Service researcher Dr Sarah McCaffrey to speak with Emergency Management Victoria, the Victorian Country Fire Authority and the NSW Rural Fire Service about her ongoing studies into the public responses to fire management across the USA and Australia. ■

## FIRE PROTECTION INDUSTRY AWARDS— GALA DINNER

You are invited to the first Fire Protection Industry Awards Gala Dinner to be held on 3 November 2016 at Doltone House, Hyde Park, Sydney.

Join us for an evening of recognising and awarding businesses and individuals who are leading the professional standards of commitment, excellence and contribution in the fire protection industry.

More information including award application details, sponsorship opportunities and dinner ticket registration will be announced soon.

The awards will include:

### INDUSTRY AWARDS

- ◆ Meritorious Service Award
- ◆ Honorary Life Members Award
- ◆ AV Viscogliosi Outstanding Service Award.

### PANEL-JUDGED AWARDS

- ◆ Fire Protection Company of the Year Award
- ◆ Technical Excellence Award
- ◆ Young Achiever Award. ■

Learn more about the fire protection industry awards on page 44 of this issue or visit: [www.fireprotectionawards.com.au](http://www.fireprotectionawards.com.au)

## FIRE EXPERTISE HONOURED



Dr Kevin Tolhurst (left) receives the Ember Award from International Association of Wildland Fire Vice President, Alen Slijepcevic.

Bushfire and Natural Hazards CRC researcher Dr Kevin Tolhurst has been recognised for his long and outstanding career as a fire scientist by the International Association of Wildland Fire.

The award was presented at the International Association of Wildland Fire's 5<sup>th</sup> International Fire Behaviour and Fuels conference held in both Melbourne and Portland, Oregon, US, in April.

Dr Tolhurst, from the University of Melbourne, was presented with the Ember Award for sustained achievement in wildland fire science. The name 'Ember' reflects the fact that research and science often move slowly, and their benefits or impacts may not be apparent for years or more.

Other International Association of Wildland Fire award winners were:

- ◆ Early Career Award—Guillermo Rein from Imperial College London
- ◆ Management Award—James Brenner from the Florida Department of Agriculture and Consumer Services. ■

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Brigadier General Philippe Boutinaud, presenter of the 2016 AFAC Knowledge Events Series.



“The global threat of terrorism requires us to collaborate and impart knowledge and it was a great privilege to be able to share these important lessons”

— Brigadier General Philippe Boutinaud, Commander of the Paris Fire Brigade

## BRING KNOWLEDGE TO THE EMERGENCY SERVICES

The 2016 AFAC Knowledge Events Series was held across Australia and New Zealand throughout May and June. Series presenter Brigadier General Philippe Boutinaud—Commander of the Paris Fire Brigade—outlined ‘Lessons Learnt from the Paris Terrorist Attacks’.

General Boutinaud was uniquely positioned to detail how frontline operational personnel from multiple agencies responded to attacks that occurred across a large geographic area.

His perspective ensured that attendees had a complete overview of the response and how the Paris Fire Brigade has adapted its plans and exercises following the attacks in November.

More than 1,000 fire, rescue, police, ambulance and government personnel nationally attended the presentation, with thanks to sponsorship from Motorola. ■

Look for the full feature article on the presentation in the next issue of *Fire Australia* magazine.



“Motorola Solutions - Partnering with AFAC to bring knowledge to emergency services”



## AFAC REVIEWS TASMANIAN FIRES MANAGEMENT

Requested by Tasmanian fire agencies the Tasmania Fire Service (TFS), Parks and Wildlife Service and Forestry Tasmania, an independent operational review has been conducted by AFAC.

Queensland Fire and Emergency Services Assistant Commissioner Tom Dawson, respected former NSW land manager Bob Conroy and the Manager of the National Resource Sharing Centre, Paul Considine, worked together to conduct the review.

The review aimed to establish areas of good practice and identify opportunities for progressive improvement.

Following fire ignition during a dry lightning storm on 13 January 2016, a firefighting campaign in excess of two months commenced. Firefighting efforts ensured loss of life was avoided and damage to assets and injury to people were minimised. Considering the conditions over an extended period, these achievements were commendable.

The review settled on 12 recommendations:

1. A joint multi-agency Fire Preparedness Matrix.
2. Fire operational guidelines that will avoid long-term environmental impact.
3. Additional training for incident controllers to transition to Divisional Command.
4. Agencies to review the role of the Regional Fire Operations Centre when a level 3 incident management team is operating within the region.
5. Transferrable interagency skills and capabilities to be mapped between TFS and the Tasmania State Emergency Service.
6. How staff already employed by government can support emergency management.
7. Tasmania fire agencies to share learnings at a national level.
8. Tasmanian fire agencies to review their pre-season engagement with groups who may benefit from understanding fire management tactics and work to increase information management.
9. Those who are assigned aviation-related roles to complete the formal national training and to look for practical opportunities to reinforce this training interstate.
10. A review of the effectiveness of aerial firefighting in the Tasmania 2016 fires to be commissioned.
11. Firefighters to be trained in winch operations to sustain a ‘first-strike’ capability.
12. A review to be undertaken into the benefits and costs of training a cadre of Tasmanian volunteer firefighters in remote-area firefighting. ■

For more information visit [www.fire.tas.gov.au](http://www.fire.tas.gov.au)

Read more at: [www.greens.org.au/news/tas/greens-welcome-afac-report-tasmanian-bushfires](http://www.greens.org.au/news/tas/greens-welcome-afac-report-tasmanian-bushfires) OR [www.abc.net.au/news/2016-04-30/report-finds-criticism-of-tasmanian-fire-management-misplaced/7373006](http://www.abc.net.au/news/2016-04-30/report-finds-criticism-of-tasmanian-fire-management-misplaced/7373006)

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# REDUCING HAZARD IMPACTS WITH SMARTER SPENDING

If we want to reduce both the risk and cost of natural disasters, we first need to better understand the economics of mitigation. New national research on integrated planning is showing us how.

BY **NATHAN MADDOCK**

Communications Officer, Bushfire and Natural Hazards CRC

**T**he expected dramatic rise in the cost of natural hazards over coming decades makes mitigation a significant issue for all levels of government today. Bushfire and Natural Hazards CRC research is providing evidence to support actions that will mitigate the impact of natural hazards—and, hopefully, reduce the government dollars spent on emergency response and recovery.

It is all about strategic investment now to reduce future costs, according to Professor Holger Maier, who is leading the CRC project to develop an integrated modelling tool to support strategic decisions. “Everyone wants to talk about mitigation and risk reduction,” Professor Maier said.

“But we need to put a value on these things, so that we have an evidence base that enables decisions to be justified on a rational basis with the best available information.”

However, as it currently stands, decision-makers do not have this vital information.

“There is nothing that allows for comparison of different hazards and their mitigation options, and to also look at long-term planning,” noted Professor Maier.

To address this gap in Australia’s emergency management preparations, a tool has been in development for the past three years by an international team, with CRC researchers from the University of Adelaide—Professor Maier, Graeme Riddell, Jeffrey Newman, Dr Aaron Zecchin, Emeritus Professor Graeme Dandy and Charles Newland—and the Research Institute for Knowledge

Systems in the Netherlands—Associate Professor Hedwig van Delden and Roel Vanhout—leading the collaboration. The team has had expert assistance from Dr James Daniell and Andreas Schäfer from the Karlsruhe Institute of Technology in Germany.

The team has been developing an approach to assess the long-term impact of different mitigation options on different hazards. This approach is being applied to a series of case studies to investigate the effectiveness of policy and planning investment options for optimal mitigation of natural hazards. The case studies—in Adelaide, Melbourne and Tasmania—look at a range of hazards and their mitigation options over time, allowing emergency managers to assess the dollar costs of the impact of mitigation decisions.

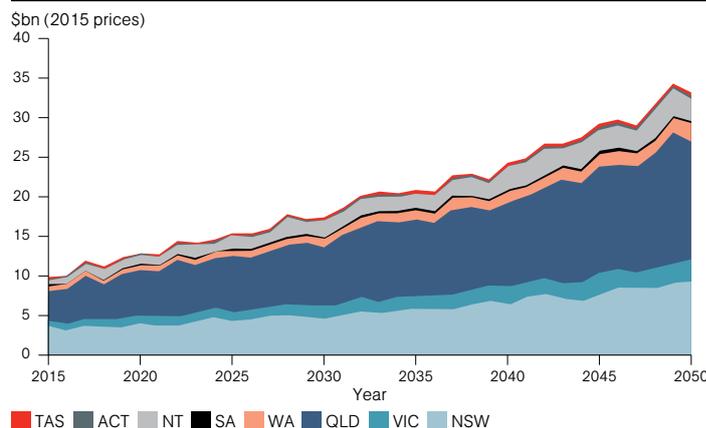
“The idea is that people can start looking at the impact of long-term



With the cost of natural hazards rising, mitigating risk is key. Here the NSW Rural Fire Service is undertaking a hazard reduction burn at Ku-ring-gai in Sydney's north.

PHOTO: ADAM STREICHLER, NEW SOUTH WALES RURAL FIRE SERVICE

**FIGURE 1** 2015–50 forecast of the total economic cost of natural disasters, identifying cost for each state



SOURCE: DELOITTE ACCESS ECONOMICS ANALYSIS

economic effectiveness of mitigation options are incredibly valuable to high-level strategic decision-makers as they look to reduce the costs of natural disasters. These people may be within emergency and land management agencies, and also in the government departments of treasury, premier and cabinet, and elsewhere.

This has bred an appetite for this type of assessment of mitigation decisions in emergency and land management in Australia, noted Professor Maier.

“At the moment a lot of the focus has been on responding to hazards, but because there is such a large projected cost associated with natural hazards, there has been a realisation that we need to start looking at longer term strategic planning. There is also the realisation that climate change is going to have an effect and that our population is ageing and becoming more vulnerable. So the key question really is, how do we prepare for that?”

“It really is a complicated problem, when we are looking at how the different hazards interact with each other, and with a given budget, it is difficult to know how emergency agencies can get the best bang for their buck. The tool will help agencies assess what the best strategies are to get the best outcomes for a given amount of money spent,” Professor Maier said.

The Adelaide case study is currently the most advanced, with a working prototype nearly ready to hand over to end users. In Melbourne and Tasmania end users have worked with the research team to assess how they would use the system, and what its functionality should be, with the team currently working on data collection for these areas.

changes—things like climate change, economic conditions and population—and the impact these have on the different risks associated with different hazards,” explained Professor Maier.

“We can also look at different mitigation options and risk-reduction strategies so we can assess different combinations of risk-reduction measures—such as changing building codes, building flood levees, land use planning or community education.

“It provides a holistic framework for looking at different hazards and mitigation strategies.”

### Finding the evidence with case studies

The case studies are looking at different combinations of hazards, with different emphases—all under the direction of end user partners.

The Adelaide case study is assessing

earthquake, bushfire, coastal inundation, flooding and heatwave. The Melbourne case study is looking at bushfire, flood and potentially earthquake. Tasmania’s is investigating bushfire and flood. For each case study, the tool analyses areas of risk both now and into the future, tests different types of risk-reduction options, identifies mitigation options that provide the best outcomes for a given budget, and considers single or multiple types of risk-reduction options. End user partners have emphasised the importance of understanding where various groupings of people (including young, aged, new immigrants, long-term residents and non-English speakers) are likely to live in the future, and their vulnerability to risks in these areas.

With natural disasters costing Australia in excess of \$9 billion annually, and projected to skyrocket to \$35 billion by 2050 (Figure 1), facts around



PHOTO: SHUTTERSTOCK.COM

An outcome of this project may be that land where people currently live may not be liveable in the future, with the risk of hazards such as flooding too great.

### NATIONAL STEERING COMMITTEE MEMBERS

- ◆ Emergency Management Victoria (Chair)
- ◆ ACT Rural Fire Service
- ◆ AFAC
- ◆ Bureau of Meteorology
- ◆ Country Fire Authority VIC
- ◆ Commonwealth Attorney-General's Department
- ◆ Department of Fire and Emergency Services WA
- ◆ NSW Rural Fire Service
- ◆ NSW State Emergency Service
- ◆ NT Police Fire and Emergency Services
- ◆ Queensland Fire and Rescue
- ◆ SA Country Fire Service
- ◆ SA State Emergency Service
- ◆ Tasmania Fire Service
- ◆ Victoria Police

“The tool will help agencies assess what the best strategies are to get the best outcomes for a given amount of money spent.”

— Professor Holger Maier, CRC Project Leader

#### What is known now?

The learnings and outcomes so far, especially from the Adelaide case study, are varied, Professor Maier explained. There are learnings about the system and how the modelling behind it works, but there are also outcomes for end users.

“Some of the scenarios we have developed in consultation with end users, which represent different plausible futures, have resulted in quite different outcomes in terms of where people would live (in the future) and what the risks would be for different hazards,” Professor Maier said.

“This indicates that the planning you need to do to cater for these plausible futures would be quite different.”

End user Ed Pikusa, Principal Flood Management Officer at South Australia’s Department of Environment, Water and Natural Resources, believes the research will lead to better decisions in emergency management right around Australia.

“All emergency management practitioners and land managers across the country need to make informed choices to reduce losses from natural disasters,” Mr Pikusa said.

