

WINTER
2011

AUSTRALIA Fire

BURNING ISSUE

Latest on prescribed fire



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ISSN 1032-6529

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About Fire Australia

Welcome to the Winter 2011 edition of *Fire Australia*.

Fire Australia is a joint publication of the Fire Protection Association Australia (FPA Australia), the Australasian Fire and Emergency Service Authorities Council (AFAC), the Bushfire Cooperative Research Centre (Bushfire CRC) and the Institution of Fire Engineers (IFE Australia).

We aim to bring the latest news, developments and technical information to the fire protection industry, emergency services and fire research organisations. *Fire Australia* is produced quarterly and distributed throughout Australia and New Zealand.

Letters to the editor and editorial submissions are welcome and can be sent to mark.murray@fpaa.com.au. For more details on submitting a contribution, please contact one of our editors.



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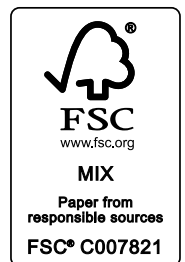
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2011

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Fire Australia magazine is printed by a printer with ISO 14001 Environmental Management System Accreditation using vegetable-based inks onto FSC-certified paper.

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By Gary
Morgan
CEO
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New World, New Thinking – the theme of the upcoming 2011 AFAC-Bushfire CRC Conference – is both apt and forward-looking as we move ahead with the transition of the Bushfire CRC into an Institute.

The Sydney conference, which opens on 29 August, is a week-long showcase of fire research and its application across many natural hazards.

Bushfire CRC research is increasingly producing results that apply across most natural hazards, including cyclones, floods and earthquakes.

It is no coincidence that firefighters and fire managers from Australia, New Zealand and the United States can immediately slot into teams in each other's countries. It was no coincidence that urban search and rescue teams from Australia and Japan were able to quickly deploy to Christchurch after the major earthquake there in February, nor that teams from New Zealand and Australia went to Japan after the earthquake and tsunami there in April.

Firefighting teams in many countries have similar training and incident management frameworks that enable them to work with each other and over a much wider range of incidents than simply fires.

Much recent and ongoing Bushfire CRC research involves making the work and structures of incident management teams more efficient, improving public warnings at times of major incidents and strengthening the health and safety of emergency crews and human behaviour under stress.

Such work is of critical importance given

Australia's historical and continuing proneness to fire, flood, storm and other natural disasters.

Before the Bushfire CRC's establishment in 2003, there was scant in-depth, national and ongoing research into the broader bushfire and incident management field. We have turned that around substantially in the eight years since, building a growing body of knowledge that is shared at our annual conference and regularly through the pages of *Fire Australia* – see, for example, the articles on prescribed burning, fire law and firefighter health and safety in this issue. Our work is put to daily use in emergency management across Australia and New Zealand and, through our international collaborations, increasingly in other countries.

The way cooperative research centres are funded means the Bushfire CRC, as the entity of that name, will wind up in 2013. We are determined, however, that the important work done to date and continuing and expanding until 2013 will not be lost and that the proposed Institute will seamlessly take over.

The Institute model will build on the successful Bushfire CRC principles of a nationally coordinated, industry-linked but independent centre of excellence in research with a fire research program of international reach and relevance to fire and other natural hazards.

The Institute will lead to new knowledge for members of AFAC, FPA Australia and IFE Australia, making Australian and New Zealand communities and those who are involved in natural hazard operations, such as fires and floods, safer.

An important way to gain such knowledge is to hear from people's experiences and new information from research. An important event on the calendar of Australasian fire, land management and emergency services personnel is the AFAC and Bushfire CRC conference with its huge expo of the latest technology.

I encourage you to speak to any Bushfire CRC or AFAC staff or researchers at the Sydney conference about our work. We will be running many special meet-the-researcher forums during breaks in the main conference program where you will get the chance to hear from researchers about their work and discuss it with them. Day four of the conference is a dedicated science day in which some 30 of our researchers will make presentations on their work.

NEWS

REVIEW OF ADDRESSING STANDARD AS/NZS 4819: RURAL AND URBAN ADDRESSING

The review of the addressing standard AS/NZS 4819 has been completed and the draft has been published for public comment.

The draft is an improvement on the 2003 version including:

- simplified document structure;
- clearer terminology, definitions and principles;
- stronger direction, including requirements for mapping; and
- removal of duplication, such as content that is covered in related standards (e.g. AS 4590).

There are many considerations for street addressing but an acid test most of us can relate to is: would an ambulance, fire truck or other emergency vehicle be able to find me?

Despite sometimes differing views or understanding about addresses, mitigating a variety of risks with regard to simple and straightforward addresses are in the best interest of everyone.

The Standard on Addressing is important because:

- This is critical information for emergency services and for all government and non-government service delivery;
- a 'definitive' address and street database supports councils and other public sector bodies in delivering better services and saving costs;
- every occupied facility needs an address;
- on-the-ground street addresses need to be applied consistently across the entire state in a way that is logical and intuitive. A good standardised address is a straightforward input into the statewide map database used by emergency services and many others; and
- even with the proliferation of smart-phones with geo-location functions, a simple, straight-forward street address remains one of the most fundamental and logical mechanisms for finding a place.

A national team including agencies, and departments such as The Department of Sustainability and Environment (DSE), Emergency Services Telecommunications Authority (ESTA), Municipal Association of Victoria (MAV) and Victorian Spatial Council (VSC) and organisations such as Australia Post, are represented on the working group that reviewed and redeveloped the standard. Selected authorities have been invited to review and comment on the draft document.

The draft standard document can be obtained from the publisher, SAI Global. You will need to register on the SAI Global website before being able to download the draft. Please note that there is no cost associated with downloading the document.

Feedback can be provided directly to the statewide representative bodies or sent directly online by visiting <https://www.hub.standards.org.au/hub/public/index.jsp> and selecting this standard from the list.

DISASTER RESEARCH SEMINAR SERIES IN PERTH

University of Western Australia's School of Psychology is staging a Disaster Research Seminar series in four parts during August and September. The series explores individual and social factors and processes that influence preventing, preparing and responding to natural disasters, with a focus on bushfires and earthquakes.

Confirmed speakers are Adjunct Professor Jim McLennan of La Trobe University, Victoria, 5 August, on what people decide to do during the period between awareness of threat and impact of the hazard; Professor Kevin Ronan, CQ University, Queensland, 26 August, on the role of youth, families and schools in community disaster preparedness

and prevention; Professor Douglas Paton, University of Tasmania, 2 September, on adapting to living with bushfire and earthquake hazards; and Associate Professor David Johnston, Massey University, New Zealand, 30 September, on lessons from the recent Christchurch earthquakes.

The seminars are in partnership with the Bushfire CRC and the WA Fire and Emergency Services Authority.

For details, contact
Dr Petra Buergelt:
petra.buergelt@uwa.edu.au



FINAL WORDS FROM VOLUNTEERISM PROJECT

The Bushfire CRC has published two final reports from its seven-year Enhancing Volunteerism project.

Led by Latrobe University psychology professor Jim McLennan with researcher Adrian Birch, the volunteerism project provided fire services across Australia and New Zealand with information to help strategic planning and policy development concerning volunteer numbers and suggested new ways of recruiting and supporting volunteer workforces.

One of the reports summarises the

findings of what was Australasia's largest project investigating the recruitment and retention of volunteer firefighters. The second is a much shorter synopsis.

The project found volunteer-based fire agencies were suffering from declining volunteer numbers, had problems getting volunteers to turn out in business hours and faced static, ageing populations in small rural communities. It looked at ways to tackle the problems.

The reports can be found at:
www.bushfirecrc.com/projects/d3/enhancing-volunteerism

HONOUR STUDENT'S JOURNAL ARTICLE ACCEPTED

New Bushfire CRC PhD candidate Cara Lord of Deakin University has had an article based on her Honours thesis accepted for publication in the internationally renowned journal *Applied Ergonomics*.

The article, to be published shortly, is about Cara's Honours project, completed in the Australian Capital Territory in winter 2009. It looks at the performance of the Pack Hike Test and Field Walk Test for tanker-based firefighters. Bushfire CRC Fire Note 74 describes this work.

Cara, a former Bushfire CRC vacation scholar, began her PhD in February. She is looking primarily at the development, validation, reliability and suitability of a Physical Selection Test for tanker-based bushfire suppression.

Bushfire CRC Manager Research, Lyndsey Wright, said the publication of Cara's article in such a high quality journal, "is an excellent result and clearly shows that it is possible to achieve this high standing even as a student."



Interactive bushfire science a gift for Stawell



It's been raining, it's been pouring, but what does this mean for bushfire risk and your preparations for the next fire season? An expert panel of bushfire researchers recently discussed bushfire behaviour, risk and how to best communicate information, at the Stawell Entertainment Centre in western Victoria in May.

The audience interacted with the speakers by voting on hand-held key pads to various questions raised during the presentations.

The public event was put on by Free Range Science and hosted by the Royal Institution of Australia (RiAus) as part of its Talking Science in Regional Victoria program. This Bushfire Science event was supported by the Bushfire CRC with several researchers

contributing to the program.

Two Bushfire CRC speakers headed the program. Researcher Dr Chris Weston of the University of Melbourne spoke about the role of fire in the landscape with specific references to the history of fire and the changing vegetation in that part of Victoria. John Schauble from the Office of the Emergency Services Commissioner talked about research conducted on how communities make a decision on whether to stay and defend their households or leave early. John is a lead end user in the Bushfire CRC program Effective Communication – Communities and Bushfire.

Michael Boatman, Country Fire Authority manager of community safety for the Grampians region, showed how the research was being applied by partners in the Bushfire CRC, in particular, how the CFA was informed by research conducted on community attitudes and decision-making processes.

The host for the evening was local identity Barry Clugston who balanced the discussion between the important local issues and their relation to national issues.

NEWS

BUSHFIRE CRC WELL REPRESENTED AT SOUTH AFRICAN WILDFIRE CONFERENCE

The Bushfire CRC was represented at the Fifth International Wildfire Conference in South Africa in May by Chairman Len Foster, AO, Chief Executive Officer Gary Morgan, several board members and researchers.

It was clear from the open discussions on the potential for collaborative research that Australian and New Zealand bushfire science has much to learn and much to offer with international colleagues in this field.

Bushfire CRC researchers who presented included Mick Meyer, Jim Gould, Fabienne Reisen and Raphaele Blanche, all from CSIRO. Neil Burrows presented for researcher Roy Wittkuhn (both from Western Australia's Department of Environment and Conservation), Alen Slijepcevic presented for Andy Ackland (both from Victoria's

Department of Sustainability and Environment) on the practical use of the fire behaviour research of University of Melbourne's Kevin Tolhurst. Presentations were also heard from Bushfire CRC board members Murray Dudfield (New Zealand National Rural Fire Authority), Naomi Brown (AFAC) and Ewan Waller (DSE).

The Bushfire CRC was prominent throughout the conference in 20 sessions by people proudly acknowledging their involvement in the Bushfire CRC and its research.

The Bushfire CRC coordinated a prominent poster display on the Australasian Wildland Fire Network, which showed the links between the Bushfire CRC, AFAC, the National Aerial Firefighting Centre, the Forest Fire Management Group and the Pacific Islands Fire Services Association.