“We ask questions like ‘what are the benefits and costs of mitigation options?’, ‘how do we quantify many of the intangibles?’ and ‘who owns the risk?’

“In a multi-stakeholder environment it can be complicated, and it is hoped tools

like what are being developed by this project will help agencies answer these important questions,” Mr Pikusa said.

While the main aim of the research is to help emergency services invest money to achieve the largest reduction of risk, it cannot be underestimated how valuable the process has been in other contexts too.

“The outputs from the tool are one thing, but it is also about providing people with an environment that enables them to think more strategically, and for agencies to start working together and imagining what could happen in the future,” Professor Maier said.

“This has been a really positive experience.”

In the future it is hoped that the tool will be rolled out to other states and cities.

“The idea is to make the approach as generic as possible,” Professor Maier said.

“All going well, we would like to develop case studies looking at different types of end users and applications, such as local councils, single-hazard agencies and agencies responsible for high-level planning such as state treasury or premier and cabinet departments—agencies that are making high-level strategic decisions.

“The tool is flexible enough to be applied in a lot of different contexts. It allows users to answer the question ‘is this something we should be doing?’”

#### Part of the big picture

The project is a vital part of the CRC’s research program, as it uses the outputs of many other studies. CRC Research Manager Dr Michael Rumsewicz believes it has the potential to be a game changer in how Australia builds resilience to natural disasters.

“It has been exciting watching this project develop, and getting an appreciation for both the power of the approach and how it brings many apparently disparate pieces of information together,” Dr Rumsewicz said.

“It already draws together information from about a half a dozen other CRC projects, and has the potential to link to even more across our broader research programs in economics, risk, social resilience, volunteering, engineering, information management, prescribed burning and coastal management.

“More generally, though, as I have gone around the country talking to people about the major issues facing Australia regarding natural hazards, a recurring theme has been ‘we do not know how to quantify the benefit of mitigation spending’. This project, with its end user focus and bringing together research from a range of sources, provides the evidence base needed to support long-term political and operational decision-making.

“This is a world-leading piece of research made possible only by the contributions of end users and researchers working together on a common goal.” ■

Find out more about this research at: [www.bnhcrc.com.au](http://www.bnhcrc.com.au)

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Spacing between sprinklers: 8.5m  
1720 kPa applications

# INDIGENOUS FIRE MANAGEMENT

Aboriginal staff members at the ACT Parks and Conservation Service have written an Indigenous burning framework with the aim of promoting the use of traditional knowledge in fire management.

BY **NEIL COOPER PSM**

Manager, ACT Parks and Conservation Service

In response to two key drivers—the Council of Australian Government's National Bushfire Management Strategy, which calls for promotion of use of fire by Indigenous Australians, and the ACT Parks Aboriginal staff and the local Aboriginal community—a new Indigenous burning framework has been produced.

The aim of the program was to facilitate Aboriginal fire management by providing the mechanism for the local Aboriginal community to make decisions about bushfire management and then deliver on them.

We wanted to incorporate operational Indigenous burning in our program and to do that we needed a set of high-level Indigenous burning guidelines.

The most important thing about the guidelines is that non-Aboriginal staff cannot write them. They have to have the ownership of Aboriginal people. It's more than a tokenistic inclusion—more than having traditional owners sign off the burn plan, work as rangers or be part of the fire crew.

I'm just here to press the right buttons to make it happen, but in the end it has to be what they believe represents Aboriginal burning. Cultural burning is nothing new—it has been happening in our landscape longer than living memory.

Indigenous fire management has long been an interest of mine but I was never sure how to approach it.

I was struggling to understand what Aboriginal fire management was, what it meant and how we could incorporate it into our burning program. What is meant by cultural burning? We're still coming to grips with what this means and if I was struggling with what it was, then probably so were other people.

The penny dropped during a recent ACT Parks off-site planning conference



with our realisation that we could implement Indigenous burning came about during a planning workshop when I had the opportunity to really talk to the Senior Ngunnawal Ranger, Adrian Brown.

We were at a workshop in the field and I had the opportunity to spend some high-value, one-on-one time discussing cultural burning. It became obvious to me that there was plenty we could do. It's really about establishing effective and efficient fire regimes based on some of this historical Indigenous knowledge and skill.

It will be a journey for fire management staff, Aboriginal staff and the local traditional owners. The impacts of climate change and exotic species will also need to be considered.

You can't go to Indigenous people and simply say, 'tell us everything you know about fire'. It's about building trust and expertise, and with that will come

shared experience and knowledge.

The person responsible for delivering the Aboriginal Fire Project within the ACT Parks Service is Dean Freeman.

Mr Freeman has worked in fire management and cultural heritage in the ACT and New South Wales for over 25 years.

"The main aim of the project is to build a connection between the local traditional owners, the Ngunnawal people, and the ACT Parks Service burning program, through the Fire Management Unit," he said.

Mr Freeman is a Wiradjuri man from Brungle, the country directly west of the ACT, but is related to the Ngunnawal people and has their support.

Mr Freeman is also a member of the Murumbung Rangers, a network of Aboriginal and Torres Strait Islander staff working across ACT Parks and Conservation Service who play a

**Aboriginal Fire Officer Dean Freeman collecting embers from a ceremonial fire. The embers were then carried in coolamons to ignite the burn at Gibraltar Rocks Peak.**

vital role in delivering outcomes of the framework with local Traditional Custodians.

Ngunnawal Elder Carl Brown has participated in most of the cultural burns and assisted the agency and the Murumbung Rangers. Mr Brown's knowledge of fire has been passed onto him from his Elders and he recalls burning river corridors to clear vegetation to access rivers to fish with his family.

"It gets back to sharing knowledge. I bring knowledge from my country around Brungle and the Ngunnawal community shares knowledge with me. That's how we all build knowledge and trust," Mr Freeman said.

Mr Freeman has been helping fire crews to understand how Aboriginal people used the bush and where the crews might locate Aboriginal cultural sites. "I've been talking to fire crews about cultural heritage site protection during hazard reduction burns and wildfires for approximately 16 years now. When I located artefacts or cultural sites during burns, I showed the crews and helped them understand where the sites are in the landscape.

"That's a very satisfying part of the job, knowing that our fire crews are keeping an eye out for Aboriginal cultural sites. I now get calls when they find a site or want more information relating to Indigenous issues."

Mr Freeman says the Australian bush is changing and this is making it harder to control fires.

"There is a continuing need to burn the bush and in the old days fires did pull

up in wet areas. But now the bush is dry and fires don't pull up where they might have traditionally in the past, so that's why I think fires are getting bigger.

"We need to clean the place up. When the Aboriginal people started burning off in a new place it would have been hectic, but once the landscape was the way they wanted it, they would have kept it going with a bit of fire here and a bit of fire there where it was needed," he said.

As the Manager of ACT Parks and Conservation Service, I'm in full support of the early focus on protection of cultural assets and cultural sites and it's my hope the program will grow to include more about landscape fire management.

At the moment, there is a focus about protecting ancient rock art and scar trees. While this is a crucial aspect of any strategy, I hope it will go more into cultural ecological burning. This needs to be the guts of it. It has to empower Aboriginal people to give us advice and it has to be done in a way that delivers ownership, responsibility and respect. In other parts of the country like the Northern Territory this sort of project is taken for granted.

Past policies based on 'assimilation' and 'protectionism' ideologies removed Aboriginal communities from their homelands; however knowledge of country and stories on Aboriginal missions were still transferred and maintained. Connection to land is still maintained in southern Australia through stories, memories and the revisitation of cultural practices after the assimilation

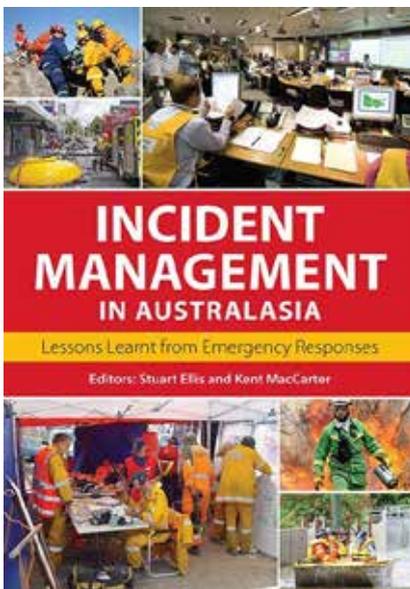
**"It gets back to sharing knowledge. I bring knowledge from my country around Brungle and the Ngunnawal community shares knowledge with me. That's how we all build knowledge and trust."**

Dean Freeman, Aboriginal Fire Officer

era. This is why I see the fire framework having such a great importance in the southern region today.

It's all about recognising that we have a great deal to learn from the Aboriginal community and accepting that we are often not as smart as we like to think we are. We need to manage the landscape for all values including European values and Aboriginal values.

I also accept that this concept will be a leap of faith for some people as the implementation of some cultural burning practices will not necessarily align with contemporary university-based learnings. This could and will be confronting for some people but we have to improve what we are doing. ■



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# FIRE AUSTRALIA + HAZMAT 2016

## CONFERENCE AND TRADESHOW IN MELBOURNE THE BIGGEST EVER

The largest-ever Fire Australia + Hazmat conference and tradeshow, held on 4–5 May, featured more conference streams and trade exhibitors than ever before.



BY **JOSEPH KELLER**

Communications Manager,  
Fire Protection Association Australia

**F**ire protection, hazardous materials and building and construction professionals assembled at the Melbourne Convention & Exhibition Centre for the largest industry event in the southern hemisphere—Fire Australia + Hazmat. Over the two days, more than 1,000 people visited nearly 100 exhibition booths or heard from some of the 60 speakers from Australia and overseas.

### Amazing presentations Day one

Melbourne’s Lord Mayor, Robert Doyle, formally opened the conference and attendees were treated to some great anecdotes and moving stories. The opening was followed by two extraordinary keynote speakers—Victorian Emergency Management Commissioner, Craig Lapsley, followed by the Australian Building Codes Board (ABCB) General Manager, Neil Savery. Commissioner Lapsley discussed the ongoing trend towards coordination and integration

of emergency services and the development of common policies among the emergency services, while Mr Savery discussed the future strategic direction of the ABCB and some of the challenges facing the Board.

These two outstanding presentations set the tone for the rest of the day, which included insightful presentations from representatives of Standards Australia, the National Fire Protection Association, CSIRO, Crown Melbourne, Kmart, Safe Work Australia, Toll and the National Chemical Emergency Centre.



Robert Doyle



Craig Lapsley



Matthew Wright



Brownwyn Evans



Neil Savery



Brian Ashe

PHOTOS: STEVEN PAM / SMARTSHOTS 2016

Scenes from the tradeshow

**Day two**

The Strategic, Technical and Hazmat streams continued strongly on day two, with presentations from Brian Ashe from the ABCB and Peter Schmidt from Emergency Management Victoria setting the scene. Other highly notable presentations included Geoff Flower and David Swinson on fire risk in historic buildings. Alan Wilson from Alan Wilson Insurance Brokers spoke on the threat of cyber attack to businesses, and Giles Hobson from the National Chemical Emergency Centre in the UK discussed 24-hour emergency helplines in the chemical emergency context.

After lunch on day two, the two fire protection streams joined for a major expert panel and debate on Australia's building control system. Hosted by FPA Australia's Chief Technical Officer and Deputy CEO, Matthew Wright, this panel was made up of a range of experts including Michael Lambert, independent reviewer of the NSW Building Professionals Act, Brian Ashe from ABCB, Don Bliss from NFPA (US) and and Forensic Fire Examiner Greg Kelly. The robust panel discussion provided everyone in attendance with much to ponder as the different views of the experts and audience came together for this wonderful session, which was an ideal way to see out the second day of the conference proceedings.

**Huge tradeshow**

The 2016 tradeshow was a truly monster event, dwarfing even the previous year's exhibition space on the Gold Coast. Many exhibitors chose to book multiple booth spaces in order to create huge multi-dimensional displays featuring their products and services.

This year visitors to the tradeshow could also access free presentations in the dedicated showcase theatre area. Visitors could also easily access the DesignBUILD expo occurring concurrently at the conference and exhibition centre. This meant that more than 1,000 people visited the Fire Australia + HazMat tradeshow over the two days, providing many opportunities for exhibitors to engage with end users about their latest products and services.

The success of the 2016 tradeshow has allowed the Association to secure even more floor space at the newly completed International Convention Centre, Sydney, for the 2017 tradeshow, which is sure to be even bigger.



PHOTOS: STEVEN PAM / SMARTSHOTS 2016



Day 2 expert panel

**A wonderful cause—The Fiona Wood Foundation**

A dinner with Max Walker at the Melbourne Cricket Ground was always going to be special and the annual Charity Dinner did not disappoint.

Bulldogs legend Doug Hawkins warmed up the crowd with some trivia before Max 'Tangles' Walker took the stage and recounted many tall tales from his time in and around the Australian cricket team, both on the field and in the commentary box.

Then the audience was lucky enough to hear from leading plastic surgeon and 2005 Australian of the Year, Dr Fiona Wood (pictured right). Dr Wood shared not only the wonderful work of her foundation, but also personal stories of her life as a British immigrant to Australia and her inspiration and vision for a world where burns can be healed without scars.

Dr Wood's words touched the Charity Dinner audience, who dug deep and raised more than \$16,000 through raffle tickets, direct donations and auction items. The Association would like to warmly thank everyone who donated and also to the Dinner Sponsor, Chubb, which again made the charity event possible through generous and valued sponsorship.



Dr Fiona Wood



R to L—Patrick Conway, Sales Director ANZ for Tyco Fire Protection Products, accepts the People's Choice Award from FPA Australia CEO, Scott Williams



R to L—Flamestop Australia's National Sales Manager, Ben Parkhill, accepts the Best Exhibit Award from FPA Australia CEO, Scott Williams.

**AWARDS AND ACKNOWLEDGEMENTS**

At the closing of Fire Australia + HazMat 2016, Association CEO, Scott Williams, addressed the tradeshow and conference attendees and exhibitors, thanked everyone in attendance and invited them to the Sydney event in May 2017. Mr Williams presented two important awards related to the tradeshow—the People's Choice Award for Best Exhibit and the Overall Best Exhibit Award.

**PEOPLE'S CHOICE AWARD—TYCO FIRE PROTECTION PRODUCTS**

Visitors to the tradeshow over the two days had the opportunity to vote for their favourite exhibitor and this year we received a huge number of votes. Voting was very close and required careful counting.

In the end, the winner was decided by just two votes, and that winner was Tyco Fire Protection Products. Tyco presented a very impressive and beautifully designed stand, which was easily one of the most impressive at the tradeshow.

**BEST EXHIBIT AWARD—FLAMESTOP AUSTRALIA**

While attendees were checking out the great displays and voting for the People's Choice Award, members of the Fire Australia + HazMat secret judging panel were also wandering the floor, talking with exhibitors and collecting product information to help establish the best overall exhibit.

The winner of this award is judged on several important categories including display presentation, product knowledge and the presentation and friendliness of staff on the stand. Honourable mentions went to Firesense, Honeywell, Brooks, Hochiki, AMPAC and Tyco. But this year, for the second year running, the judging panel selected Flamestop Australia as the winner of the Best Exhibit Award.

The Association would like to thank all of our tradeshow exhibitors and we look forward to seeing even bigger and better displays next year. We would also like to thank all of our wonderful sponsors.

### Sydney 2017

After the outstanding success of Fire Australia + HazMat 2016 in Melbourne, the Association is excited to be heading back to Sydney for 2017 and the newly constructed International Convention Centre.

Fire Australia was held at the old convention centre in Sydney in 2013. It was a strong success so we are expecting big things in 2017 at the stunning new venue at Darling Harbour. ■

Fire Australia + HazMat 2017 will be held in early May. You can check out a video all about next year's event at: [www.fireaustralia.com.au](http://www.fireaustralia.com.au) We can't wait to see you there.



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# TAKING THE SURPRISE OUT OF BUSHFIRES FOR COMMUNITIES

Managing risk in complex environments involves many uncertainties, which is why focusing on predictive services helps emergency services and communities prepare for bushfires at every stage.

BY **FREYA JONES**  
AND **GREG ESNOUF**

AFAC

**P**redictive services create intelligence products from data and information.

Predictive services can be used over a broad range of hazards to predict how a particular hazard might behave at a particular time under prescribed or forecast conditions to support decision-making to manage risk and improve community safety outcomes. Some of the services covered by predictive services include bushfires, floods, earthquakes and cyclones.

In a bushfire context, predictive services can be used to support decision-making over a broad spectrum of applications, from longer term planning and programming decisions, through to "real time" intelligence to support incident management.

The models improve community safety by supporting decision-making processes before, during and after events. Predicting bushfire behaviour allows the potential impact to be assessed and reduces uncertainties.

Predictive services aim to improve interoperability and resource sharing capacity between jurisdictions and strengthen the notion of shared responsibility by empowering communities to make decisions. Dr Simon Heemstra, Manager, Community Planning at the New South Wales Rural Fire Service (NSWRFS), believes these advances are driving the increased focus.

"We've got improved science, technology, computing power and capacity so we can run bigger, more complex models. Increased community access to information through web-enabled devices means there's greater appetite for the community to understand information about fire-spread," he said.

AFAC has launched the Predictive Services Group, working with its member agencies across Australasia to develop a cohesive approach. The group first met this year and identified four key areas of focus: systems, operations, data and training.

The objective is to use similar operational tools, approaches, standards and practices between jurisdictions. Setting data requirements will allow agencies to use their preferred tools with consistency. Another aim is to develop a nationally accredited training program for fire behaviour analysts throughout Australia.

A member of the group, Mike Wouters, Manager Fire Knowledge and Engagement at South Australia's Department of Environment, Water and Natural Resources, outlined collaboration and cooperation as the reasons for focusing on these areas.

"Each agency has its own fire operating system but we need some common systems and tools so that we can share the effort of developing."

## Predicting the unpredictable

Predictive services support decision-making throughout five key

stages of bushfires: policy and planning, preparedness, readiness, response and recovery. Each stage is aided by a spectrum of applications ranging from scenario-based long-term planning decisions through to real-time information to support incident management on the ground.

## Policy and planning

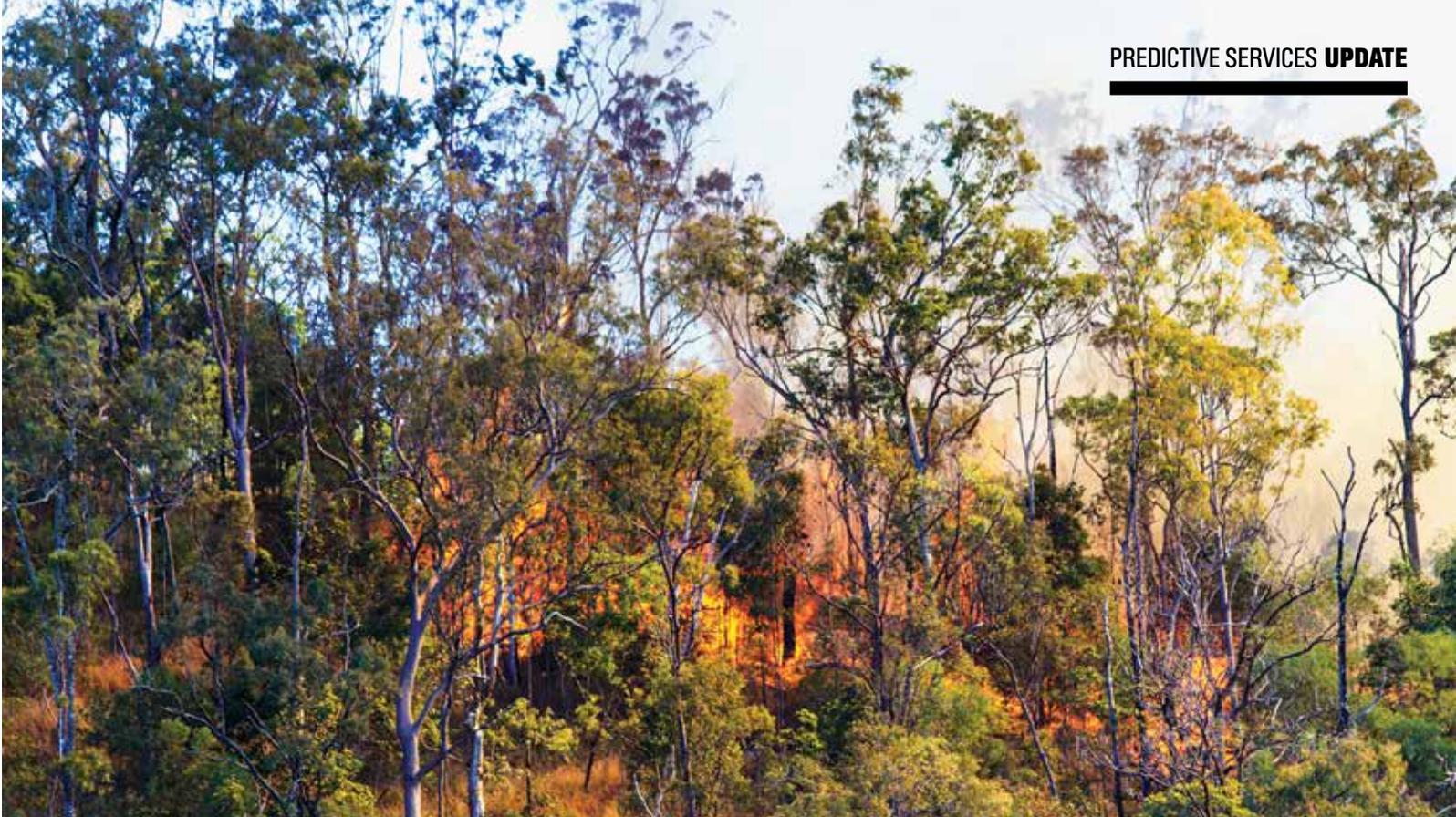
Long-term predictions support policy and planning decisions for government, industry, communities and even individuals. The scenarios help determine land use, building design, ecological management and mitigation strategies.

An example of this approach is the Strategic bushfire management plan—East Central bushfire risk landscape developed for Victoria by the Department of Environment, Land, Water and Planning (DELWP). Using a risk-based planning approach, the strategy considers weather, fuel hazards and landscape using the Phoenix RapidFire simulation software to model the spread and intensity of bushfires. The strategy identifies at-risk areas and actions needed for mitigation.

## Preparedness

Medium-term predictions support agency and community preparedness for events and inform decision-making for weeks to months ahead. A result of these predictions is the seasonal bushfire outlook for Australia, developed by the Bushfire and Natural Hazards CRC.

"The seasonal outlook uses a complex series of climatic and



consensus models. We combine that information to come up with a simple answer to say whether we are expecting a normal or above-normal season for different regions in Australia," Dr Heemstra said.

### Readiness

Short-term predictions aid agency and community readiness by assessing risk over geographical areas and supporting decision-making for days ahead. These predictions are put into practice through fire danger ratings, total fire ban declarations, public messaging and determining location of people and resources.

### Response

'Real-time' predictions use knowledge of current events and modelling tools to predict incident behaviour and determine most likely or most dangerous scenarios. The scenarios inform decisions on response strategies, warnings and advice given to communities.

### Our current capabilities

There are three computer-based fire-spread simulators in use throughout Australia: Phoenix RapidFire, Australis and Prometheus. A fourth, Spark, is in development at CSIRO.

Phoenix RapidFire is a joint venture between the University of Melbourne, the former Bushfire CRC and DELWP. It is the most widely used fire-spread simulator throughout Australia and the main operational tool in Victoria,

New South Wales, South Australia, Queensland, the ACT and Tasmania.

Australis was developed by the University of Western Australia and the Bushfire CRC and is being advanced in partnership with Landgate WA. Australis is used in Western Australia and available nationally through the Aurora web interface.

Prometheus is a Canadian product used in Canada, Tasmania and New Zealand. It applies to a narrower band of vegetation types and is used for a smaller subset of fires in Tasmania.

Spark is an integrated software framework being developed by CSIRO; it is not currently ready for operational use but is being developed further to assess its performance.

Mr Wouters believes public awareness of the models may increase community safety. "Some simulators are effective engagement tools in themselves. Giving people a visual representation of bushfires can help them understand the risks in a more tangible way," he said.

In conjunction with simulation models, the training and deployment of fire behaviour analysts provides a specialist capability.

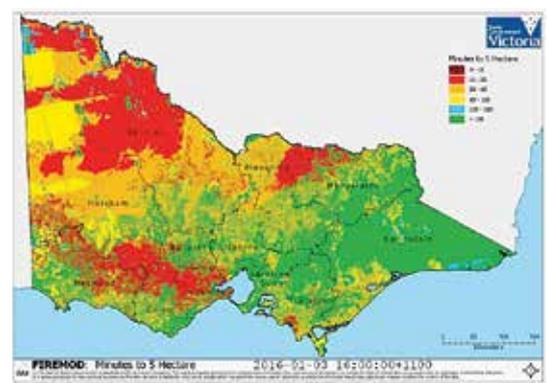
"Fire behaviour analysis has developed over the last six to eight years as a specialist function within Australia," Dr Heemstra said.

Fire behaviour analysts are often deployed and shared between jurisdictions during bushfires to provide an expert analysis of the situation.

"Their role is to be aware of the

"Each agency has its own fire operating system but we need some common systems and tools so that we can share the effort of developing."