Corporate fleet discount program

FPA Australia is delighted to announce the re-signing of its corporate fleet discount program with Volkswagen Australia.

Corporate bronze, silver and gold members (who have been a member for a minimum of three months) are eligible to take advantage of this program, which is just another way FPA Australia offers

value-added benefits to its members. For the complete range of recreational and commercial vehicles visit www.volkswagen.com.au

For more information on the FPA Australia/Volkswagen corporate fleet discount program, contact membership services on 1300 731 922 or email member@fpaa.com.au



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on page 56

ADVANCING PROFESSIONALISM

An important announcement from FPA Australia

By Scott Williams and Glenn Talbot, CEO and National President, FPA Australia



As of 1 September 2011 membership of FPA Australia will include two clearly separate categories when it will become compulsory for all Corporate Members to hold Public & Products Liability Insurance.

Early in 2011, the FPA Australia Board of Directors engaged in a strategic planning day to discuss the future direction of the Association. A key discussion point was increasing the profile and professionalism of the fire protection industry and in particular the value of engaging FPA Australia members. It was unanimously agreed that one of the range of initiatives necessary was to ensure the wider industry and community choosing the services of Corporate Members could do this having confidence the members held appropriate insurance.

Liability insurance is considered to protect both the consumer and individual member interests and the Association is proud to advocate this requirement to underline the responsible business practices of FPA Australia Corporate Members.

FPA Australia contends that minimum insurance requirements are appropriate and reflective of the complexity of the work Corporate Members undertake. Establishing insurance expectations is reflective of the increasing maturity of the fire protection industry in Australia and is a significant step forward.

Corporate Members who comply with the revised Code of Practice and complete the Insurance Declaration issued last month will be promoted by FPA Australia as "Providers of Choice".

As of 1 September 2011, any Corporate Member that does not complete the necessary Code of Practice and Insurance declarations will remain a valued member of the Association. However, such members will not be listed on the Association's website or be permitted to

use any of the Association's logos.

The minimum Public & Products Liability Insurance coverage required is \$10 million.

Membership Categories – 1 September 2011

The following separate membership categories will exist from 1 September 2011.

Corporate Members, Provider of Choice	Members
Bronze, Silver, Gold or Platinum Corporate Members	Associates, Individuals, Organisations or other
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Listed on FPA Australia website and permitted to use appropriate FPA Australia logos	Not listed on FPA Australia website or permitted to use FPA Australia logos
Promoted as Provider of Choice	Not promoted

What you need to do

FPA Australia issued all Corporate Members with a revised Code of Practice/Insurance Declaration form last month. This form must be completed and returned to FPA Australia no later than COB on Friday 26 August 2011 to establish your membership category.

As part of this new insurance initiative, FPA Australia will be randomly auditing members to ensure full compliance with these new requirements. Members will be given notice to supply appropriate policy information to ensure the minimum amount of \$10 million Public & Products Liability Insurance is specified, all business activities are listed and correctly described on the policy, the policy is paid and current for the associated membership period.

Promotion and other initiatives

Promotion of Providers of Choice

Throughout the remainder of 2011 and 2012, you will notice various advertising and promotional campaigns to market the services of members considered to be Providers of Choice throughout industry and the community. These campaigns will use industry publications and be adopted amongst other branding initiatives.

Members considered to be a "Provider of Choice" will be promoted as trusted and professional companies. This is a key driver for introducing a minimum insurance requirement.

Professional Indemnity Insurance

FPA Australia will also be consulting members throughout the remainder of this year regarding the future introduction of compulsory Professional Indemnity Insurance. The introduction of this requirement is proposed for early 2012 and will not necessarily apply to all members and activities. FPA Australia will release further information on this initiative in the near future.

Risk, Legal & Insurance Seminar Series

A national seminar series is proposed for September/October 2011 to provide insight and information regarding the risk environment that exists in the Fire Protection Industry from a legal and insurance viewpoint.

Advancing Professionalism

FPA Australia is very committed to increasing the profile of professionalism within the fire protection industry and ensuring the industry and the community is provided with the highest level of services. Adoption of minimum insurance requirements provides FPA Australia more scope and confidence to promote and position compliant members and raise the expectations of all stakeholders.

We thank all members for their on-going commitment to our Association. Undoubtedly this new initiative will benefit your own endeavours in the marketplace.

NEWS

FIRE HUB WEBSITE READY TO USE

The new information sharing website, *Fire Hub*, is ready to be used by fire technicians across the industry.

The website, funded by the Department of Business and Innovation, Government of Victoria, is being led by FPA Australia in partnership with the Country Fire Authority (CFA), Fire Equipment Maintenance Division (FEM, Swinburne University of Technology and other members of the fire protection industry.

Technicians can now log in and contribute content to the web 2.0 site, which currently has the following sections:

Fire Flickr:

This is a storehouse of pictures related to maintenance, installation, service and repair of fire protection equipment. Technicians can upload photos of commonly occurring servicing errors, poorly maintained equipment, as well as rare, new and even archaic technology and equipment that they come across in their day-to-day working lives. Pictures, once uploaded, are validated and approved by industry experts and are then made publicly available. Technicians can also rate them using the 'usefulness rating scale' and can also comment on them.

Fire Talkin':

This is a forum to discuss current topics related to changes in fire legislations, regulations, codes and standards. Technicians can either express their thoughts and opinions or just read what others have to say.

Fire FAQs:

This is the list of Frequently Asked Questions that are answered on a daily basis by FPA Australia's Technical Department. Technicians can rate and comment on FAQs.

Every section of the site is accompanied by extensive instructional support to help users use the site effectively.

The website uses interactive, innovative, social media technologies

including wikis, blogs, forums, podcasts, chats, e-portfolios, social networking and user-generated content for fire technicians to use as a valuable resource

Its purpose is to add value to the fire industry, especially technicians involved in the servicing, installation, maintenance and repair of fire protection equipment, which will help them gain contemporary

information technology skills, along with being a professional benefit.

To browse the site as a guest user visit <http://fireprotection.tvc.edu.au>

Technicians can gain their login and start contributing to the site by contacting FPA Australia Technical Writer Shilpa Shankar at shilpa.shankar@fpaa.com.au or by calling 03 98901544.

RESEARCH ADVISORY FORUM HELD IN BRISBANE

Around 50 end-users, researchers and students gathered at the Queensland Fire and Rescue Service's (QFRS) complex in Kedron Park, Brisbane for the fourth meeting of the Bushfire CRC's Research Advisory Forum.

The audience heard progress reports and presentations from around half of the projects in the Bushfire CRC and from a number of students. The forum heard from researchers and students who are conducting research in all states and New Zealand.

Bushfire CRC Deputy CEO and Research Director Richard Thornton said it was particularly pleasing to hear that all of the projects are now underway and are making substantial progress.

"The feedback from the forum was positive with most attendees rating it very highly," he said. "Also the general feedback on the projects was equally positive. Many of the researchers received approaches from the end-users to work in their jurisdiction and be involved with the research."

The forum is a critical part of the research governance for the Bushfire CRC. Feedback from the stakeholders was compiled and discussed with the individual projects' researchers and lead end-users.

A highlight was also a guided tour of the QFRS State Co-ordination Centre during the lunch break on the second day.

The Bushfire CRC moves the forums around the country to enable all

jurisdictions to get the opportunity to bring more local people along. The next forum will be held in Canberra on 26 and 27 October.

The presentations from the forum are available under the events tab on the Bushfire CRC website: <http://www.bushfirecrc.com>



Correction

In the previous edition of *Fire Australia*, an article was published on pages 30-32 titled 'Who escapes from a fire'.

Unfortunately, the article was attributed to the incorrect author. The authors of the story should have read Paul Verheijden (Integrated Fire Services) and David Swinson (Building Design Compliance). The ideas in the paper were conceived by Verheijden and Swinson and the article was written by them. *Fire Australia* would like to apologise for this oversight.



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Prescribing fire

NEW BOOK

ON A HOT TOPIC

Planned fuel-reduction burning remains one of the most controversial issues in managing forests and lowering the risk of bushfires to people and property. A new book takes a comprehensive look at the subject. Bushfire CRC communications officer David McLoughlin reports.

The intentional use of fire arouses passions and conflicts, write Professor Mark Adams and Dr Peter Attiwill in *Burning Issues*, their book on the role of prescribed burning in the sustainability and management of Australia's southern forests. "The forest manager faces an almost insurmountable problem: people, most of whom live in the cities, have an innate fear of fire. If fire is always seen as bad, how can it be used for good?"

Indeed, concern about bushfires has in part been replaced by an urban concern about the use of planned fires for fuel reduction and forest regeneration, they say. "An urban concern that speaks as much about the increased separation of city and country, of the increasingly poor knowledge of city people as to what is required to live in and manage the bush, as it does about the discomfort of smoke-tainted washing or wine, or conscience-twanging images on the nightly news or rants in major daily newspapers by columnists and others who make a living from the media, about 'escaped prescribed fires or back burns.'"

Professor Adams, a Bushfire CRC Board member and former project leader, is Dean of the Faculty of Agriculture, Food and Natural Resources at the University of Sydney. Fire has been a constant element of his research since bushfires burnt his PhD forestry study sites on the outskirts of Melbourne in 1982 and 1983. Dr Attiwill is Principal Fellow in Botany and Senior Fellow in Historical Studies at the University of Melbourne and editor-in-chief of the international journal *Forest Ecology and Management*.

In *Burning Issues*, they describe the history and role of fire in Australia's ecosystems and how fire can be managed for both safety and ecological diversity, with the aim of changing public attitudes to fire and to influence and encourage changes in land management by government agencies.

They note calls following the February 2009 Victorian Black Saturday fires for a single, simple answer on fuel reduction burning to reduce bushfire



risk, but emphasise it is a complex issue without a simple answer.

Nowhere is the role of fire in ecosystems more important than in Australia, they write. As the continent drifted north from Gondwanaland 130 million years ago, it became hotter and drier. The former extensive cool-temperate rainforest was gradually replaced by today's common hard-leaved vegetation and an increasing incidence and spread of fire caused by lightning. Fire played a dominant role in the evolution of the *Banksia*, *Acacia* (wattle) and *Eucalyptus* that now dominate Australian forests. Fire frequency increased with the arrival of Aborigines some 45,000 to 70,000 years ago and it increased again when Europeans arrived 220 years ago.

They quote American fire historian Stephen Pyne, who has written extensively on fire in Australia and around the world: "*Eucalyptus* is not only the universal Australian, it is the ideal Australian – versatile, tough, sardonic, contrary, self-mocking, with a deceptive complexity amid the appearance of massive homogeneity; an occupier of disturbed environments; a fire creature."

The diversity and productivity of forest ecosystems are maintained by random periodic disturbance, write Professor Adams and Dr Attiwill. One needs to differentiate between "disturbance" as the word is used ecologically and its use generally. "Because many



species depend on the cyclic renewal of resources by fire, disturbances by stand-replacing fires are simply part of the natural order. It is the elimination of fire that should be more rightly termed a disturbance.”

They say this raises many questions. What are the social and biological aims of forest management? What levels of disturbance are biologically necessary and what levels can be socially tolerated? Can we accommodate fire and destruction within the management regime of a national park? And why prescribed burning? Does it achieve its aim of producing such specified management goals as reducing fire risk and encouraging biodiversity?