— Mike Wouters, Manager Fire, Knowledge and Engagement, Department of Environment, Water and Natural Resources, SA

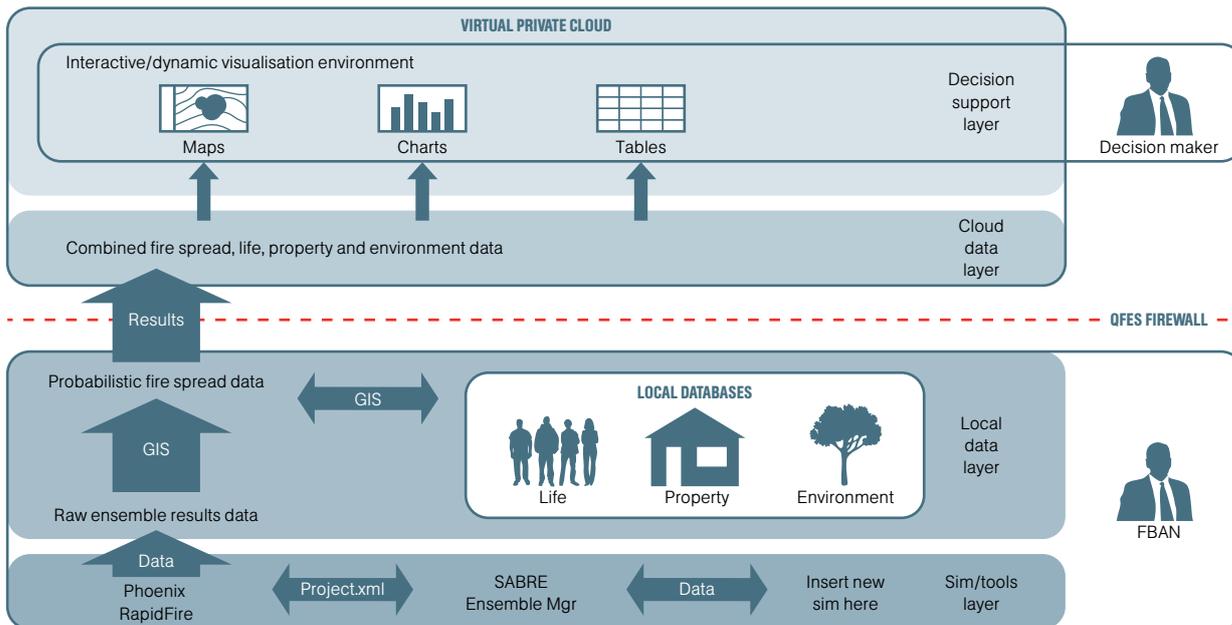


Map of fire-spread potential prepared for a State Control Centre briefing on 3 January 2016.

SOURCE: EMERGENCY MANAGEMENT VICTORIA

SABRE inputs data variables into Phoenix RapidFire to determine the probabilistic fire-spread. SOURCE: QUEENSLAND FIRE AND EMERGENCY SERVICES

**FIGURE 1** SABRE solution concept



situation, monitor the weather, talk to the Bureau of Meteorology and firefighters on the ground to understand the fire behaviour. It's a specialist skill so you cannot train hundreds of people," Mr Wouters said.

During last summer's large-scale bushfires that affected Tasmania, fire behaviour analysts were deployed to support strategic and incident planning. Many of these specialists came from interstate (New South Wales and Queensland), reflecting a collaborative approach to managing bushfires nationally.

Andrew Sturgess, Manager, Predictive Services Unit, Queensland Fire and Emergency Services (QFES), said the skills of fire behaviour analysts can be applied at all stages of bushfires.

"When a fire is happening we look at where it's going to go and what is likely to be impacted at what time. This is an important role providing time-critical specialist advice but it's equally important across the disaster management cycle, for planning and preparation," he said.

**Shaping predictive services for the future**

In addition to the current simulators,

QFES developed a tool called Simulation Analysis Based Risk Evaluation (SABRE) (Figure 1).

"SABRE is not a simulation tool, but a decision support framework into which simulation tools like Phoenix plug in," Mr Sturgess said.

"Phoenix and other simulators used in Australia produce a deterministic output, which means one single possible future of a fire per input. Although we do our best to get inputs as accurate as possible by gathering information from as many sources as possible, we know there's uncertainty around them.

"To account for those uncertainties we've developed SABRE, which produces a probabilistic fire-spread output," he explained.

SABRE enables fire behaviour analysts to assign levels of certainty to simulation inputs. Certainty ranges are applied to humidity, temperature, wind speed, wind direction, the strata and fuel complex, drought factor, curing and point of ignition.

"The results are published in an interactive visual environment that we share with people in the field who can access it on their smartphone or tablet," Mr Sturgess said.

Another key development is an

evaluation project being undertaken by the Bureau of Meteorology for NSWRFES and AFAC to assess the performance of each simulator.

"We will look at what model we should be using and supporting future development of," Dr Heemstra said.

"We've engaged the Bureau of Meteorology because of their expertise in comparing models.

"The project will result in a report and provides a clear answer to the context and understanding of model performance for a range of conditions. This will help us apply simulators with more confidence," he said.

"The answer may be that all four of them give us insights, or it may be that one model continually out performs the others," he said.

Important new research is also being undertaken in monitoring and predictions by the Bushfire and Natural Hazards CRC, expanding the underpinning data as well as the range of monitoring and modelling techniques, which will advance predictive services capabilities.

"With improved predictive services, the fire behaviour analyst role and tools, we will have capacity to provide more accurate and timely advice and warnings to communities," said Dr Heemstra. ■

**"Providing time-critical specialist advice is equally important across the disaster management cycle for planning and preparation."**

Andrew Sturgess, Manager, Predictive Services Unit, Queensland Fire and Emergency Services

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Full-scale fire testing being conducted on an external wall  
PHOTO: BRE GLOBAL LTD

# FIRE RISKS AND COMPLIANCE

## CSIRO GUIDELINE ON EXTERNAL WALL CLADDINGS

Combustible building materials on the external walls of multi-storey buildings have led to fires, notably the Docklands LaCrosse Building fire in Melbourne. A new CSIRO guideline on products will help building practitioners choose compliant wall material systems.

BY **ALEX WEBB**

CSIRO Infrastructure Technologies

It seems every few months there's a new video or media article about a fire at a multistorey building where combustible materials have been used for the external walls. These fires have been seen in Asia, the United Arab Emirates and Europe. A little closer to home, the 2014 Docklands LaCrosse Building fire and recent building audits suggest that Australia is not in the clear. Building practitioners need to know the risks of facade fires and the paths to a compliant system. CSIRO has recently published a guideline to assist just that.

There are many building materials and systems used for external walls, or facades, on Australian buildings. These products can be installed as complete exteriors or portions of building facades. The product range is increasing as innovative products come onto the market.

In April CSIRO published a guideline to aid building practitioners understand the fire hazards of combustible external wall materials. The guideline also provides pathways to demonstrating compliance in relation to facade fire safety under the requirements of the National Construction Code, Volume 1, Building Code of Australia. In particular, the guideline focuses on the

requirements for multistorey buildings in Australia requiring Type A and Type B construction for Class 2 to Class 9 buildings.

The guideline draws on international research undertaken by CSIRO in collaboration with Ulster University and the Building Code of Australia (BCA) requirements and provisions. The research makes good use of CSIRO's 70 years of fire-testing expertise.

The elements discussed include the facade, exterior wall, lining, cladding, wall systems, system parts and components and attachments to the walls. Many of these terms are used within the BCA but not all are defined in the BCA. While industry and regulatory attention has largely focused on aluminium composite panels used as exterior wall claddings on residential buildings, CSIRO's research identifies many other systems with combustible elements commonly installed across a range of building types and classes. Polymer-core metal-faced sandwich panel, timber feature walls and rendered-faced polymer-core (such as polystyrene foam) are all examples of systems that must comply with building regulations and codes.

In order to show compliance in Australia, any building product or system must satisfy the BCA performance requirements by meeting either:

- ◆ the Deemed to Satisfy provisions, or
- ◆ appropriate assessment as an Alternative Solution (now known as a Performance Solution in the new National Construction Code (NCC 2016)) in accordance with Clauses A0.9 and A0.10.

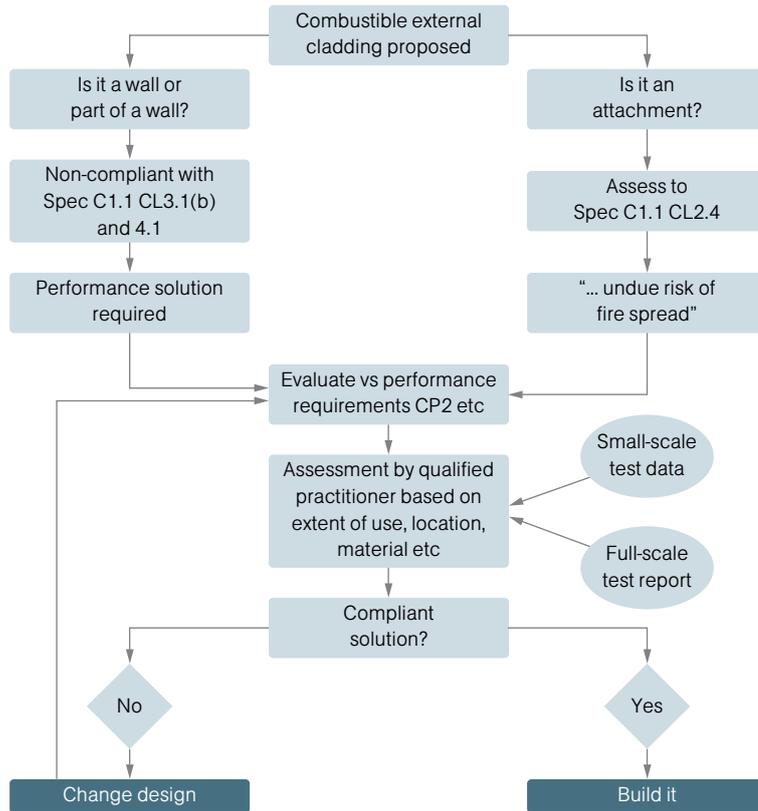
Evidence of Suitability will be required in accordance with A2.2 of Volume 1 of the BCA. CSIRO's guideline primarily considers the compliance pathways available under the Deemed to Satisfy provisions of the 2015 revision to the BCA, and will soon be updated to include the changes in NCC 2016. While the focus is on Deemed to Satisfy, some guidance is also provided for practitioners preparing Alternative Solutions.

### External wall or attachment?

For buildings requiring Type A and B construction, the BCA Deemed to Satisfy provisions address two common cases relating to fire performance of external walls:

1. The cladding is the exterior wall or an integral part of the wall system. BCA Specification C1.1, Sections 3.1(b) and 4.1 (b) apply, requiring non-combustible materials.
2. The cladding is an attachment to an exterior wall having the required fire resistance level. BCA Specification C1.1 Clause 2.4 applies.

**FIGURE 1** Path of compliance



13785, are currently used for regulation of facade fire performance. These methods vary in terms of specimen arrangement, ignition-source size, measurements and the required pass or fail criterion. Standards Australia has recently released AS 5113:2016. This Standard provides guidance regarding testing and classification of fire performance of external walls. It includes details of full-scale facade test methods proposed for Australia. While this Standard is not currently referenced in the BCA it does provide a suitable basis for assessment of combustible facades by an Alternative Solution path.

The guideline also discusses the format of test reports. Covered in the BCA section on evidence of suitability, any testing or certification documentation must clearly specify the exact material type assessed as being suitable and approved for use including fixing methods, joint treatments and limitations. Changing any of these parameters can substantially change the fire performance of a material, and it is critical that they are clearly identified in laboratory reports.

The term 'external wall' is defined in the BCA as "an outer wall of a building which is not a common wall". The term 'attachment' and the difference between an attachment and an external wall are not defined in the BCA.

While some difference of interpretation and approach in industry derives from the above definitions, this is less important than it first seems. Both the performance solution approach and the BCA Deemed to Satisfy assessment of a combustible attachment essentially require appropriate assessment of the risk of fire-spread by the external wall system.

### Combustibility

'Non-combustible' is a defined term in the BCA. The compliance of a material to the BCA non-combustibility definition can be determined by conducting an AS1530.1 standard combustibility test. If the material satisfies the criteria outlined in the test method the material is not deemed combustible.

Alternatively, BCA Clause C1.12 lists materials which, although combustible or containing combustible fibres, may be used wherever a non-combustible material is required.

The guideline provides further information on the AS 1530.1 test

method and the limitations. It also discusses Clause C1.12 and is drafted to answer many of the questions CSIRO receives regularly from manufacturers and industry practitioners.

### Testing for fire hazard properties

The guideline also discusses test methods called up in the BCA directly and through the newly adopted AS 5637.1, providing guidance on their application and limitations. The test methods referenced in the BCA are mostly small-scale tests. Although providing data on materials and some wall systems, these tests do not provide information on how a whole facade system will perform in a fire.

Building facades are made up of several materials, fixing methods and joints constructed in various configurations, and small-scale tests may be limited in their ability to assess these complex systems. The guideline explores this complexity and discusses the contribution and impact of spandrels, sarking and insulation materials.

### Large-scale test methods

Several internationally recognised full-scale facade test methods, including NFPA 285, BS 8414 and ISO

### Compliance

Compliance of a combustible external cladding may be achieved by an Alternative Solution path or by meeting the Deemed to Satisfy attachment provision.

Specification C1.1, Clause 2.4 does permit combustible materials to be used as an attachment under the following conditions. A combustible material may be used as a finish or lining to a wall or roof, or in a sign, sunscreen or blind, awning or other attachment to a building element which has the required fire resistance level if:

- ◆ the material is exempted under C1.10 or complies with the fire hazard properties prescribed in C1.10
- ◆ it is not located near or directly above a required exit so as to make the exit unuseable in a fire
- ◆ it does not otherwise constitute an undue risk of fire-spread via the façade of the building.