If there were no fuels for fire to burn, there would be no bushfires, the authors note, but ask if the hypothesis “fuel reduction burning decreases intensity and rate of spread of subsequent bushfires” is proven in practice.

In a bushfire, the fuel loads, weather and topography that promote fire intensity and spread are variable and to a major degree uncertain, they write. Fuel reduction burns are generally done in the cooler months when the fire can be comfortably controlled. These cool burns only consume a small proportion of total fuel that may burn under the most extreme conditions.

“Thus we have an unnerving situation. On the one hand, it is practical common sense to say that

the removal of some of the fuels will result in the specified goal of reducing the spread and intensity of subsequent bushfires. On the other hand, it is often difficult to demonstrate quantitatively and scientifically that the prescribed aim of fuel-reduction burning has been achieved.”

The authors cite the work of Western Australian researchers who have undertaken substantial studies of that state’s extensive prescribed burning regime and its effect on bushfires.

Before the devastating Dwellingup fires of 1961, Western Australia had used fuel-reduction burning on only a small scale. Since then, however, major fuel-reduction burns have been undertaken yearly, with the state’s Department of Environment and Conservation (DEC) currently aiming to burn eight per cent of forested Crown lands each year. By comparison, prior to the 2009 Victorian Bushfires Royal Commission – which heard detailed evidence of the WA experience – other Australian states were burning as little as two per cent of their publicly managed forests.

DEC fire management branch state manager Rick Sneeuwjagt told the Royal Commission that Western Australia had not had a major wildfire between 1961 and 2009 despite bad fire seasons. About 95 per cent of fires had been kept below 100 hectares and no lives had been lost.

A prescribed burn in Shelford, Victoria.



Drip torch, used to light prescribed fire.

Professor Adams and Dr Attiwill write: “For many fire ecologists and fire researchers ... the fuel-reduction program in the forests of south-western Western Australia has set the benchmark in how it should be done and what can be achieved.”

After hearing the Western Australian evidence and from a forum of seven experts that included Professor Adams, the Royal Commission’s final report recommended Victoria commit to a long-term program of prescribed burning based on an annual rolling target of a minimum of five per cent of public land.

In *Burning Issues*, Professor Adams and Dr Attiwill note that prescribed burning has been a controversial topic not just among those with interests in the management of public land, but also among fire ecologists. However, during the Royal Commission’s six days of hearings on the issue including the experts’ forum, there was a surprisingly high level of agreement.

“The experts’ forum reached the consensus view that between five per cent and 10 per cent of public land should be burned for fuel reduction each year,” they write.

Burning Issues contains a set of key concluding points making a case for fuel-reduction burning. Fire is a natural element of Australia’s ecology, the authors say. Given the right conditions, Australian bush is highly flammable. We are unable to eliminate bushfires and widespread, high-intensity bushfires will not reduce unless we recognise the need for intensive fuel-reduction programs. The evidence for planned fire management is overwhelming in Australia and world-wide, they say. Technology is now available to manage fire in a way that maintains biodiversity and markedly reduces the hazard to human life and property. We must develop well-defined fuel-reduction burning programs. Properly managed fuel-reduction burning causes far less

damage to life, property and ecological processes than intense, uncontrolled bushfires.

Dr Richard Thornton, Bushfire CRC Deputy Chief Executive and Research Director, welcomed the publication of *Burning Issues*, saying the book provided a valuable insight to the state of knowledge of the prescribed burning field by two well-respected authorities in the field.

“As the authors note with their observation that it is a complex issue with no simple answer, this book, although not providing the silver bullet, will form a central part of the future debate,” Dr Thornton said.

The Board of the Bushfire CRC recently approved a new project, Integrated Assessment of Prescribed Burning, to supplement the Bushfire CRC Extension Program.

This project is being conducted over 12 months from July 2011 and will be led by Professor David Pannell of the University of Western Australia. The project will use one or more case study areas, to be selected following a call for expression of interest open to all Bushfire CRC stakeholders.

Noting that one of the key recommendations of the Victorian Bushfires Royal Commission was to significantly increase the levels of prescribed burning, Bushfire CRC Chief Executive Officer Gary Morgan said it was well known prescribed burning was inherently risky and likely to have both positive and negative effects.

“The new research project will integrate research information on fires, ecology, human behaviour, values and economics,” said Mr Morgan. “This is the first time such a process encompassing different disciplines has been conducted on this land management issue.”

The research approach is based on experience in developing and applying INFFER (Investment Framework For Environmental Resources) which has been trialled and used by almost half of Australia’s 56 regional natural resource management bodies. INFFER won the Eureka Prize for Interdisciplinary Research in 2009, and elements of the INFFER project have won awards for excellence from the Australian Agricultural and Resource Economics Society and the UK Agricultural Economics Society.

“We are delighted that this process will now be tested against the questions raised in prescribed burning,” Mr Morgan said.

Professor Pannell is Winthrop Professor in Agricultural and Resource Economics at the University of Western Australia, Director of the Centre for Environmental Economics and Policy, and a Federation Fellow of the Australian Research Council. He specialises in interdisciplinary research to address complex decision problems.

Dr Thornton welcomed Professor Pannell to the Bushfire CRC’s team of researchers, adding that it was a great privilege to have such a highly regarded researcher working on critically important issues for the industry.

Burning Issues, by Mark Adams and Peter Attiwill, is published by CSIRO Publishing, 160 pages, \$49.95.

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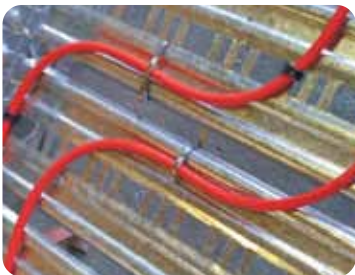
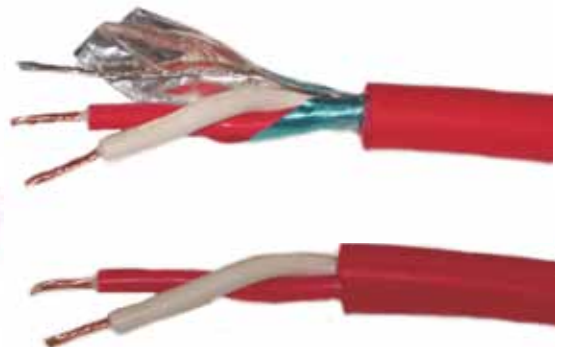
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Update: the evolving bushfire construction standard AS 3959

Fire Australia readers will be aware of the Australian Standard, Construction of Buildings in Bushfire-prone areas (AS 3959). Standards Australia committee FP-020 members Mark Chladil (AFAC) and John Nicholson (FPA Australia) summarise their thoughts and observations on the current progress of the Standard.

Australian Standard AS 3959 is the responsibility of Standards Australia committee FP-020. In April 2011 the committee was reconstituted by the management of Standards Australia with a new independent chair, Mr Richard Brooks (also a member of Standards Australia's Board of Directors). The FP-020 committee is large with a wide spread of nominating organisations represented including: the Australian Building Codes Board; the Insurance Council of Australia; the construction industry (both HIA and MBA); various materials and elements industries (bricks, steel, plastics, roofing tiles, windows, timber); and professional associations (engineers, architects and building surveyors). The chair of the Standards Australia fire safety testing committee FP-018, Dr Paul England, is also a member.

While previously with two representatives each, both AFAC and FPA Australia continue as nominating organisations but with only a single representative for each organisation. The AFAC representative consults with stakeholders through the Rural and Land Management and Built Environment groups. Within FPA Australia, the representative is currently the chair of FPA Australia's Technical Advisory Committee TAC/20.

The first meeting of the new FP-020 committee was held in May 2011, with another in June and a third meeting tentatively scheduled for August. This activity is associated with the third amendment to the 2009 edition (Third Edition) as well as preparation for a Fourth Edition.

At the time of writing, these are the likely changes worth mentioning. The major elements of the third amendment are firstly the formal alignment of the objective of the Standard with that of the Building Code of Australia. This was a recommendation of the Victorian Bushfire Royal Commission and is intended to ensure the close coupling of the Standard to the needs of the BCA. It is worth noting that

property protection remains as an objective of both the Standard and the bushfire provisions of the BCA.

The second major element is the inclusion of some generic descriptions of tested roof systems that are acceptable for use in the Flame Zone (Bushfire Attack Level (BAL)-FZ). This will allow the use of these systems without requiring further testing and should reduce construction costs. FP-020 has sought the cooperation of bodies who have released their expensively obtained test results for proprietary systems. From these test results, the proposed generic systems have been developed where accepted as appropriate. Of course some proprietary roof systems were not suitable for such generalisation and consumers can still access them directly from manufacturers.

The third major element is a significant edit of the language used across the BAL requirements for each building element to ensure consistency of expression and thereby, hopefully, improve consistency of application by all practitioners.

Preparation of a Fourth Edition

Preparation for developing a Fourth Edition commenced with a round table discussion about potential issues and needs. It was recognised that the needs of FP-020 are somewhat greater than the available science. This is not news to those familiar with bushfire research. As a first step, all member bodies of nominating organisations will be contacted to request available test and research results so the committee can work from the widest knowledge base.

FP-020 has also reviewed the ad hoc list of future items published in the preface of the Third Edition back in March 2009. This list will now be deleted from the Standard and the items which remain to be addressed will be deferred to the Fourth Edition. Clearly, many of these items cannot be resolved without being informed by research which is yet to be done.



In addition, there are issues which have not been previously tackled. The influence of wind during bushfires needs to be explicitly addressed as some houses are ignited as a consequence of wind damage which may negate the otherwise suitable bushfire protection measures. TAC/20 members have already begun a lively discussion on this issue. A further issue is the adequacy of the existing ember-proofing measures both with respect to the emerging knowledge from researchers based in the US (principally about gap sizes) and the hopefully soon-to-appear work from other research including Project Vesta and the Bushfire CRC.

There is also general recognition that the relationships between the bushfire tests (AS 1530 Part 8) and the Standard need to be validated from time to time. The tests actually pre-date the current Standard and there has been considerable discussion about the appropriateness of the tests in terms of their simulation of the different radiation and ember regimes experienced during bushfires and of the performance of different materials and assemblies during the tests.

The issue of buildings other than houses will also need to be addressed. Currently AS 3959 is based on protection for housing and doesn't provide a lot of guidance for other kinds of buildings and occupancies. In our view, it is time the Standard addressed protective measures for all buildings

that are likely to be built in bushfire-prone areas, especially those likely to be occupied as workplaces. Related to this is the development of measures which can be applied to lightweight construction and tropical situations.

This is not an exhaustive list and we are both very open to other issues and ideas for consideration for a Fourth Edition of the Standard. *Fire Australia* readers are invited to contact us at the email addresses below with both their thoughts and suggestions.

As a final note to this article we would like to acknowledge the great contributions that have been made by our former fellow Committee members: Mr Ralph Smith (FESA, WA) for AFAC and Mr Rob Llewellyn (International Fire Protection) for FPA Australia.

Mark Chladil (mark@fire.tas.gov.au) is the Fire Management Planning Officer for the Tasmania Fire Service and has been an AFAC representative on FP-020 since 1999.

John Nicholson (j.nicholson@communitysafety.com.au) is principal of Community Safety Services P/L and has represented FPA Australia on FP-020 since 2003.

The authors were co-presenters of the joint FPA Australia-AFAC national workshops on the Standard held during 2010. This article is the personal view of the authors and does not represent the position of either AFAC or FPA Australia.

Standards Australia Committee FP-020 is meeting on the revisions to the AS 3959 Standard.

THE genuine article

By Heinz Schlatter and Brett Staines, Technical Advisory Committees 11/22, FPA Australia



Industries across the world have issues with use of non-genuine parts. The attraction in most cases is that they are cheaper, but on the downside they may be less reliable and lack the durability of the genuine article.

The issue facing the fire protection industry is that non-genuine parts may reduce the reliability or even be incompatible with the product into which they are installed. This in turn could lead to a failure which may result in loss of life and property. Use of non-genuine parts can affect the full spectrum of fire protection products, from portable fire extinguishers to fixed detection and suppression systems.

A fixed fire protection system on mobile plant and equipment is a specific example where use of non-genuine components can have adverse consequences to the protection of assets and life. Many companies manufacture, supply, install and maintain fixed fire protection systems for equipment such as large excavators, dozers, loaders, trucks and drill rigs. Such systems are designed to protect the operator and vehicle in the event of an on-board equipment fire. Many of the fixed systems fitted to mobile plant and equipment fall into the category of pre-engineered systems.

A pre-engineered system consists of only parts and assemblies that have been tested and proven as part of the complete system to establish the overall system performance capabilities and limitations. The components in a pre-engineered system work together to deliver a minimum level of performance including factors such as minimum agent flow rate, even distribution to the nozzles, nozzle coverage and discharge times.

The system performance limits of pre-engineered systems are established during the original product development and verified by testing as part of product approvals by third party organisations such as CSIRO. The system limitations and parameters are then documented in the system's listed design manual. Third party approval and listing is a specific requirement of AS 5062 for systems fitted on mobile and transportable equipment.

A qualified installer, using the design manual, can design and install a system within its specified limits and in doing so, ensure that the installed system will be fit for purpose, perform as intended and offer excellent fire protection.

It is important to understand that the performance of the installed system is dependent upon using the correct parts and equally as important, using the correct brand of extinguishing agent. Any variation from the use of genuine parts could have detrimental effects on the system performance. One incorrect fitting could change the flow characteristics and adversely affect the system effectiveness, possibly to the point where the system fails to operate or provides a reduced level of protection. It is therefore essential to always use genuine spare parts.

Use of correct components is one aspect of ensuring the installed system will perform as intended. Another is ensuring that cylinder fills and charge pressures as detailed in the listed design manuals are adhered to. For these reasons, it is essential that the service provider has access to the relevant parts and service manuals to allow them to identify specific maintenance requirements as well as ensuring they can identify and select the genuine spare parts required to ensure ongoing performance of the system.

The manufacturer and model of the fire system in question must be clearly identified to make sure that the correct service manual is at hand. The client or owner of the equipment should have a copy on file, provided by the installer at the time of installation. Without access to the proper documentation, a service provider can only guess what the maintenance and spare parts requirements for the system may be.

Another problem which can face owners of vehicle fire protection systems is the use of so-called hybrid systems. These hybrid systems use components from a number of different fire systems. Although the parts used may be from systems which have been individually tested and approved, no testing has been completed to evaluate their compatibility



when used with components and as part of a system from other manufacturers. Lack of testing to prove the performance of the hybrid configuration in conjunction with a lack of support documentation and design specifications pose an extremely high risk to the equipment operator.

Fortunately, since the introduction of the Australian Standard AS 5062 Fire protection for mobile and transportable equipment, the prevalence of hybrid systems seems to have declined; however the use of non-genuine parts continues to pose a major problem. Unfortunately, it is not uncommon to see vehicle fire systems that have been repaired using non-genuine components to “get the job done”. Some of the potentially dangerous system modifications which are seen on a regular basis include:

- Incorrect pressure gauges – incorrect green band (operating pressure range) resulting in insufficient system pressure, despite the gauge showing the pressure to be in the green;
- Incorrect hose ends – fittings not matching the hose being used resulting in loss of pressure or discharge lines leaking;
- Incorrect cylinder valves and siphon tube (pick-up tube) – incorrect internal diameters and excess pressure loss which can severely affect flow rate. Use of rigid siphon tubes where flexible ones are

required or siphon tubes of incorrect length which can result in incomplete discharge of agent;

- Incorrect discharge nozzles – incorrect orifice sizes can adversely affect application rates, coverage and discharge times;
- Incorrect hose and fittings – incorrect internal diameter can again adversely affect flow rates and discharge times; and
- Incorrect extinguishing agent – use of anything other than the manufacturer-specified agent used can adversely affect the fire fighting performance of the system.

In many cases, a system can be easily returned to its original installed specification by reinstating the original system components. In some cases, however, it may be necessary to undertake a complete design review of the system against the original system design manual. As the design manuals are generally of a proprietary nature it may be necessary to engage the original system manufacturer or one of their appointed and qualified representatives to undertake this review and to ensure that the system is returned to its proper configuration.

It is hoped that this article will serve to increase awareness of the importance of using genuine parts when servicing fire protection systems and, in particular, those fitted to mobile and transportable equipment.

Above: A fixed fire protection system on mobile plant and equipment is a specific example where use of non-genuine components can have adverse consequences to the protection of assets and life.

Above left: What can happen when things go wrong.



FPA Australia visits NFPA

The New England region in the north east of the United States is the historical home of fire protection for America and has been home to some of the world's leading fire protection companies since their inception.

By Matthew Wright, Chief Technical Officer, FPA Australia

The National Fire Protection Association (NFPA) was founded in 1896 and has a rich history of standards development and fire protection and safety advocacy. The NFPA Headquarters is located in Quincy, Massachusetts and this year's annual NFPA Conference and Expo returned to the state capital in nearby Boston. I was fortunate enough to attend this year's event and along with FPA Australia National President Glenn Talbot and Chief Executive Officer Scott Williams, I was further grateful to be extended an opportunity to meet with key NFPA staff prior to the Conference and Expo to better understand NFPA's code and standard development process and the delivery of NFPA educational products.

During the Conference and Expo, Glenn, Scott and I were also joined by past FPA Australia National Presidents and current advisors to the Board, Rob Llewellyn and Peter Johnson, in a meeting with NFPA President/CEO Jim Shannon, NFPA Board members and NFPA executive staff to discuss the general status of the respective associations and how we might continue to collaborate and share information in the future.

All NFPA representatives were extremely generous with their time especially given the Conference and Expo make for the busiest time of the year for them. However, what struck me most was that

they appeared genuinely willing to listen and share information, and their interest was focused on maintaining a strong and respectful dialogue in relation to a shared goal.

To discuss NFPA, you first need to appreciate its size. A snapshot could be described as follows. The association is responsible for the development and publication of 300 codes and standards, supported by more than 200 codes and standards technical committees comprised of over 6000 volunteer seats. The in-house technical staff alone exceeds 60 qualified personnel and the association operates from multiple-owned buildings across the US and international posts. To ensure the profile and importance of its documents are understood, NFPA even has a dedicated Government Affairs office in Washington DC to maintain relationships with legislators. However, as I discovered, this juggernaut is underpinned by more than just the demands of the country's population of 308 million plus (some 13 times that of Australia). Instead there is a unique and rigorous framework for development that means NFPA is able to efficiently reap the benefits of its labour, financially and educationally.

NFPA documents are referenced in legislation and also used voluntarily throughout the Americas and internationally, and enjoy a respected profile



Above left: Senior management from both the NFPA and FPA Australia held a meeting at the NFPA Headquarters in Massachusetts, US. (From L-R): Rob Llewellyn (FPA Australia Board Director), Randy Tucker (NFPA Board Secretary), Jim Shannon (NFPA President), Peter Johnson (FPA Australia Board Director), Philip Stittleburg (NFPA Board First Vice President), Bruce Mullen (NFPA Senior Vice President), Matthew Wright (FPA Australia Chief Technical Officer), Glenn Talbot (FPA Australia President), Scott Williams (FPA Australia Chief Executive Officer), Garry Keith (NFPA Vice President).

Above: 'Sparky', NFPA's official mascot, at the NFPA Conference and Exhibition.

for achieving their mission to 'reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training and education.' This respect is hard earned and staunchly guarded.

Our meeting with Gary Keith (Vice President – Field Operations and Education), Christian Dubay (Vice President and Chief Engineer – Codes and Standards) and Cheryl Green-Pozner (Director – Business Development/Professional Development), prior to the conference gave me the first insight into NFPA's approach.

The discussion was open and frank, punctuated by the occasional surprise at information from both sides.

Christian Dubay spoke of NFPA's necessity to strictly stick to a range of guiding principles but two in particular. Firstly, the timeline for the development and publication of documents is unnegotiable and NFPA's regulations prescribe the same process for all committees. This could reasonably be considered to be driven by the number of documents NFPA committees are working on at any given time. However, Christian advised that it is also necessary to ensure comments are provided on time and any review of these comments, or changes made to documents as a result, is transparent to all parties.

Ultimately, sticking to the prescribed timelines ensures NFPA efficiently produces documents and keeps pace with emerging technology.

Secondly, the independence of representation between committee members is scrutinised rigorously to ensure that committees are not 'stacked' to favour outcomes that might be sought by single employers or single industry sectors. When trying to determine whose interest a committee member may be representing, the rule applied administratively is "follow the money", that is, who are they employed by? If any committee member changes employer they must resign their position and re-apply. This includes the chairperson. Deterring dominance and encouraging broad participation could be considered the core strength of NFPA documents but it is also necessary to achieve compliance with the protocols of the American National Standards Institute (ANSI) and remain an ANSI-accredited consensus standards developer.

The guiding principles for the development of NFPA codes and standards are:

- Due process – the timelines and framework for document development must be adhered to;
- Openness – debate and discussion is encouraged, but transparency of decisions is important;
- Lack of dominance – no 'stacking' of committees



This form of fire alarm is still being used in some parts of the USA.

to force outcomes to suit major interest groups. No one entity should be able to dominate the process; and

- Seek society's acceptable level of risk – what are the minimum levels of safety and compliance that should be met? This level is constantly evaluated by NFPA technical committees in terms of what is acceptable/reasonable.

As Gary Keith explained, participation in the development of NFPA codes and standards is by the membership, however the intellectual property provided and captured by NFPA documents is then owned by NFPA. The association's ownership of this refined intellectual property means two things that distinctly set NFPA apart from FPA Australia.

1 NFPA is able to design and deliver educational courses and documentation regarding NFPA codes and standards for the benefit of members and consumers in a coordinated, deliberate and consistent fashion without seeking permission or paying fees to other bodies; and

2 All monies derived from the sale of NFPA documents and educational sessions or information can be directed back into the further development of codes and standards and education sessions. Not only that, whilst maintaining NFPA's not-for-profit status, funds from this income stream are also used to support research into problem areas identified by technical committees to further refine codes and standards and also to produce public education messages, programs and marketing.

The lesson here: intellectual property is valuable in many ways and should be captured and respected.