To assess this the only feasible path is to evaluate it against the performance requirements, which is essentially the same approach as an Alternative Solution. A flow chart of the path to compliance is shown at Figure 1.

It should not be assumed that compliance with Specification C1.1

Clause 2.4(a)(i) ensures compliance with (iii). A Group 3 material is highly likely to propagate flame the full vertical extent of a facade installation.

It is important to carefully consider applicability and limitations of any specific full-scale fire test results when applying such data for use as an Alternative Solution.

### Conclusion

Whether a cladding is part of a wall or an attachment, the restrictions on its use are quite stringent.

Combustible materials can be used if the correct approach as set out in the BCA is followed to show compliance with the performance requirements. For cladding systems with combustible elements, large-scale test data are likely to be required.

Regardless of whether a project implements Alternative Solutions that use combustible facades, Deemed to Satisfy cladding systems, or attachments, the documentation must clearly specify the exact material type assessed as being suitable and approved for use including fixing methods, joint treatments and limitations.

Inspections of the combustible wall or attachment and confirmation in writing that the approved material has been installed in accordance with documentation or a fire safety engineering report must also be conducted.

CSIRO's guideline is intended to help building practitioners understand the fire hazards of combustible materials and pathways to demonstrate compliance in relation to facade fire safety under the requirements of the BCA. It presents this issue from a testing and conformity evaluation perspective, providing a different angle to regulatory contributions from bodies such as the Victorian Building Authority, Australian Building Codes Board and the Australian Institute of Building Surveyors. CSIRO looks forward to future involvement, increasing available knowledge with an aim to bring consensus across industry participants.

CSIRO's Infrastructure Technologies team carries out testing certification and standardisation of reaction to fire and fire resistance of the product and building. The team also provides independent and objective fire safety engineering expertise and evaluation. ■

The CSIRO fire safety guideline for external walls can be downloaded free of charge from [www.csiro.au/facadefireguide](http://www.csiro.au/facadefireguide).

## Was your firefighting foam toxic?

For many years, some firefighting foams used at fire training facilities contained the potentially toxic chemicals PFOS and PFOA. In many cases, these chemicals have spread to groundwater, drinking water, plants and animals.

This is affecting local communities and is the focus of investigations by regulatory bodies.

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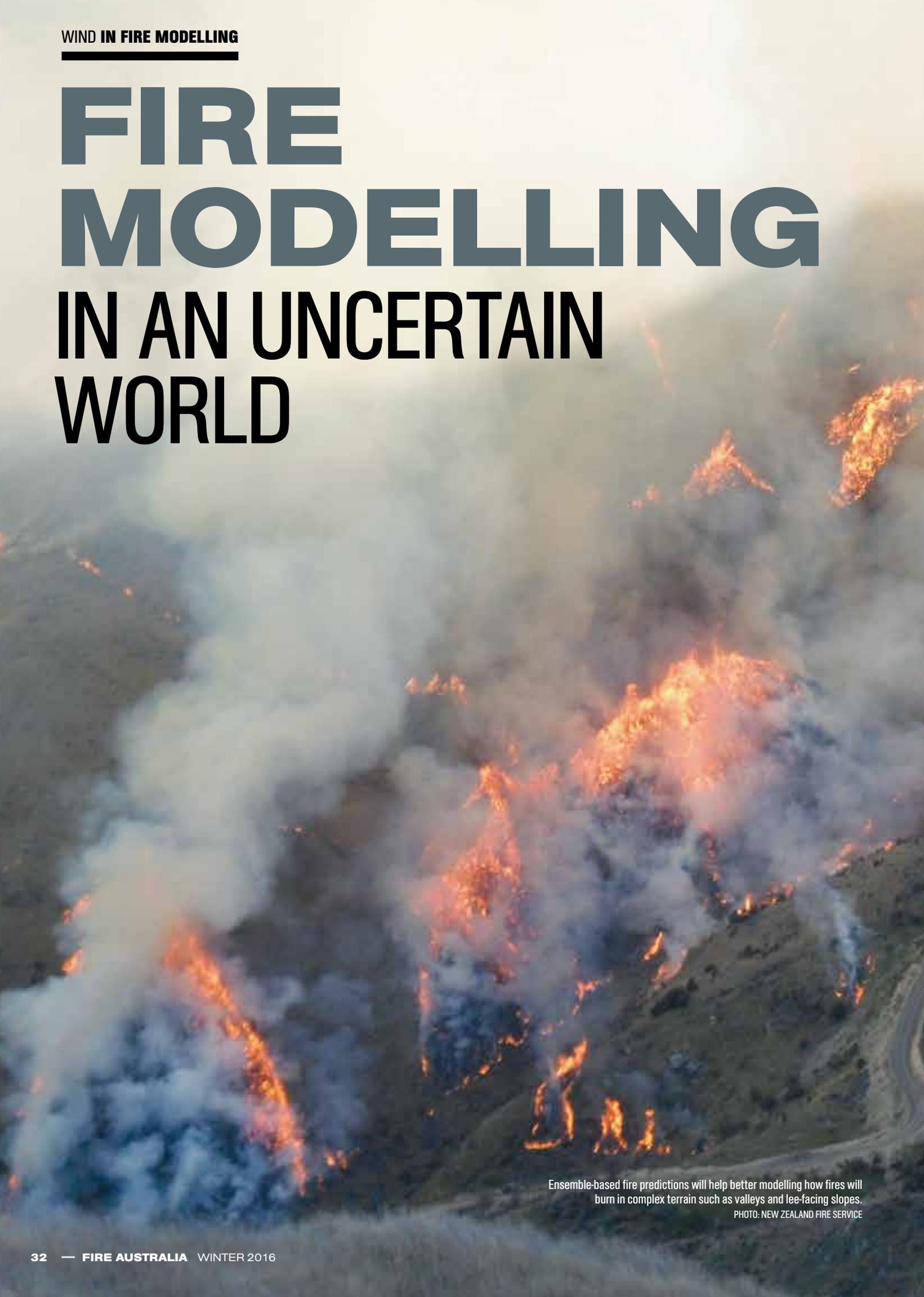


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# FIRE MODELLING IN AN UNCERTAIN WORLD



Ensemble-based fire predictions will help better modelling how fires will burn in complex terrain such as valleys and lee-facing slopes.

PHOTO: NEW ZEALAND FIRE SERVICE

## Modelling how uncertainties in wind behaviour can affect fire-spread will help predict fire behaviour for on-the-ground firefighting efforts.

BY **RACHAEL QUILL**

Bushfire and Natural Hazards CRC and University of New South Wales PhD student

Uncertainty is all around us. We account for it in all aspects of everyday life: “It takes 10 minutes to get there but I’ll allow 15, just in case.” So why is it that when it comes to the wicked problem of bushfire, we have put uncertainty to one side for so long?

Traditionally, operational fire prediction has been based on deterministic methods—for each set of input conditions there is a single output, with no allowance for uncertainty in the process. After almost 30 years of discussion in the literature, probabilistic approaches to fire-spread and behaviour modelling are now beginning to emerge. These probabilistic approaches account for uncertainty in fire-spread by allowing for random fluctuations in the input variables and predicting a range of fire propagation scenarios. When considered together, these multiple predictions are overlaid to form what is known as an ensemble. Ensemble-based predictions allow fire-spread across the landscape to be defined in terms of probabilities, such as likelihood of burning and risk to assets.

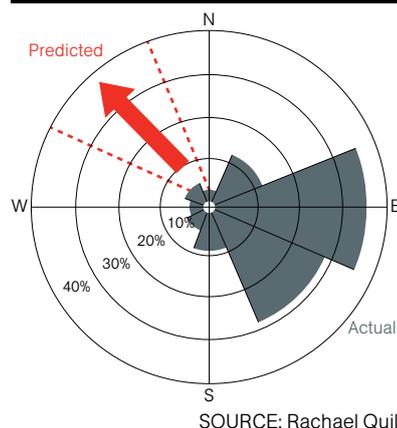
However, within these developing frameworks we still rely on deterministic models and simplified probabilistic inputs. That is to say, we are trying to understand the variability of fire-spread without capturing the true variability of the driving factors. As input errors are a major source of prediction error in fire modelling,<sup>1</sup> it is imperative that we seek to acknowledge the uncertainties of these inputs.

Wind, in particular, is known to account for much of the variability displayed in the spread of bushfires.<sup>1</sup> Because of the constraints of operational requirements (i.e. real-time or near real-time prediction), the current physics-based deterministic wind models for fire prediction do not well capture the variability of wind flow in key areas, particularly across complex terrain. In the worst case, on leeward slopes, errors in wind direction of up to 180° have been recorded. Even in the new ensemble-based approaches, wind direction is only characterised as random whereas analysis of data collected across complex terrain has shown that wind direction takes a highly

structured form. To better capture the uncertainty of fire-spread across the landscape, we must characterise the structured nature of wind direction within fire prediction frameworks.

Without capturing the true variability of wind flow across complex terrain, the curse of error accumulation through the modelling process leaves us to question the uncertainty of fire-spread predictions in these key regions. It has been suggested that traditional fire-modelling techniques are failing to capture dynamic processes such as vorticity-driven lateral spread (dynamic spread of the fire front on a leeward slope in a direction perpendicular to that of the wind) in areas of flow separation.<sup>2</sup>

**FIGURE 1** Wind direction in a valley



Observed wind direction rose created using data from a valley in complex terrain against the predicted wind direction given by a state-of-the-art operational wind model.

Lee-slope eddies are not accounted for by the wind models used today.

The first step in handling the wicked problem of uncertainty in wind modelling is to understand the effects of the physical environment, such as vegetation or topography, on the statistical representation of wind fields. A statistical representation, rather than the traditional physics-based approach, allows discussion of probability—leading to analysis of scenarios with quantified likelihoods.

Statistical analyses of the effects of topographical aspect on wind direction clearly indicate thresholds

for dynamic behaviour. This can of course be understood using detailed physical analysis and has been studied using sophisticated mathematical models.<sup>2</sup> However, from the firefighting perspective, we must look to understand the uncertainty around this behaviour and capture it within our operational models under the constraints of real-time prediction.

When considering the effects of vegetation on wind direction across complex terrain, the story becomes less clear—and the role of uncertainty becomes yet more important. Changing vegetation structures have distinct effects on wind direction in some parts of the terrain—and the behaviours are consistent with the current predictions. However, in other areas of the terrain, the impact of vegetation on wind direction is far less obvious—and observed behaviours vary from those currently captured by state-of-the-art models.

Better statistical understanding of the variations in wind fields across the landscape will improve on current physics-based methods by better capturing wind dynamics in complex terrain. Development of hybrid models, which combine probabilistic information with deterministic approaches to wind modelling, will provide better understanding of uncertainty within the fire-modelling process while maintaining operational real-time (or near real-time) prediction. The result of such a hybrid model would ultimately provide more information to fire managers and decisions-makers dealing with the wicked problem on the ground. ■

Learn more about Ms Quill’s PhD research at: [www.bnhcrc.com.au](http://www.bnhcrc.com.au)

A version of this article first appeared in the March–April issue of *Wildfire* magazine. Article reproduced with permission.

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# INSIGHTS ON BRIDGING THE 'KNOW-DO' GAP

Case studies show how to bridge the gap between research and practice for Bushfire CRC projects.

BY **BRENDA LEAHY**

Communications Officer, AFAC

AND **KAY ANSELL**

**G**et key stakeholders and prospective end users on board early, cultivate and maximise available networks and relationships, be patient and persistent with partners and provide practical training and support.

These are key factors that can help drive successful research utilisation, according to end users from AFAC's member agencies and Bushfire CRC researchers who successfully collaborated to bridge the 'know-do' gap between research evidence and practice.

They share their insights in the latest research utilisation case studies by AFAC, which are featured as edited extracts in this article.

The first case study describes how a Victorian multidisciplinary project team trialled and implemented an evidence-based procedure for rapid aircraft dispatch, termed pre-determined dispatch (PDD), which was based on research from the former Bushfire CRC.

The second focuses on the use of multiple outputs from the ongoing research of RMIT University's Dr Briony Towers. Originally inspired by her Bushfire CRC-sponsored PhD project, the research outputs have been embedded in a range of initiatives for child-centred disaster education.

## Case study—PDD trial for firebombing aircraft

This case study focuses on the trial and implementation of an evidence-based procedure for rapid aircraft dispatch called pre-determined dispatch, which was based on research by CSIRO scientists for the former Bushfire CRC on the effectiveness of aerial suppression in Australia.

While similar practices have already been implemented in other jurisdictions, this case study captures how the Victorian team successfully trialled, organised and integrated the new approach into the state's incident management framework. The researcher also explains the development of the research plan and process, which drew heavily on input from end users. It was developed in consultation with AFAC, the National Aerial Firefighting Centre and around 15 rural fire and land management agencies. Agencies provided input data for the operations study, helped the research team gain access to drops at operational bushfires and provided practical and logistical support during planned experiments. They also briefed the research team on key operational issues.

Launched during the 2012–13 summer in Bendigo, the Victorian trial was developed to test PDD's effectiveness and determine how the new rapid dispatch protocol could be systematically and cost-effectively integrated into operations.