Cheryl Green-Pozner is responsible for overseeing the development and delivery of NFPA's education sessions and she spoke enthusiastically about the variety of options NFPA now offers for training and recognition of learning activities undertaken. NFPA now have four mechanisms for educating members and consumers about the application of their codes and standards:

- Seminars – nationally recognised experts conduct intensive hands-on seminars to help you learn, interpret, implement and enforce the codes they develop and write;
- On-site – learn and apply the code 'to' your workplace 'at' your workplace. NFPA on-site training provides hands-on instruction in the convenience of your facility, administered by

recognised experts who developed the codes and standards;

- Self-guided – learn at your own pace in your own time with highly focused, informative, affordable online courses written by NFPA experts; and
- Webinars – online interaction with technical experts to learn about topics that impact your job performance. Allows remote learning where attendance at seminars is cost prohibitive.

Of course the main difference between NFPA's training and the training offered currently by FPA Australia is NFPA is training people in the application of NFPA documents, whereas FPA Australia currently trains people in work practices. This point was very interesting to NFPA as they are yet to offer qualifications similar to the Certificate II and III in Asset Maintenance as FPA Australia does.

The lesson here: options for training are important to attract participants but also to reach participants who might otherwise not be able to attend.

On the first day of the Conference and Expo, I was accepted into a four-and-a-half hour session called the NFPA's Committee Leadership Conference (CLC). The CLC is targeted at NFPA's technical committee chairpersons and members and is a proactive and open workshop. The workshop is aimed at achieving a better understanding of the code and standard development process as well as what flies and what doesn't in a formal committee meeting.

This session was facilitated by Jim Pauley whose day job is Senior Vice President – External Affairs and Government Relations for Schneider Electric, based in Kentucky, US. Jim has been contributing to NFPA for over 25 years and is the current Chair of the NFPA Standards Council which has a similar role to FPA Australia's National Technical Advisory Committee (NTAC). Jim was ably assisted on the day by Amy Cronin, originally from Georgia, US, who delivered a very authentic southern accent. Amy is the Secretary of the NFPA Standards Council and Manager of NFPA staff liaison for codes and standards development. Jim and Amy described almost all of the aspects of NFPA's development process. The following are a few of the more critical ones.

Consensus

Consensus is defined by federal legislation in the US. NFPA codes and standards are developed by the consensus approach which means:

- All views and objections must be considered and a

concerted effort made toward their resolution; and

- Substantial agreement must be reached by materially affected parties. This does not necessarily mean unanimity. Within NFPA regulations, if two thirds of the committee agrees, consensus has been reached.

Technical committees

Managing over 200 committees is quite a task, however the NFPA's regulations make management efficient and consistent as they apply across all committees. Some key points from NFPA's regulations include:

- Maximum committee size is 30 voting members;
- Committee members are categorised by one of nine interest categories such as consumer, manufacturer and installer/maintainer. Not all interest categories need to be represented, however there must be a balance and a committee can never have more than one third of its membership from one interest category;
- To achieve resolution on an issue or document, at least 50 per cent of the committee must vote and of that 50 per cent or more, two thirds must be in agreement; and
- Notice of Intent to Make a Motion must be lodged prior to a meeting with supporting evidence to ensure other committee members are prepared and informed to vote.

Interest

Committee members will undoubtedly have their own interests, but they have an overriding obligation to further the safety goals of the NFPA.

Ultimately, the principal interest any committee member should have is to assist NFPA to achieve its goals, not purely a commercial interest for their own business or employer's business.

The CLC was something I think FPA Australia committees would benefit from in the future. The openness and encouragement to ask questions delivered a feeling at the end of the workshop that the understanding of the process was more equally understood. Ultimately the process was therefore likely to be more respected.

Jim joked to those in attendance that I'd easily travelled the furthest to attend and that sometimes the path to releasing a standard can seem like a similar journey. I guess that reaching your destination almost always has obstacles, and while NFPA has

confronted and overcome most of these, solidarity in a process makes this easier.

The exposure to NFPA served several outcomes from my perspective. It demonstrated that fire protection and safety remains a global issue and despite the First World environment that our respective countries enjoy, the need to constantly monitor and evolve remains relevant, even for an organisation as large as NFPA. Human nature on the whole appreciates and seeks comfort in the benchmarks set by our peers and associations such as ours play a valuable role in championing these benchmarks to a wider audience.

The possibilities available to FPA Australia to develop its contribution across technical services, training, education, certification schemes and representation are vast. Although there are different legislative frameworks confronting FPA Australia compared to NFPA, these should not be viewed as roadblocks to expanding the reach and effectiveness of our association. Instead, FPA Australia must rise to the challenge and continue to proactively seek to increase its brand and profile, supported by a committed membership and staff, producing quality services and respected opinion.

FPA Australia is preparing to implement a new governance policy regarding the development of all technical correspondence. This policy will embrace the traditional contribution FPA Australia has made

NFPA is training people in the application of NFPA documents whereas FPA Australia currently trains people in work practices.

to the development of Australian Standards and other technical documents. However, it will also encourage and expect the development of our own technical documents to complement and interpret existing legislation and provide guidance for work practices in the fire protection industry. The newly released Position Statement on the selection of residential smoke alarms is an early example of this work. My visit to NFPA and feedback from members to date has reinforced to me that this is a giant step in the right direction. Hopefully I will be in a position to update the membership on the details of this policy in the next issue of *Fire Australia*.

Until then, I hope to draw on these experiences, shared with our colleagues at NFPA, and maintain the relationships established to deliver on FPA Australia's vision.

FIRE AUSTRALIA 2011

The essentials of the Future: Education and Maintenance

Fire Australia 2011, the premier fire protection industry conference and exhibition, will this year focus on education and maintenance. Considered essential for the future development and stability of the industry, these themes will explore current issues, address potential problems and discuss the scope of practices going forward. The call for papers is currently open, and the committee is accepting submissions in line with the conference theme.

The annual conference attracts key personnel, peers and significant representation from businesses, government and associations. Each year sees both repeat delegates and new industry members congregate, network and socialise at the conference, providing an excellent opportunity to meet clients and colleagues face to face.

With speakers from across Australia and overseas, the organisers aim to ensure all presentations are contemporary and current, affording all delegates additional knowledge

and information. With a single stream of presentations, all delegates will be present for every speaker. A new addition to the program will be the inclusion of breakout workshops, permitting attendees to discuss and provide feedback on topical issues.

The conference will be held in the Adelaide Convention Centre, South Australia, from Wednesday 16 to Friday 18 November 2011. Housing all aspects of the conference it is idyllically located between the city's CBD and the banks of the River Torrens. This centre ranks as one of Australia's best convention centres, offering environmentally friendly energy, lighting and materials. The dates of the event are well suited to provide delegates the opportunity to stay for the weekend in Adelaide or the surrounding area.

The program will incorporate two-and-a-half days of presentations, workshops and social activities, including a cocktail reception, conference dinner and farewell lunch ensuring plenty of

networking opportunities. There is also a partner's program that provides three days of activities exploring the Adelaide area. This program also includes all the social aspects of the conference.

Sponsorship and exhibition opportunities are also now available for 2011. This year will see the largest exhibition *Fire Australia* has ever seen, with over 60 booths available, a meet the speaker lounge, internet kiosks and café style catering. There are plenty of high exposure locations but those wanting multiple booths are advised to book early to avoid disappointment.

This year also sees a wider range of sponsorship options for organisations to affiliate themselves with the conference and receive varying levels of exposure. Primarily there are now three levels of major sponsors, Silver, Gold and Platinum, plus the addition of lunches, tea breaks, lanyards and the internet kiosks. The organisers believe there is now a sponsorship opportunity to suit everyone's budget and marketing objectives.



Registration for the conference will be available shortly, with **early bird discounts available** until Friday 14 October 2011. Each registration includes full access to **all sessions**, admittance to the welcome **cocktail reception**, conference **dinner** and farewell **lunch**, plus a **delegate's satchel** including copies of all the presentations.

For updated information and to download the various brochures, visit the conference website: www.fireaustralia.com.au



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Better understanding needed of legal risks from fires

By Michael Eburn and Stephen Dovers

Fire agencies and the community need to understand the limit of the law as it applies to fire planning and emergencies and to advocate for reforms to ensure that the legal system does not impose undue burdens on communities that must live with the risk of fire.

Conflicting legal requirements and fear of litigation, may impede decision-making at all stages of the “prevent, prepare, respond and recover” cycle of hazard management.

This article reports on the preliminary outcomes of research to identify the true impact of law upon fire management and community resilience and identifies the next stage of the research. It discusses how fire agencies may assist in identifying legal impediments to effective fire and emergency management.

Our Bushfire CRC research has reviewed the findings of post-event inquiries, judicial decisions and insurance claims to identify how law is applied to the fire ground and to determine if legal principles are an impediment to effective fire management.

Laws that restrict the ability to clear vegetation, prima facie, conflict with legal obligations to reduce fire risk. Statutory obligations to respond to fire events are restricted by other obligations to ensure health and safety. Fear of legal liability may hinder decision-makers and individuals.

Our research is identifying how these competing interests can be balanced in the most effective way, to ensure that the law and its processes do not unduly hinder the community’s ability to live with the risk of fire. The research seeks to separate fact, fear and fiction regarding law and its impact on fire management.

Preliminary research suggests that the area of law

and emergency management is surrounded more with urban myth and confusion rather than actual, clear evidence of a problem. Claims of inconsistencies or legal impediments to preparation or response appear, more often than not, to be examples of misunderstanding of the process, or a belief the law is too costly, time consuming or complex.

As the next step to identify how the law may impede effective emergency management, this research looked at the extent of litigation and claims for compensation arising out of bushfires. Publicly available court judgments across Australia were reviewed to identify cases that dealt with liability for starting, or failing to contain, bushfires. The research identified that, in the 79 years between 1931 and 2010, fires subject to litigation that resulted in a judgment by a court occurred in just 14 of those years.

A review was also undertaken of the claims files maintained by the New South Wales Treasury Managed Insurance Fund dealing with claims for compensation made against the NSW Rural Fire Service. In the period 1989 to 2010, the Managed Fund dealt with 263 claims for compensation, of which 28 (or 10.6 per cent) were subject to court litigation.

Despite responding to, on average, 53,000 fire calls a year, the Australian fire agencies have not faced a large amount of litigation. The apparent trend is, however, that post-fire litigation is increasing and the target of the litigation, the nature of the defendants and claims made are changing.

Across Australia, in the 64 years between 1925 and 1988, fires led to litigation in only seven years; an average of one case every nine years. In the 22 years from 1989 to 2010 there was an average of

Years in which fires led to court action in Australia

	Defendant, other than electricity authorities	Electricity authorities	Land management and/or firefighting authorities
1925	✓		
1933	✓		
1961	✓		
1968	✓		
1977		✓	
1978	✓		
1983	✓	✓	
1991		✓	
1995	✓		✓
1997	✓		✓
2001			✓
2002		✓	
2003		✓	✓
2009		✓	✓

one case every 3.2 years. Day-to-day or routine fires continue to be dealt with without litigation, though there is a constant 'trickle' of claims for compensation for small-scale damage caused by the actions of the fire authorities. Some of these claims are met for pragmatic reasons, some are denied but most do not end up before a court. Significant fire events, such as the 2009 Victorian Black Saturday fires on the other hand, now trigger litigation almost before the fires are extinguished.

Alongside the increased frequency of claims, the number and type of defendants has also grown. Cases were originally brought against landowners for negligence in starting or failing to contain fires. In 1977 actions were commenced against electrical authorities. In 1995 fire and land management agencies first appeared as defendants, being sued over their management of fuel loads and their response to major campaign fires.

Our research is the first step in identifying ways to 'mainstream' legal processes. As learning organisations, agencies need to be willing to receive complaints and criticism in order to learn. In some cases they have to make amends for injury, loss or damage that has been unnecessarily caused. But the processes to resolve these issues are long, arduous and painful. Cases can last years and even when they are resolved with no finding of liability, the emotional costs to members and the service, and people affected by the fire, can be a cause of further distress. These burdens can also be felt in post-event inquiries such as coronial proceedings and royal commissions.

Bushfire CRC researchers are conducting end user meetings to demonstrate the true legal risk that fire agencies face and to identify policy alternatives that will allow fire agencies to remain as accountable learning institutions without undue cost to the service or to the volunteer ethos upon which the community depends.

In the next stage, the research will look at how volunteers and fire managers see their role and look at the impact law and legislation has on their ability to prevent, prepare for and respond to fire.

Researchers from the Bushfire CRC will be asking fire agencies and volunteers for their experiences with the law and whether the fear of legal consequences impacts upon fire management decisions or people's willingness to volunteer.

Identifying how law impacts upon fire management will allow the researchers, and the Bushfire CRC, to advocate for reforms to ensure that the law and its processes do not increase our community's vulnerability to fire.



Claims for compensation against the NSW Rural Fire Service

In the period 1989 to 2010 the NSW Rural Fire Service attended 184,888 fire calls and received 263 claims for compensation.

- Between 21 and 31 per cent of claims related to firefighting operations;
- Between 25 and 35 per cent related to hazard reduction burns;
- 27 per cent related to motor vehicle accidents involving fire appliances and five per cent related to claims arising from other activities;
- 13 per cent were for personal injury;
- 84 per cent were for damage to property;
- 11 per cent were made by members of the Rural Fire Service; and
- Only six per cent were taken to court. That means there was one court case for every 10,875 fire calls.

Michael Eburn
talking about fire law.

ABOUT THE AUTHORS

Dr Michael Eburn is Senior Research Fellow with the Fenner School of Environment and Society at the Australian National University and the ANU College of Law. Professor Stephen Dovers is Director of the Fenner School. This article is about preliminary work on mainstreaming fire management into law and policy; a research project conducted as part of the Bushfire CRC Extension Understanding Risk research program.

VOLUNTEERS RETURN FROM CANBERRA

Steven Myers is a member of CFA and attended the recent National Emergency Management Volunteers Summit in Canberra. This abridged article appears in full on the CFA Connect website and other sites and publications.

A delegation of CFA volunteers and staff has arrived back from the 2011 National Emergency Management Volunteers Summit in Canberra, which coincided with the United Nations' International Year of the Volunteer Plus 10.

CFA was one of 47 emergency service agencies represented at the 450-person summit, officially opened by the Governor-General Her Excellency Quentin Bryce, alongside agencies such as the NSW Rural Fire Service, State Emergency Service, Surf Life Saving Australia and St John's Ambulance.

This was the third National Emergency Management Volunteers Summit hosted by the Australian Government Attorney-General's Department and provided an opportunity for current and future leaders of volunteer emergency services to discuss priority areas for the sector and provide possible solutions in the form of recommendations.

The conference theme was 'The Future Is In Our Hands – Partnerships, Experiences and Solutions' with an emphasis on the younger generation. Social media, including Facebook and Twitter, was incorporated real-time into the summit program, adding another level of discussion to the summit as well as involving volunteer members that could not physically attend.

There were 17 presentations over the two-day conference addressing topics such as inter-agency training partnerships, national transferability of

qualifications, challenges to volunteering, young volunteers as leaders of today and tomorrow, modernisation of volunteer recognition schemes, respecting volunteers' time, engagement through social media, public perceptions of volunteers versus paid emergency service workers, diversity in recruitment and other challenges for the sector.

CFA Executive Manager of Operational Training and Volunteerism, Lex De Man, joined the CFA delegation to the summit and was extremely impressed with the calibre of the representatives selected by each district. "Our delegates conducted themselves with enormous professionalism," said Mr De Man. "They actively contributed to the open forum discussions and breakout sessions, and did themselves and the organisation proud whilst shining light on the CFA brand at a conference of national significance."

Delegates attended a formal dinner in the Great Hall of Parliament House where Stuart Diver, the sole survivor of the 1997 Thredbo landslide, presented on resilience in the context of the life-changing 65-hour entrapment that he survived.

Roy Peterson, 21, of District 13, said it was a memorable experience.

"It was just amazing to be in Parliament House, with Stuart Diver, and a room full of emergency service volunteer leaders from across Australia," the 4th Lieutenant of Kallista-The Patch Fire Brigade said.

"It will be one of those moments in life I'll never



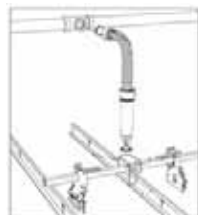
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forget. The next time I'm on the end of a rake-hoe on a strike team, in 45 degree heat and feeling like giving up, I think my memory of Stuart Diver's persistence will help me power on and get the job done."

District 10 Group Officer and Captain of the Churchill Fire Brigade, Steven Barling, excelled on stage as part of a volunteer panel question and answer session to share his experiences and insights as a CFA volunteer firefighter of almost 25 years with all 450 of the summit delegates.

VFBV Executive Officer, Adam Barnett, also attended and was particularly impressed by our young CFA volunteer delegates. "CFA was one of the only volunteer emergency service organisations in Australia that gave due credit to their younger members, considering a major theme of the summit was The Future Is In Our Hands.

"Half of our delegation was under the age of 25, which provided the right mix of old-school knowledge and wisdom with the fresh enthusiasm of our young volunteer leaders. We need to give our younger members more leadership roles, not just token opportunities.

"It's not helpful throwing young members in the deep end and then criticising them when they do things differently. We need to see more senior members putting their Incident Controller reflective tabards on to competent young firefighters and mentor them through the process whilst in a Deputy Incident Controller tabard. We also need to involve them in all facets of our organisation.

"It's imperative that we do this so there is a seamless leadership transition between generations of CFA. If we can maintain their interest, the wisdom of our older members can be transferred to our fresh and enthusiastic younger members to help secure CFA's future."

Twenty-year-old 3rd Lieutenant from the Torrumbarry Fire Brigade, Tyson Williams, of District 20 said, "When I attended the Volunteers Summit, it helped me to see that CFA compares pretty well on the national scale. Not that I think we shouldn't strive for better, but I think it's helpful to see that CFA as a volunteer emergency service is leading the way in training, providing staff support, updating equipment and embracing technology.

"I think it's helpful to get that national perspective, because otherwise it's easy to get stuck with a small-town view and not appreciate that here at CFA we're doing things pretty well."

Nicki Lund of the Eildon Fire Brigade in District 12 said, "The recommendations from the Summit are currently being compiled into a report by the Attorney-General's Department and will be tabled with the Hon Robert McClelland MP, the National Emergency Management Committee, the Australian Emergency Management Volunteer Forum and the various volunteer emergency service stakeholders.



Guest speaker Stewart Diver, right



Northern Territory group

Following the summit...

By Judy Gouldburn, Manager Human Resources, AFAC

The Australian Emergency Management Volunteer Forum (AEMVF) met on 8 and 9 of June. Number one topic on the agenda was a follow-up discussion of the Volunteer Summit. Feedback has been very positive, however all members agreed that there is a need to ensure that the key messages have been captured and are actioned. The work of AEMVF, as a result of the summit, will include a focus on: engaging young people and those from culturally and linguistically diverse communities; embracing technology; leadership development; and, interoperability.

The AEMVF will provide feedback to the National Emergency Management Committee on the "National Action Plan for the Attraction, Support and Retention of Emergency Management Volunteers". In this plan, AEMVF seeks to incorporate key activities and actions as a result of the Volunteer Summit.

The AEMVF would like to thank the immense commitment of the delegates, the majority of whom were volunteers, who attended the summit during a normal working week; many reached into their own pockets and gave not only their time, but their commitment and enthusiasm. It was inspiring to see.

Judy Gouldburn, Manager Human Resources, Australasian Fire and Emergency Service Authorities Council (AFAC). AFAC represents Volunteer Fire Agencies on AEMVF.

AEMVF was formed as a result of a recommendation from the National Volunteer Summit held in Canberra in October 2001, as part of the International Year of Volunteers.

The purpose of the Forum is to provide a national forum representative of the volunteer emergency management sector, to facilitate better communication between the organisations within it, and to provide advocacy for the sector.

More information on AEMVF can be found at www.aemvf.org.au

"I am hopeful that these recommendations will lead to new initiatives across the volunteer emergency services sector, coupled with some Australian Government funding.

"Perhaps resources could be well spent on a national skills database, inter-agency training initiatives, a culturally and linguistically diverse engagement strategy for the sector, a youth development strategy and a national communications initiative that helps clarify community expectations of emergency service volunteers, whilst assisting with our sector-wide recruitment and recognition agenda."



IMPROVING FIREFIGHTER HEALTH and SAFETY

By David McLoughlin, Communications Officer, Bushfire CRC

Firefighter taking part in rake hoe test.

Each year, thousands of Australasian career and volunteer firefighters battle bushfires in both rural and rural-urban interface areas. In doing so, they face numerous hazards, including heat, smoke, dust, noise and chemical agents. Their work often requires long working hours with periods of high-intensity physical labour. It all combines to place considerable physiological, psychological and emotional strains on a firefighter, which may result in fatigue, impaired judgement, unsafe behaviour, accidents, injuries and, in very rare cases, death.

The health and safety of firefighters is central to safeguarding the public from the annual risk of bushfires. There has been considerable work done over the past seven years under the Bushfire CRC project Firefighter Health and Safety, much of it undertaken by a team at Deakin University, Melbourne, led by Dr Brad Aisbett, a lecturer at the School of Exercise and Nutrition Sciences. Volunteer and paid staff, primarily from fire-tanker based rural fire agencies, participated in the research.

“The health and safety of Australian firefighters is essential in preparing for and suppressing bushfires,” says Dr Aisbett. “Our Bushfire CRC research examined the major health and safety risks which threaten today’s volunteer firefighting community and explored potential interventions that may help to negate those risks.”

Recent statistics indicate that approximately 220,000 people act as volunteer members of Australia’s rural fire agencies. As they are the backbone of the nation’s bushfire defences, dedicated research devised to preserving their health and safety is vital for the sustainability of this service, Dr Aisbett adds.

A review of injury statistics from three fire agencies in south-eastern Australia found the leading causes of on-duty firefighter injuries to be musculoskeletal strains and sprains, smoke exposure and heat stress.

“Considering the impact that fitness levels could have on the firefighter population and subsequent bushfire management, the fitness levels of Australian firefighters are not well documented,” Dr Aisbett says. “The small amount of research into this area suggests that the fitness of the firefighter population is no better than that of the general population for the corresponding sex and age group.”

To determine the required fitness levels of rural firefighters, the level of cardiovascular fitness associated with their bushfire suppression duties needs to be determined, he says. Fire agencies that can identify the cardiovascular fitness demands of key fire ground tasks are able to recommend the fitness levels their firefighters should aspire to in order to complete their duties safely and productively.