Since the initial successful trial, the PDD protocol has been refined and extended to 16 locations across Victoria, using both helicopter and fixed-wing firefighting aircraft.

According to Wayne Rigg,



An aircraft responds to a fire in Victoria

PHOTO: WAYNE RIGG, CFA

“The trial had to develop a process that would ensure firebombing aircraft were working over fires in the shortest possible time. The process had to use aircraft in a safe, effective and efficient manner. It also had to produce data which could be analysed to inform decisions on where, how, when and if PDD should be extended to other parts of the state.”

Wayne Rigg, project leader for CFA implementation of PDD

a member of the trial team and project leader for the CFA implementation of PDD, the research provided the theory and the trial allowed a process to be developed, tested and evaluated.

“The trial had to develop a process that would ensure firebombing aircraft were working over fires in the shortest possible time. The process had to use aircraft in a safe, effective and efficient manner. “It also had to produce data which could be analysed to inform decisions on where, how, when and if PDD should be extended to other parts of the state,” Mr Rigg said.

The trial confirmed the benefits of PDD. It also showed us the likely hurdles for implementation, as well as potential ways forward,” he recalled. “The bottom line was that PDD was a fundamental shift from how we had traditionally operated. It was a completely foreign process to the clunky system we knew and used.”

The new process enabled more rapid decision making, clearly defining the activation process for dispatch of aircraft.

According to Greg Murphy, Manager Aviation and Regional Operations at Emergency Management Victoria, as with any change, the move to PDD required a raft of other significant flow-on changes to systems, processes, procedures and practice to allow for effective response, while meeting the state’s priorities for safety.

#### Key factors identified as critical to the project’s success were:

- ◆ support and resources to trial and implement the evidence-based practice change
- ◆ end user engagement in the research plan and process
- ◆ tailored communication to promote shared understanding and support uptake.

#### Case study: Li’l Larrikins—Bushfire Safety Stories For Kids

In 2007, researcher Briony Towers interviewed 140 children about

bushfires and bushfire risk for her Bushfire CRC-sponsored PhD project at RMIT University. In doing so, she became the first researcher in the world to speak directly with children about their understanding of and attitudes to bushfire risk.

The original PhD project asked the key research questions: ‘How do children understand bushfire risk?’ and ‘What is the role of psychological and social processes in the construction of that understanding?’ In exploring children’s conception of bushfire risk, her research revealed a gap in bushfire education for children. Among the early notable findings were that the child interviewees who lived in bushfire risk areas were enthusiastic about discussing bushfire risk and being involved in risk reduction.

Nearly a decade later, the research findings have been internationally recognised and put to use in several successful Australian research utilisation projects.

The major outputs so far have included two 10-part series of safety message videos for children that feature Li’l Larrikins characters, curriculum programs for school-based bushfire and disaster education, an e-book to equip parents to involve their children in making bushfire plans, a practice framework (in effect, ‘a how-to guide’) for working in children’s emergency and disaster education and many presentations at forums. As this case study was prepared, Dr Towers was collaborating with the South Australian Country Fire Service and the Department for Education and Child Development to produce bushfire education resources for schools in areas that had been recently exposed to bushfire.

The research continues to develop in new directions, inspired by the needs of end users, which range from fire agencies to government departments, schools, parents and, most importantly, children.

In this case study, lead researcher Dr Towers; Amanda Leck, Director of Information and Community Safety at



SOURCE: BRIONY TOWERS

AFAC; and end user Peta O’Donohue, Project Manager, Partners in Bushfire Safety, South Australian Country Fire Service, share their insights about the critical success factors for utilisation of this body of research.

In brief, they agree that involving end users as early as possible in the research utilisation process is among the most important critical success factors.

While the variety of research utilisation projects that drew (and continue to draw) on the research is noteworthy, the case emphasises the “circuitous route, adhoc events and lengthy delays that participants sometimes encounter in delivering them”. It also highlights that attributes such as flexibility, persistence and pragmatism are advantageous as critical success factors for research utilisation.

#### Critical success factors - Li’l Larrikins – Bushfire Safety Stories For Kids

- ◆ Get end users involved in the project as early as possible
- ◆ Recognise that research utilisation is about relationships
- ◆ Practise the 3 Ps – persistence, pragmatism and patience ■

The full case study stories are available for download at:  
[www.afac.com.au/initiative/research](http://www.afac.com.au/initiative/research)

# PORTABLE FIRE EXTINGUISHERS

## Q&A PART 2

BY **BARRY LEE OAM**

Part One of this article, published in the Autumn 2016 issue, provided some typical questions and answers about portable fire extinguishers. Part Two continues advice on day-to-day practice.

### What vibration conditions may be experienced in various extinguisher locations?

Studies conducted by the former Fire Research Station at Borehamwood, UK, reported the peak accelerations and frequencies for various locations (Figure 1).

### What are the main differences between the Australian and European fire extinguisher ratings?

AS/AS 1850 *Portable fire extinguishers – Classification, rating and performance testing* is based largely on US National Standard ANSI Z211.1 *Rating and fire testing of fire extinguishers* (Underwriters' Laboratories, Inc., Standard for Safety UL 711). Therefore, the Australian and US standards are essentially similar. The CEN (European) standard is also similar in principle, but uses circular trays for determining Class B ratings, whereas the Australian and US standards use square trays. Both standards use heptane fuel.

In the Australian system, Class B ratings and classifications range from 2B to 80B as set out in AS/AS 1850. The counterpart European system uses the tray sizes and rating designations (Figure 2).

**Figure 1** Extinguisher peak accelerations and frequencies.

Location	Maximum peak acceleration (g)	Maximum frequency (Hz)
Buildings—near road and rail transport	up to 0.2	10–60
Buildings—near heavy machinery	up to 0.1	8–35
Sea transport	1.5	60–80
Small water craft	1.5	15–80
Road vehicles	1.0–2.0	10–70
Aircraft—near engines	20.0	500
Aircraft—fuselage	5.0	150

SOURCE: FIRE RESEARCH STATION, UK

**Figure 2** European (CEN) Class B standard tray size and rating designations.

Fire designation (m)	Tray diameter (m)	Volume of fuel (L)	Area of fire (m <sup>2</sup> )
8B	0.56	8	0.25
13B	0.72	13	0.41
21B	0.91	21	0.66
34B	1.20	34	1.07
55B	1.50	55	1.73
(70B)	(1.70)	(70)	(2.20)
89B	1.90	89	2.79
(113B)	(2.12)	(113)	(3.55)
144B	2.40	144	4.52
(183B)	(2.71)	(183)	(5.75)
233B	3.00	233	7.32

**Notes:** Each test fire is designated by a number in a series in which each term is equal to the sum of the two preceding terms; i.e., this series is equivalent to a geometrical progression with a common ratio of about 1.62. The additional fires shown in parentheses represent the product of the preceding term and  $\sqrt{1.62}$ . Example:  $55 \times \sqrt{1.62} = 55 \times 1.27 = 70$

The Australian and US standards are essentially similar. The CEN (European) standard is also similar in principle, but uses circular trays for determining Class B ratings, whereas the Australian and US standards use square trays. Both standards use heptane fuel.

Both systems use wood cribs to determine Class A ratings. The Australian wood cribs, yielding ratings and classifications of 1A through 10A, are detailed in AS/AS 1850. The counterpart European system also uses wood cribs; all are of the same height and width but of differing overall length as shown in Figure 3.

**Figure 3** European Class A designation crib lengths.

Fire designation	Length of crib (m)
3A	0.3
5A	0.5
8A	0.8
13A	1.3
21A	2.1
(27A)	2.7
34A	3.4
(43A)	4.3
55A	5.5

**Notes:** Each test fire is designated by a number in a series in which each term is equal to the sum of the two preceding terms; i.e., this series is equivalent to a geometrical progression with a common ratio of about 1.62. The additional fires shown in parentheses represent the product of the preceding term and  $\sqrt{1.62}$ . Example:  $21 \times \sqrt{1.62} = 21 \times 1.27 = 27$ .

**Is it better to provide several smaller extinguishers or a single larger extinguisher to achieve a required fire rating?**

Numerous factors may need to be considered. For example, for dry chemical extinguishers, in some situations a single larger extinguisher must be provided because applicable standards or by-laws will not permit the use of multiple extinguishers to aggregate the required rating. Clearly, a single operator will generally be disadvantaged if they must use one smaller (lower flow rate) extinguisher and then a further similar extinguisher to control a fire. On the other hand, if several operators are always present, then a dual attack may yield better results because the fire can be attacked simultaneously from the flanks, which has the advantage of a wider extinguishant front.

Logistics may be a factor too. A history of frequent small fires in a process unit (say, a dip tank) may suggest using several smaller extinguishers to ensure a standby remains after a small outbreak has been dealt with. On balance, however, a single larger unit will generally be the preferred choice.

**Aside from the question of environmental impact, how can BCF extinguishers be considered toxic if they are approved for use in passenger aircraft?**

The answer is bound up with relative volumes of agent and space into which





PHOTO: SHUTTERSTOCK

it is discharged. As acknowledged in AS 1841 *Portable fire extinguishers, general requirements*, the use of BCF may be dangerous in confined spaces. In spaces that are not confined the hazard from undecomposed agent and the products of combustion is relatively minor. The approval for use in aircraft cabins presupposes two conditions: that the unit volume of BCF carried is small relative to cabin volume and, particularly in the case of contemporary passenger aircraft, the relatively high cabin air change rate adequately scavenges agent and/or decomposition products.

**What type of extinguisher should be recommended for an anechoic chamber?**

Anechoic chambers are enclosures that are intended to be free from echo. They are used for testing apparatus such as radar and microwave communication equipment.

The internal surfaces of anechoic chambers are lined with material designed to minimise the reflection of electromagnetic waves. A typical lining is polyurethane foam in the form of pyramid-shaped cones whose vertices point into the chamber. Although polyurethane foam may contain flame

retardants, it will still burn if exposed to a sufficiently large ignition source. Further, the value of equipment used within the chamber and the cost of the lining itself are high. Automatic sprinkler protection is strongly recommended. A combination of fire hose reels and water or carbon dioxide extinguishers is indicated.

**What are the problems, if any, associated with discharging fire extinguishers in gloved boxes?**

Gloved boxes are small enclosures fitted with vision panels and gloved access points to permit manipulation of the process inside. They are found in semiconductor manufacture, microbiological operations and radioisotope handling facilities, and usually operate at negative pressure.

If portable extinguishers are used, they will often be discharged through a self-sealing injection port. Obviously there are a number of practical issues associated with extinguisher usage. The most important of these is to ensure that the gloved box is not overpressurised, thereby limiting the potential for escape of hazardous contents. Special technical assistance should be sought wherever gloved box protection is contemplated. ■

A large vintage commercial fire extinguisher.

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# WHERE THE EMERGENCY MANAGEMENT SECTOR INNOVATES

There's something for everyone at AFAC16.



BY **FREYA JONES**

Under the theme *Getting the Balance Right: Mitigation – Response – Recovery*, the AFAC16 program, co-produced with the Bushfire and Natural Hazards CRC, has been launched.

The premier emergency management conference in Australasia, AFAC16 will explore how those responsible for emergency management are getting the balance right within new, diverse, inclusive multi-agency disaster management services.

Held over four action-packed days in Brisbane from 30 August to 2 September, AFAC16 *powered by INTERSCHUTZ* will attract delegates and visitors from emergency and security services agencies, all levels of government, non-government organisations, and research and education institutions from Australasia and worldwide.

AFAC16 will attract more than 2,000 delegates to Brisbane from across the emergency management sector, said Queensland Fire and Emergency Services Commissioner Katarina Carroll.

"The AFAC16 program features 14 keynote and invited speakers, and more than 80 speakers whose abstracts have been selected. In addition to the learnings from the conference program and the trade exhibition, AFAC16 gives us opportunities to meet and network with our colleagues from across Australasia," she said.

High-profile Australasian and international speakers will attend. They have been invited to ensure the program features presentations relevant to everyone in emergency management. There is something for everyone across the broad spectrum we work in, said AFAC CEO Stuart Ellis.

"For more than 23 years, the AFAC conference has provided the Australasian emergency management sector a platform to learn from the best national and international experts," he said. ■

**The AFAC16 *powered by INTERSCHUTZ* Exhibition will attract and showcase the latest developments in emergency services equipment and technology from around the globe to the Australasian region.**

## AFAC16

### KEYNOTE SPEAKERS

- ◆ Dr Jeff Kepert, Centre for Australian Weather and Climate Research and CRC project leader
- ◆ Professor Gavin Smith, Director, US Department of Homeland Security Coastal Resilience Center of Excellence, University of North Carolina
- ◆ Dr Craig Cormick, Creative Director, ThinkOutsideThe...
- ◆ Katarina Carroll, Commissioner, Queensland Fire and Emergency Services
- ◆ Katherine Jones, Deputy Secretary, National Security and Criminal Justice Group, Attorney-General's Department
- ◆ Rhoda Mae Kerr, Chief of the Austin Fire Department in the USA and President of the Board of Directors of the International Association of Fire Chiefs
- ◆ Dr Anthony Bergin, Deputy Director, Australian Strategic Policy Institute



The knowledge Lounge gives delegates the opportunity to meet with speakers and view and vote on 160 posters.