The American College of Sports Medicine (ACSM) states that cardiovascular fitness is defined by the frequency, intensity, duration and type of activity performed. The Bushfire CRC research team sought to quantify the ACSM cardiovascular fitness factors with the aim of providing recommendations for the level of cardiovascular fitness necessary for firefighting duties.

Thirty-six volunteer firefighters (with an average of 21 years experience) were surveyed in order to identify the type of tasks performed during bushfire suppression. The most physically demanding tasks they identified included advancing and repositioning 38 millimetre charged hoses and using hand tools such as a rake hoe or axe to create firebreaks or during blacking-out activities.

Frequent, important and physically demanding tasks are often termed critical to job performance. The critical tasks highlighted during the survey were characterised by carry, drag and dig actions. Those taking part believed that the critical tasks challenged firefighters' endurance and strength-endurance capacities.

The research showed that bushfire suppression duties comprise intermittent periods of intense work separated by longer periods of lower level labour and/or rest. The research also showed that the work rate for 'critical' fire ground tasks reaches between 70 per

cent and 95 per cent of firefighters' maximal age-predicted heart rate.

"This is classified as 'hard' to 'very hard' work by ACSM," Dr Aisbett says. "Across a shift of 10 hours, firefighters' heart rates were found to reach 54 per cent of their age-predicted maximum and peak at 92 per cent."

Research investigating the durations spent at different work intensities is still in the preliminary stages. Analysis of the existing data suggests that 'hard' work efforts during bushfire suppression are sustained for between 20 and 180 seconds at a time and occur approximately every 13 minutes across a day-long shift. During emergency bushfires, firefighters' heart rates have been shown to be above 70 per cent of their maximum for 15 per cent of their shift, or nine minutes every hour.

Dr Aisbett says most volunteer firefighters do not undertake fit-for-duty testing before they are deployed to the fire ground. One exception is the Australian Capital Territory Rural Fire Service, which has implemented two tests, the Pack Hike Test used to screen personnel prior to interstate deployments and the Field Walk Test (FWT) used to screen personnel for their suitability to fight fires within the ACT.

Research was undertaken comparing the completion times for both tests in comparison to the completion times of key fire suppression duties to establish whether these tests accurately represented firefighters' work rate during critical bushfire fighting tasks. Firefighter completion times on the tests were found to be moderately (though statistically significantly) correlated with the time taken for the critical firefighting tasks.

"Generally, however, the two tests over estimate the work intensity of routine tanker-based bushfire fighting tasks," says Dr Aisbett.

The over estimation of work intensity findings, coupled with the differences between the core movements and actions of the two tests (prolonged load carriage) compared with the movements and actions for tanker-based bushfire suppression (carry, drag, dig, rake), suggested the two tests may not adequately reflect the inherent challenges of fighting bushfires from fire tankers.

"Tanker-based agencies could consider devising and trialling fit-for-duty tests that are more representative of actual work demands than the Pack Hike Test and the Field Walk Test."

Heat stress has been shown to be one of the top three leading causes of injury during fire suppression. Bushfires most often occur in hot, dry weather and produce extreme radiant heat. Heat stress caused by the weather conditions and the fire is exacerbated by a firefighter's own exertion and personal protective clothing.

The combined heat load faced by rural firefighters increases their risk of developing heat exhaustion, which may render firefighters incapable of continuing their work. Heat exhaustion can be prevented or lessened by increasing cardiovascular fitness, losing

Jenni Raines conducting a blood test for her hydration research.



excess body fat and acclimatising to work in warm to hot weather before the fire season.

A member of Dr Aisbett's team, Bushfire CRC PhD candidate Jenni Raines of Deakin's School of Exercise and Nutrition Sciences, conducted extensive research into the hydration of firefighters and how getting enough fluids could help stop heat exhaustion.

Perhaps surprisingly, the results showed that firefighters experienced no real benefit from drinking a prescribed 500 millilitres fluids before their shift. There were no differences in hydration status between two experimental groups, one of which was required to drink 500ml of water before their shift then drink as they felt during their shift, the other told to drink as much or little liquid as they desired.

Firefighters from both groups arrived on shift in a dehydrated state, but both groups, as measured by blood tests finished their shift in a hydrated state.

Ms Raines says the findings raise a number of questions for industries where fluid prescription and hydration monitoring are considered important.

"Firstly, firefighters are returning from their shift hydrated after consuming fluid at their own pace, which undermines the need for formal fluid prescriptions. Arriving on shift dehydrated appears to have no effect on firefighters' productivity and physiology early in their shift – so of what benefit is there in knowing a firefighter's initial hydration status?"

"Consuming additional volumes of fluid does not provide conclusive benefits to firefighters' physical activity, distance covered on foot, or their cardiovascular strain, however it may buffer the rise in core temperature during prolonged work in mild to warm weather."

Based on her work, she recommends that fire agencies, during work in mild to warm weather, provide free access to both sports drinks and water for drinking, advise firefighters to consume fluid

according to the dictates of thirst, not to rely on urinary markers to determine a firefighter's hydration status and to continue awareness campaigns promoting drinking fluid for health and performance.

The Bushfire CRC work being undertaken by Dr Aisbett's team has been well received by fire agencies.

"The work done by the Deakin University team and their volunteer subjects is a step forward in improving firefighter workplace safety," says Tony Blanks, Manager, Fire Management Branch, Forestry Tasmania. "The research will help both employers and firefighters to resolve the apparently contradictory advice on the topic, until now mainly derived from studies conducted on people undertaking activities of little relevance to firefighting tasks."

And Robyn Pearce, Director Human Services, Tasmania Fire Service, says thanks to the Bushfire CRC research, fire agencies are developing a sound scientific foundation for the development of future strategies to minimise the impact of fitness-related hazards facing firefighters.

"We have known for many years that we needed to understand more about the impact of the physical work, heat, hydration, fatigue and fitness on our people. Already agencies are using the outcomes of the research to start educating our people and implementing wellness strategies to help them manage their own fitness and wellbeing."

Research into firefighter health and safety continues under the Bushfire CRC extension program under program three, Managing the Threat.

FURTHER INFORMATION:

Fuller accounts of the work undertaken for the firefighter health and safety project can be found on the Bushfire CRC website, especially the Fire Notes section: <http://www.bushfirecrc.com/firenotes>

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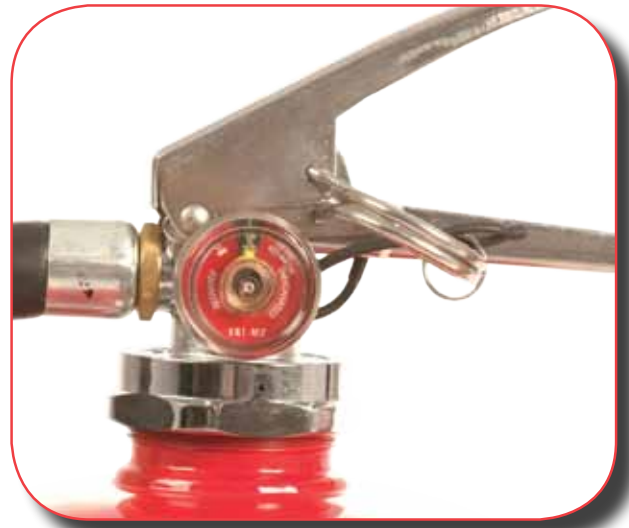
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Principles of fire safety: part 4

OPERATION OF SMOKE, GAS & FLAME DETECTORS

The fourth instalment of the principles of fire safety series continues to focus on fire detection equipment including the common smoke detector.

By Russ Porteous, CEO, Maintenance Essentials

Smoke detectors

Smoke detectors are recognised as the most common method of fire detection for life safety throughout the world. There are five types of smoke detection available in Australia with the most common types being photo-electric and ionisation. The remaining three types – projected (optical) beam, aspirating and video smoke detection – are generally used for specialist applications.

Before we go on to explain the operation of the ionisation and photo-electric smoke detectors, it is important to explain the inherent features of the overall design of the detector enclosure. These detectors are designed to regulate the flow of air through the detector and eliminate or reduce the possibility for ingress of foreign matter and insects. These features help to reduce false alarms and improve the performance of smoke detectors.

An important consideration in selecting the appropriate type of smoke detector are the following factors: fuel, speed of growth, flame and type of smoke produced. For example, ionisation smoke detectors respond well to fast flaming fires (normally associated with invisible smoke), while photo-electric smoke detectors respond well to slow smouldering fires (often associated with visible smoke).

Ionisation smoke detector An ionisation-type smoke detector is the earliest form of smoke detection originally developed by Swiss physicist Walter Jaeger in 1930. The ionisation smoke detector operates on the principal

that, under normal circumstances, air in a chamber is ionised by the radioactive element (Americium 241) which causes the free and equal flow of electrons between two adjacent electrodes. When smoke particles enter the chamber between the electrodes, the normal flow of electrons is interrupted causing an alarm actuation.

The ionisation chamber is very sensitive to temperature and air pressure; this is overcome by a second reference chamber.

Ionisation smoke detectors require a very low power to operate and traditionally have been the most regularly used residential smoke alarms. Ionisation smoke detectors are most effective for invisible particles of combustion such as those found in fast flaming fires.

For applications where slow smouldering fires are likely it is normally recommended to use a photo-electric smoke detector.

Photo-electric smoke detector Photo-electric smoke detectors are continuing to gain momentum as the preference due to their early fire detection in life safety applications. As the name suggests, the photo-electric smoke detector is an optical device comprising a transmitter and receiver, mounted inside a black chamber with the transmitter and receiver in an offset arrangement. Under normal circumstances, the transmitter emits a focused light beam into the chamber. The projected light is absorbed by the black walls of the chamber and the receiver receives no light.

When visible smoke particles enter

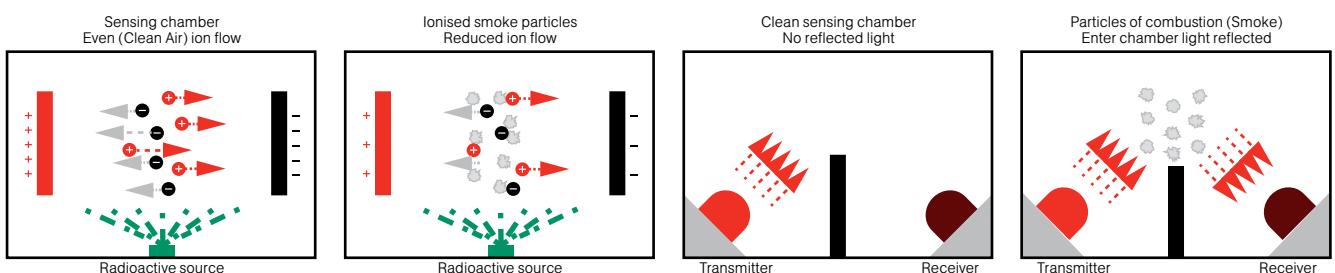
the chamber the projected light is scattered in all directions. When this scattered light is detected by the receiver it will activate an alarm.

Photo-electric smoke detectors are more effective with visible particles of combustion; however with modern electronics their performance to very low quantities of smoke can be improved while maintaining a relatively consistent immunity to deceptive phenomena.

It has been historically common to use an alternating combination of ionisation and photo-electric smoke detectors in the path of travel to an exit due to their distinct performance characteristics. A proposed alternative to this arrangement is the use of a photoelectric smoke detector combining a heat detector as a multi-sensor detector for improved performance for fast flaming fires.