## SWEPT AWAY

Among the diverse program of speakers and topics at AFAC16 is a session focused on flooding, 'Swept Away'.

Many flood deaths are avoidable, but recent widespread flooding across Tasmania, NSW, Queensland and the ACT has led to fatalities.

Behind heatwaves, floods are the second-deadliest natural hazard in Australia and driving a vehicle through floodwater is the single biggest cause of flood deaths. Why are these avoidable deaths happening, and where? Who are the at-risk groups, and why are these people entering floodwater despite the advice from emergency services?

Researchers and emergency-management experts will examine these vital questions at #AFAC16, with a stream of talks dedicated to the latest science and learnings around flood fatalities.

The Bushfire and Natural Hazards CRC's Dr Katharine Haynes from Risk Frontiers will show why the research shows that most flood deaths are avoidable, and explain the key trends around how many people are dying, where, when and what they were doing.

With the biggest cause of flood deaths being attempting to drive through floodwaters, Dr Espeth Rae from the NSW State Emergency Service will showcase the findings from a national project assessing the options available to reduce the number of flood deaths, along with international observations.

Queensland has also been tackling this serious issue with the 'If it's flooded, forget it' safety campaign. Hear from Troy Davis and Matthew Rigby from QFES about the factors behind the campaign, success to date and how Queenslanders have been encouraged to avoid entering floodwaters. ■

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# ENRICHING LEARNING EXPERIENCES

A placement with the Tasmania Fire Service provided a valuable and rewarding experience to a PhD student with the Bushfire and Natural Hazards CRC.

BY **BILLY HAWORTH**

Bushfire and Natural Hazards CRC  
and University of Sydney PhD student

As I begin to write this in an office at Tasmania Fire Service (TFS) headquarters in Hobart, reflecting on the week I've just had, I am feeling very grateful. For the last three years I have been undertaking PhD studies in the School of Geosciences at the University of Sydney. My research, in the context of community bushfire preparation, engagement and disaster risk reduction, investigates the application, value and implications of emerging technologies that enable increased public creation and exchange of geographic information. These technologies include social media, smartphones and online mapping platforms. I've had great support in my work from a number of people and organisations, but in particular the Bushfire and Natural Hazards CRC, and Peter Middleton and the Bushfire-Ready Neighbourhoods team at TFS.

## Bushfire-Ready Neighbourhoods program

First, a little on Bushfire-Ready Neighbourhoods. It is a community engagement program within TFS that aims to build resilience and capacity in bushfire prevention, preparedness and response in Tasmanian communities at risk of bushfire. It does this through a sustainable community engagement approach. Both the CRC and the Bushfire-Ready Neighbourhoods program have been integral to my PhD project in many ways, and have also contributed to my professional

development. Recently this support included an eight-day student placement with the Bushfire-Ready Neighbourhoods team as part of a CRC initiative to enrich higher degree research students' experiences through exposure to the natural hazards and emergency management industry by immersion in a relevant organisation.

## Placement activities

During the placement I participated in many activities with the Bushfire-Ready Neighbourhoods team and various other parts of TFS—some directly linked to my PhD research, but some not—to give me a broader understanding of the range of organisation activities and functions, and an appreciation of the context in which my research might be used in the future. Activities I was involved with included Bushfire-Ready Neighbourhoods team meetings, planning days to select communities for future engagement activities and a debrief of how the program functioned during the campaign fires of the summer just gone.

I also advised on mapping platforms for use in community engagement and reviewed content and language for a new web-based tool for bushfire survival planning. I met with active community members to talk about some of their community-led bushfire safety initiatives—including a web-based phone tree system, a local mapping project for the brigade and an alerts smartphone app proposal.

I was exposed to agency operations that, as a researcher relatively new to emergency management, I found incredibly valuable. I learned about

community protection planning, response procedures and was introduced to state operations at TFS. I learned about firefighting aircraft, public and media information publishing, communications within a fire agency—computer systems, communication structure and emergency incident/alert procedures—and what happens if it all goes wrong! I also toured the Hobart Fire Brigade and spoke with firefighters about their roles and training, and the tasks they complete, not to mention all the fire appliances, their tools and functions, with interesting illustrative examples of applications!

## Reflections on community engagement

Reflecting on all these activities, three overarching observations come to mind. First, I was struck by the scale and diversity of what goes on within the organisation and all the specific details required to make things happen, from the fit-for-purpose tools on the fire trucks on a small scale, to the multi-faceted roles within individual teams and departments, to the broader scale of the overall functions the agency performs. Second, I was impressed by the positive attitude to work and the productivity of all the people I met, but particularly the Bushfire-Ready Neighbourhoods team, especially in the face of various challenges.

For example, while the debrief workshop about community liaison following an extended fire campaign did aim to highlight challenges in the work each team member experienced through having to perform many tasks in high-stress situations outside their usual



PHOTO: PETER MIDDLETON, TFS

On student placement at the Tasmania Fire Service—PhD candidate Billy Haworth with a retro fire tanker in Launceston.

Mr Haworth learned about the community development approach to bushfire preparedness taken by the TFS Bushfire-Ready Neighbourhoods team (top right).



PHOTO: BILLY HAWORTH



Bushfire-Ready Neighbourhoods and Fuel Reduction Unit Community Liaison debrief following the 2016 fires, Campbell Town Fire Station.

roles, these challenges were dealt with as opportunities for improvement.

By the end of the session there was an extensive list of practical suggestions the team will begin to action to enable them to perform better in their roles. And third, I saw very clear examples of some of the complexities in the organisation that must be navigated for effective delivery of emergency management. In particular, I observed differences between some of the community-focused engagement works and the more traditional top-down structure of the broader organisation.

Community engagement is a relatively new approach to emergency management in Australia. It appeared to me that reconciling how this approach fits within the legacy of emergency response service delivery in organisations is still a developing area, as opposed to being functionally developed. This may present challenges when working with community groups and is perhaps an area for improvement going forward.

Overall the student placement was an immensely enriching and valuable experience. It proved a useful opportunity to increase my networking within the professional sector, impart some of my knowledge, gain insight into a fire service and the broader field of emergency management, learn about the high variety of important tasks and responsibilities, and appreciate the organisational structure and challenges emergency management professionals

work with. This has important implications for the potential utilisation of my research findings in the sector, and is something I will continue to consider as my research progresses.

I feel grateful for this opportunity and the continued support of TFS and the CRC for my research and my personal and professional development. I feel grateful for the generous people I have had the privilege of meeting and working with and who have had nothing less than confidence in me. I feel grateful for all the experiences I've had in my PhD so far, especially those with the Bushfire-Ready Neighbourhoods team, as they have shaped my work to be something more meaningful, and shaped me to be a more robust researcher who is better skilled and more knowledgeable with a greater understanding and appreciation of the professional and societal context in which my research sits. I have learned a lot through my engagement with TFS and the emergency management sector, and I encourage other students and agencies to undertake placements, as it was a truly rewarding experience.

Thanks to Peter Middleton and the Bushfire-Ready Neighbourhoods team, Suzette Harrison, David Cleaver and Lesley King, the TFS for hosting me, my supervisor Eleanor Bruce and the CRC for making the placement happen. ■

Learn more about Mr Haworth's PhD research at: [www.bnhcrc.com.au](http://www.bnhcrc.com.au)

The CRC Student Placement Program has provided TFS with an invaluable opportunity to share our work, receive independent input from a student on how we operate and ultimately build on our action-research approach.

—Peter Middleton,  
TFS Community Development Coordinator

# FIRE PROTECTION INDUSTRY AWARDS GALA DINNER

FPA Australia is proud to announce the first Fire Protection Industry Awards Gala Dinner will be held on 3 November 2016 at Doltone House, Hyde Park, Sydney.

BY **JOSEPH KELLER**

Communications Manager,  
Fire Protection Association Australia

**F**PA Australia is proud to announce the inaugural Fire Protection Industry Awards Gala Dinner to be held on Thursday November 3, 2016 at Doltone House, Hyde Park, Sydney.

The Association is inviting all members, friends and family to join us in celebrating the outstanding individuals and businesses leading our industry through innovation, professionalism, commitment and contribution.

## The Gala

Doltone House in Sydney's Hyde Park is the perfect venue for this luxurious event, recently undergoing a complete interior design makeover by leading architect Kochi Takada.

The venue boasts five-metre high ceilings, an abundance of natural light from spectacular floor-to-ceiling windows and uninterrupted views of Sydney's Hyde Park.

The evening will be directed by Gold Logie Winner and Australia's original celebrity game show host and all round entertainer—Mr Tony Barber.

Tony has graced our television screens since 1969, fronting popular game show *Temptation*, he then went on to host *Family Feud* and later *Sale of the Century*—Australia's most successful television game show, and for which he is best known. One of Australia's most enduring and entertaining celebrities, Tony makes for a lively and engaging MC.

To top it off, one of Australia's most entertaining live bands—The Enormous Horns—will be on hand to ensure a fun atmosphere for the evening. Combining great musicianship with a highly visual stage show, The Enormous Horns incorporate everything from current radio hits to the Blues Brothers and '60s soul, and from Frank Sinatra to Ricky Martin, guests are in for a real treat.

## Industry awards

### Meritorious Service Award

The Meritorious Service Award (up to two are awarded per year) is given to FPA Australia members who have made a significant contribution to the Association that requires special acknowledgment.

These awards are given at the discretion of the FPA Australia Board of Directors and are reserved for those individuals who have represented the Association over a long period in pursuit of its overall goals.

Award eligibility: the recipient must have served on FPA Australia's Board, participated on a relevant FPA Australia committee (e.g. Technical Advisory Groups, State and Territory Membership Groups or Special Interest Groups) or represented FPA Australia on committees such as Standards Australia or the Australian Building Codes Board.

In addition, recipients must hold corporate or organisational membership

for their business, be employees of corporate or organisational members, hold personal membership or be associated with an organisational membership.

### Honorary Life Members Award

An Honorary Life Member has, in the opinion of the FPA Australia Board, rendered exceptional service in the work of fire prevention and fire protection in Australia or overseas for a period in excess of 15 years.

At the Association's AGM, motions in favour of new Honorary Life Members can be voted on by the membership. If carried, new Honorary Life Members will be announced at the Gala Dinner.

### AV Viscogliosi Outstanding Service Award

This award is presented to an individual who has demonstrated an outstanding contribution to the fire protection industry.

Like the Meritorious Service Award, the Outstanding Service Award is nominated and selected by the FPA Australia Board.

This award was established in 1996 (but not awarded until 1998) in honour of the late Tony Viscogliosi. It commemorates the significant contribution Mr Viscogliosi made to the fire protection industry throughout his distinguished and varied career by recognising the work of a deserving individual.

### Panel-judged awards

#### FPA Australia Young Achiever of the Year Award

This award recognises the outstanding achievement of young leaders in the fire protection industry in Australia. These young people are at the forefront of



achievement in the industry.

The young achiever may have implemented a change within their business or organisation that has influenced how people think and perform for the better. They may have overcome difficulty or adversity in order to achieve outstanding outcomes within the fire protection industry. Recipients of this award would have demonstrated levels of competence in industry best practice.

These achievements may be in the successful delivery of projects, sales, customer service, technical excellence or industry involvement. Award eligibility: open to individuals 30 years and under and who are directly engaged within the fire protection industry.

The recipient of this award must display not only an outstanding level of expertise, but also a willingness to work collaboratively in order to deliver better fire protection outcomes for the industry and the community as a whole.

### Barry Lee Technical Excellence Award

The award recognises outstanding technical contribution to the fire protection industry. This award honours the tremendous work Barry Lee has achieved over more than 50 years in the industry. Award eligibility: the recipient will have contributed to a relevant technical working committee but generally such contributions include activity on Standards Australia committees, FPA Australia Technical Advisory Committees, Special Interest Groups, State and Territory Membership Groups or other recognised working groups.

### FPA Australia Harry Marryatt Award—Fire Protection Company of the Year

Two awards—companies with 1–49 employees and with 50+ employees.

In 1960, the late Harry Marryatt gathered support from the fire protection industry in Australia in order to form the Australian Fire Protection Association, which would later become FPA Australia. In doing this, Harry (on behalf of Wormald Brothers) put aside existing commercial interests for the betterment of the industry and the community.

In honour of Harry Marryatt, FPA Australia recognises those companies that demonstrate an outstanding commitment to the Australian fire protection industry through the Harry Marryatt Fire Protection Company of the Year Award.

Award criteria—submissions are judged by an independent panel, and winners are chosen based on performance against the following criteria:

- ◆ Commitment to staff training
- ◆ Commitment to technical advancement
- ◆ Commitment to community safety
- ◆ Commitment to ongoing professionalisation
- ◆ Commitment to emerging best practice
- ◆ Commitment to innovation.

This award truly symbolises excellence at all levels within our industry.

### INDUSTRY AWARDS

- ◆ Meritorious Service Award
- ◆ Honorary Life Members Award
- ◆ AV Viscogliosi Outstanding Service Award

### PANEL-JUDGED AWARDS

- ◆ Young Achiever Award
- ◆ Barry Lee Technical Excellence Award
- ◆ Harry Marryatt Fire Protection Company of the Year Award

### Judges

Fire Protection Association Australia is calling for applications from individuals who believe they have what it takes to be part of the independent judging panel for the 2016 gala awards. Judges are drawn from within the fire protection and broader building and construction sector in Australia and have significant experience in the areas related to the awards they will judge.

If you would like to be considered for the judging panel please email [awards@fpa.com.au](mailto:awards@fpa.com.au) with a short introduction about yourself and why you have the experience to be part of our esteemed judging panel for 2016. ■

For all information about our Gala Awards Dinner please visit:  
[www.fireprotectionawards.com.au](http://www.fireprotectionawards.com.au)  
We look forward to seeing you there.

## 2016 Western Australia Fire and Emergency Services Conference

Valuing Volunteers

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### Exhibitor Opportunity

This is a unique opportunity for exhibitors to gain exposure with fire and emergency services delegates from across Western Australia.

Suppliers of fire and rescue equipment, personal protective equipment, marine rescue equipment and emergency service partner agencies are encouraged to apply.

The conference will be held at the Perth Conference and Exhibition Centre over the weekend of 10 – 11 September 2016.

For further information and to book exhibition space please visit [www.dfes.wa.gov.au/wafesconference](http://www.dfes.wa.gov.au/wafesconference)



The remains of the Piper Alpha Oil rig burn following the explosions and fire that destroyed most of the platform on 6 July 1988. (Inset: Piper Alpha before the incident.)

## PIPER ALPHA OIL PLATFORM DISASTER—1988

BY **BARRY LEE OAM**

Operated by Occidental Petroleum, the Piper Alpha offshore oil platform was located in the North Sea about 270 km north-east of Aberdeen, Scotland. It stood on a 150-metre high steel jacket weighing 14,000 tonnes, which was piled into the sea bed. A frame on top of the jacket supported decks packed with process and production equipment, pumps, compressors and living quarters.

Overall, the platform consisted of 34,000 t of steel, measured 241 m from the bottom of the deepest pile to the highest point and accommodated 36 oil wells. Subsea pipelines carrying oil and gas radiated out from Piper Alpha, linking it to the Claymore, Tartan and MCP-01 platforms and to the Flotta oil terminal in the Orkney Islands.

On 6 July 1988, work began on one of two condensate injection pumps used to

compress gas prior to transport to Flotta. A pressure safety valve was removed for recalibration and two blind flanges were installed in the open pipework. The dayshift crew then finished work for the day. That evening the other pump tripped and the nightshift crew unwittingly started the 'out of service' pump. Condensate leaked from the two blind flanges.

Around 10.00 pm the leaking gas ignited and exploded, causing fires and damage to other areas with further release of gas and oil. About 20 minutes later, the Tartan gas riser failed and a second major explosion occurred, followed by widespread fire. Fifty minutes later, the MCP-01 gas riser also failed, resulting in a third major explosion. More explosions followed with extensive collapse of a significant proportion of the installation. The other rigs feeding into the same oil export line did not shut down until one hour after the initial mayday, which meant that oil from the other rigs flowed back

towards Piper Alpha and continued to fuel the fire. At the height of the blaze flames could be seen 100 km away.

Routes to the lifeboats were blocked. Helicopter operations were hampered by the heat and smoke. As a result of the explosion and the fire on Piper Alpha, 167 men died. Sixty-two men survived, mostly by jumping into the sea from the high decks of the platform. Damage was estimated at US\$1.4 billion and at the time it was the worst disaster in the offshore oil industry. The subsequent inquiry presented 106 recommendations for changes to North Sea safety procedures. ■

### CLOSER TO HOME...

The Marlin platform in Bass Strait, 50 km south-east of Lakes Entrance, Victoria, which had previously sustained a gas blowout in 1968, was involved in a serious fire in 1971. At the time, 32 men were working on the platform. Most jumped into the sea and were rescued by helicopter.

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## **AFAC16 POWERED BY INTERSCHUTZ**

**Mitigation – Response – Recovery:  
Getting the balance right**  
**30 August to 1 September 2016,  
Brisbane Convention and Exhibition  
Centre**

Co-produced with the Bushfire and Natural Hazards CRC, the theme and focus of the AFAC16 powered by INTERSCHUTZ conference is Mitigation – Response – Recovery: Getting the balance right.

Emergency and disaster management has advanced dramatically over the past five years with fire and emergency service agencies worldwide implementing innovative ways to mitigate and respond to disasters.

AFAC16 powered by INTERSCHUTZ will attract delegates and visitors from emergency and security services, all levels of government, non-government organisations and research and education organisations from Australia and all over the world.

To register for the premier emergency management conference in Australasia and to access the full program, visit: [www.afacconference.com.au](http://www.afacconference.com.au)  
Read more on page 40.



## **FIRE PROTECTION INDUSTRY AWARDS – GALA DINNER**

**3 November 2016. Doltone House  
Hyde Park, Sydney**

FPA Australia is excited to announce the first Fire Protection Industry Awards Gala Dinner to be held on 3 November in Hyde Park, Sydney.

Join us in an evening for recognising and awarding businesses and individuals leading the professional standard of commitment, excellence and contribution in the Fire Protection Industry.

Award application details, sponsorship opportunities and dinner ticket registration will be announced soon.



The evening will be directed by Gold Logie winner Mr Tony Barber

More information is available at:  
[www.fireprotectionawards.com.au](http://www.fireprotectionawards.com.au)

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## CHRIS **ARNOL**

Chris Arnol has been appointed to the position of Chief Fire Officer at the Tasmania Fire Service (TFS), following the retirement in 2015 of Mike Brown. Mr Arnol re-joins TFS from his previous role as Assistant Commissioner with the Department of Fire and Emergency Services Western Australia, a position he held for six years. Mr Arnol has a long history with TFS, serving for 25 years from 1985, previously attaining the rank of Deputy Regional Chief.



## CHRIS **ORR**

FPA Australia is pleased to announce that Board Vice President, Mr Chris Orr, has been appointed as the new Association Technical Director. This position was formally known as the National Technical Advisory Group Chair, a position also held by Mr Orr. The new role better reflects the Association's significant range of technical activities undertaken today.

Mr Orr has also recently been appointed to the Fire Protection Association New Zealand (FPA NZ) Board of Directors as an Observer on behalf of FPA Australia. In this role Mr Orr will provide strategic advice to FPA NZ. The Association congratulates Mr Orr on these important achievements.



## SALLY **BARNES**

Sally Barnes, Director of National Parks at Parks Australia, has been appointed to the AFAC Council, following Parks Australia becoming a full member of AFAC in December 2015. Ms Barnes brings with her nearly 20 years' experience in the environment field. She was previously the Chief Executive of the NSW Office of Environment and Heritage, with responsibilities for national parks and reserves, including the NSW National Parks and Wildlife Service and the Royal Botanic Gardens. Ms Barnes also oversaw the management of biodiversity and threatened species and the protection of Aboriginal and non-Aboriginal heritage.



## DR JIM **O'HEHIR**

Dr Jim O'Hehir has recently been appointed as ForestrySA's representative on the AFAC Council. Dr O'Hehir is the General Manager, Planning and Development for ForestrySA and is responsible for plantation research and development, with an emphasis on yield regulation. Dr O'Hehir is based in Mt Gambier and is responsible for plantation research and development, an emphasis on yield regulation.



## JOINT EDITORS

### Joseph Keller (FPA Australia)

TEL +61 3 8892 3131  
joseph.keller@fpaa.com.au

### Nathan Maddock (Bushfire and Natural Hazards CRC)

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

### Collette Farley (AFAC)

TEL +61 3 9419 2388  
collette.farley@afac.com.au



### Fire Protection Association Australia (FPA Australia)

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



### Bushfire and Natural Hazards Cooperative Research Centre

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



### AFAC

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

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



BY **IAN FINDLAY**

Technical Coordinator, FPA Australia

## STANDARDS AUSTRALIA

### FP-001 Maintenance of fire protection equipment

FP-001 met in late March to discuss and resolve the AS 1851-2012 Amendment 1 public comment received. The draft amendment was updated and the resultant changes went to committee ballot in late June. It is anticipated it will be published around August.

### FP-002 Fire detection and alarm systems

AS 1670.5-2016 *Fire detection, warning, control and intercom systems—System design, installation and commissioning—Special hazards systems* was published in April 2016. The AS 4428.4 *Intercommunication systems for emergency purposes* and the AS 7240.4 *Power supply equipment* amendment will go to ballot shortly and are expected to be published later this year.

Work continues on revisions of AS 1603.3 (heat alarms), AS 1670.3 (fire alarm monitoring) and AS 4428.6 (alarm signalling equipment).

### FP-004 Automatic fire sprinkler installations

The draft revision of AS 2118.1 *Automatic fire sprinkler systems - general systems went to combined procedure (a [second] public comment and committee ballot) closing 22 July.*

### FP-009 Fire hydrant installations

The revision of AS 2419.1 *Fire hydrant installations – System design, installation and commissioning* is yet to be released for Combined Procedure.

### FP-011 Special hazard fire protection systems

Work on the revisions of AS 14520 (to be recombined and redesignated AS 4214) and AS 4487 (aerosol systems) has begun with a project kick-off meeting held at the end of June.

### FP-018 Fire safety

The new Standard AS 5113-2016 *Fire propagation testing and classification of external walls of buildings* was published in March 2016. Work continues on the revisions of AS 1530.8.1 and AS 1530.8.2 (testing of elements of construction for buildings to simulate bushfire attack).

### FP-020 Construction in bushfire prone areas

Work continues on the revision of AS 3959 *Construction of buildings in bushfire-prone areas.*

### FP-022 Fire protection of mobile and transportable equipment

The revision of AS 5062 *Fire protection for mobile and transportable equipment* is expected to be published soon.

### LG-007 Emergency lighting in buildings

LG-007 continues to revise the AS 2293 series of standards for emergency escape lighting and exit signs.

## TECHNICAL ADVISORY GROUPS AND SPECIAL INTEREST GROUPS

### TAC/1 Maintenance of fire protection systems and equipment

Development of a Good Practice Guide on baseline data is continuing; however, it is dependent on the publication of Amendment 1 of AS 1851-2012.

### TAC/2 Fire detection and alarm systems

The report from the Senate Inquiry on *Use of smoke alarms to prevent smoke and fire related deaths* was released on 20 April 2016. TAC/2 and the FPA Australia Technical Department are currently reviewing this report.

TAC/2 has commenced work on potential Good Practice Guides for:

- ◆ the design of occupant and emergency warning system speaker layouts, configuration and specifications
- ◆ fire detection and alarm system—product compliance.

### TAC/3/7 Portable and mobile equipment

No TAC/3/7 meeting was held during the current round of TAC meetings. However, Information Bulletin (IB-13) *Frequently Asked Questions: Portable fire extinguishers* is close to being published.

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

TAC/4/8/9 submitted a project proposal (now approved) to amend AS 2304-2011 *Water storage tanks for fire protection systems*. The proposal reflects the desired changes from our Position Statement (PS-06) *Water storage tanks for fire protection systems*.

TAC/4/8/9 started working in collaboration with the Pump Industry Association with the aim to publish a fire pumpset checklist and certification document for use by designers, manufacturers and certifiers.

### TAC/11/22 Special hazards fire protection systems

A TAC/11/22 firefighting foam working group continues to be busy reviewing and providing comment to the Department of Environment's draft framework for a

National Standard for the Risk Management of Industrial Chemicals.

TAC/11/22 continues to work on a number of technical documents including documents on oxygen reduction fire prevention systems and vehicle system service technician competency.

### TAC/17 Emergency planning

TAC/17 has submitted a project proposal (now approved) for amendment of AS 3745 *Planning for emergencies in facilities* to include guidelines on lockdown procedures and response to armed intruder events as well update the evacuation diagram and other requirements in response to industry implementation and feedback on the Standard.

### TAC/18 Fire safety and TAC/19 Passive fire protection

No TAC/18/19 meeting was held during the May round of TAC meetings. However, the TAC continues to work on the Good Practice Guide on fire stopping systems.

### TAC/20 Bushfire safety

TAC/20 continues to discuss and work on the proposed changes to the revision of AS 3959 and the NSW Rural Fire Service update for planning of bushfire protection and 'short fire run' documents.

### TAC/T

No TAC/T meeting was held during the May round of TAC meetings. However, TAC/T continues to monitor the effect of the restructure of the Skills Councils and how this will affect the development or revision of training packages, qualifications or units of competency relevant to fire protection.



# FIRE AUSTRALIA

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

**Joseph Keller**  
**FPA Australia**  
**PO Box 1049**  
**Box Hill VIC 3128**  
**Australia**

tel +61 3 8892 3131  
 joseph.keller@fpaa.com.au

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<b>Base Part Number:</b>	19591
<b>Listings/Approvals:</b>	cULus
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<b>Connection:</b>	Threaded 1" NPT 25 mm BSP
<b>Temperature:</b>	165° F (74° C) 205° F (96° C)
<b>Operating Element:</b>	Fusible Link
<b>Finish:</b>	Brass
<b>Item Price Group:</b>	V24.7
<b>Occupancy/Hazard:</b>	Storage
<b>Technical Datasheet:</b>	F_010715

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