Projected (optical) beam smoke detector A projected beam smoke detector (beam detector) also operates using a combination-focused light transmitter and light receiver. Some modern systems integrate the transmitter and receiver into a single housing, with an opposing retro-reflective surface (prism) to return the beam to the receiver. A beam detector operates on the principal of obscuration being that an alarm state occurs when the light beam is attenuated (reduced or interrupted) by the presence of smoke.

Beam detectors are designed to operate over long distances typically up to 110 metres and require a straight uninterrupted direct line of sight.



Typical uses for beam detectors include warehouses, hangers and so on with long spans where multiple-point type smoke detectors would be considered impractical.

Aspirating Smoke Detectors An aspirating smoke detector (ASD) is an air sampling device that comprises four main components:

- A network of pipes comprising one or more holes to draw sample air;
- A calibrated aspirator;
- A particulate filter; and
- A calibrated smoke sensing device.

Aspirating smoke detectors generally work on the same principal as photo-electric smoke detectors. When smoke enters the sensing chamber, light is scattered by the smoke particles. This scattered light is then detected by a sensitive light receiver.

Aspirating smoke detectors are typically more sensitive to a wide range of smoke particulate size and are often used as a very early form of smoke detection. Aspirating smoke detection systems may also include features and electronics to reduce the effects of deceptive phenomena.

Video Smoke Detection Video smoke detection (VSD) is a relatively new technology and is primarily used for asset protection. Video smoke detection comprises three main components: a video camera, a dedicated computer and specialist software for image processing. This design means that the existing building video cameras may be used to provide the source video signal for software processing.

The processing software works by identifying the tell-tale pluming movement of heated smoke or the obscuration of recognised features within the video frame. The software is calibrated for a standard still image. When smoke is present within the video frame or a smaller defined section of the video image, the software detects the movement of the smoke within the frame. This movement is then analysed by the software using a proprietary

algorithm. If the movement is recognised by the software as smoke an alarm signal is activated.

This method of fire detection is not currently approved as a primary method of fire detection recognised by Australian Standards. This has led to the technology being sold as niche product for asset protection for large areas where traditional fire detection methods are impractical.

Gas detectors

One of the by-products of most forms of combustion is the gas carbon monoxide (CO). This colourless, odourless, tasteless and highly toxic gas is produced by incomplete combustion of carbon-containing compounds.

Carbon monoxide fire detectors are generally suitable for a broad range of applications where the use of traditional fixed point heat or smoke detectors may be impractical due to the presence of deceptive phenomena.

Carbon monoxide fire detectors comprise an electronic circuit and an electrochemical cell that produce a small electrical current in the presence of carbon monoxide. The electronic circuit is calibrated to a normal range of atmospheric carbon monoxide. When the concentration of carbon monoxide increases the current produced by the cell also increases which in turn creates an alarm signal.

Carbon monoxide fire detectors have a relatively short life span of five to ten years and should be maintained strictly in accordance with the manufacturer's recommendation for optimal performance.

Flame detectors

Flame detectors respond to the production of one or a combination of ultra-violet or infrared spectrums of electromagnetic radiation. These detectors are often used in situations where there is a potential for the rapid development of fire such as flammable liquids. These detectors

comprise an electronic circuit with an electromagnetic radiation receiver. Flame detectors are actuated when they receive electromagnetic radiation from one or more defined wavelengths received according to their design in the ultraviolet or infra-red spectrum.

One of the methods to improve the performance of flame detectors and reduce the effect of deceptive phenomena and false alarms has been to combine both ultraviolet and infra-red technologies into the one system or two or three separate wavelengths in the infra-red spectrum.

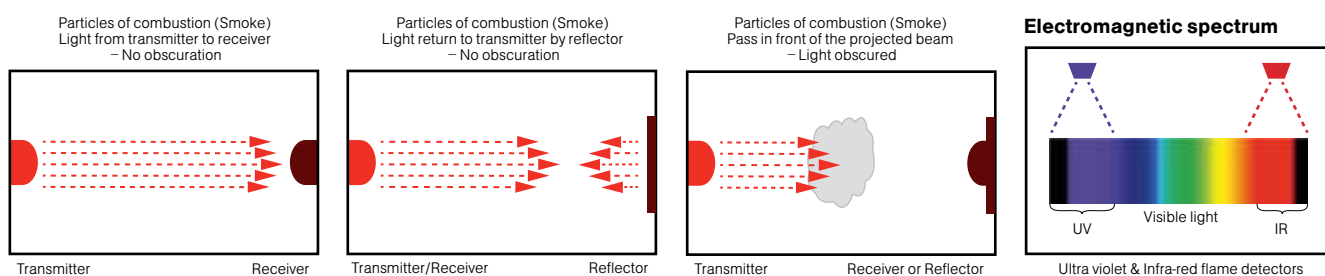
Multi-sensor fire detectors

Over the last 20 years there has been a dramatic improvement in the ability of manufacturers to incorporate two or more of the technologies discussed this article. This combination of technologies has occurred firstly to improve the performance of an existing method of fire detection, and secondly, in some cases, to reduce or eliminate the effect of deceptive phenomena causing false alarms. Multi-sensor detectors are not a panacea and must operate according to their approval. The combination of multiple sensors using clever algorithms may suppress short-term deceptive phenomena.

ABOUT THE AUTHOR

Russ Porteous is the CEO and one of the founders of Maintenance Essentials. He has over 22 years experience in the installation and maintenance of fire and essential safety measures. Russ is an active contributor to a variety of Australian Standards, including AS 1851 for the Maintenance of Fire Protection Systems and Equipment. He speaks regularly at conferences and trade shows as a subject matter expert. You can follow Russ online via [Twitter@rport](#) or his popular fire safety blog.

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Australia supports New Zealand and Japan with **USAR teams**



1



2



3

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4

A task force of 72 NSW emergency specialists was deployed to New Zealand within 24 hours, following the 6.3 magnitude earthquake that caused massive devastation in Christchurch, on 22 February 2011. This initial team rescued a survivor from the wreckage of the Pyne Gould Corporation building.

The task force comprised 52 personnel from Fire and Rescue NSW (FRNSW), eight SCAT paramedics from the Ambulance Service of NSW, two doctors from NSW Health, two NSW Police Force officers, four Department of Services, Technology and Administration engineers and four ACT firefighters.

Three days later a 74-member task force, comprised of emergency workers from around Australia, formed a second deployment to New Zealand to relieve crews who had been working around the clock during the Christchurch earthquake operation.

Queensland, Victoria, South Australia, Tasmania, Western Australian, the Australian Capital Territory and the Northern Territory provided rescuers, paramedics, safety officers, engineers, hazmat experts and logistics and communications officers, led by FRNSW.

An Australian-USAR team consisting of 74 personnel and two rescue dogs was also deployed to Miyagi (Minami-Sanrikucho) in Japan to assist in the rescue and recovery effort following the earthquake and tsunami.



5



7



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1. Centre: Fire and Rescue NSW Commissioner, Greg Mullins, with members of the Australian USAR team. A park bench and cross was built by the team in their downtime, using wood salvaged, with permission, from the Christchurch Cathedral.
2. Aftermath of earthquake and tsunami in Japan.
3. In amongst the rubble in Christchurch, NZ.
4. The Australian USAR team in Japan included personnel (and dogs) from all over Australia.
5. On the way to Japan...
6. ...and once there, the Aussie team donated all tents, medical supplies and anything else useful, on their return to Australia.
7. There was plenty of snow for the team to combat.

Supply of extinguishing agent FM-200



FPA Australia is urging its members to forecast their supply demands of FM-200 for the remainder of the year and to hold a small amount of stock to offset any further shortages of the agent. They should also keep in regular contact with the members listed on this page who can supply the agent.

In March 2011 the Australian fire protection industry was made aware of shortages of the raw material (fluorspar) essential for the production of a wide variety of fluorine containing products, including the extinguishing agent FM-200.

To date there has been a continual allocation by providers of the extinguishant agent to support the ongoing demand. While the volume of FM-200 provided in 2011 by various providers to the market is comparable to historical levels, there continues to be insufficient levels to meet the current high global demand for the extinguishant agent.

“FPA Australia continues to consult with all providers and report back to industry regarding the possible disruption to the Australian market,” Scott Williams, CEO of FPA Australia, said.

“FPA Australia would again like to advise its members there are still avenues available for them to acquire the extinguishing agent despite the issues of supply.

“We are in regular contact with

industry suppliers and aim to keep our members properly informed of their options.”

In a June 2011 media release, Dupont states: ‘In some markets these supplies are being used to establish rumours of a Dupont withdrawal from the Fire Extinguishant business. Nothing could be further from the truth. Dupont remains committed to servicing and supporting the Clean Agent Fire Extinguishant market with fast, safe and effective fire extinguishant agents.’

All FPA Australia members are reminded that if you wish to acquire FM-200, companies and individuals are required by law to hold an Extinguishing Agent Trading Authorisation.

“Technicians who handle ODS and SGG extinguishing agents are also required by law to hold a current Extinguishing Agent Handling Licence,” Mr Williams said.

Members wishing to purchase FM-200 can contact the companies (right), who listed the extinguishing agent in stock.

Suppliers

Fire Protection Technologies

Patrick Harrington
1300 742 296

Kidde Australia

Daniel Wilson
0411 585 537

Wormald

Mark Brown
(02) 9638 8500

Chubb Fire & Security

Brett Staines
0401 779 139

Bulbeck Fire Suppression Systems

Peter Williams
0407 824 665

FOR MORE INFORMATION:

Contact Mark Murray, FPA Australia
Communications Officer,
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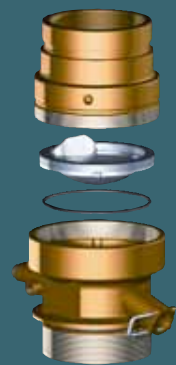
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Promoting the design of buildings that are fire safe and sustainable



Four students from the Worcester Polytechnic Institute (WPI) in the US were asked by FPA Australia to assist in developing an action plan to provide information on the benefits of creating buildings that are both fire safe and sustainable, to both the sustainable building industry and the fire protection industry. Below is a summary of their report.

By Michael Carter, Nathan Lee, Erik Oliver and Molly Post, Bachelor of Science students, Worcester Polytechnic Institute

The sustainable building and fire protection industries have differing interests and ideals that present challenges in new building construction. We interviewed fire protection and sustainability experts to explore different incentives for fire safety and sustainability, and found most experts supported a more holistic approach to building design. We recommended that FPA Australia increase its communication with the sustainable building industry and promote awareness about sustainability to the fire protection industry by adopting a definition of sustainability suited to fire protection.

Executive summary

Over the past several decades a sustainable building industry has emerged and grown quickly. The main goals of the sustainable building industry include using non-renewable resources efficiently, protecting the health of building occupants, and reducing waste that negatively impacts the environment (EPA, 2010). In order to encourage sustainability, certification systems such as the Green Star Rating Tool have been used to assess the level of sustainability in buildings. The Green Star Rating Tool evaluates buildings based on several criteria including energy, water and materials, but fails to mention fire protection.

However, there has been increasing discussion in the fire protection industry that some features of sustainable buildings create greater fire safety risks (Chow, 2005). For example, atria provide more natural light, but can pose fire hazards due to the spread of smoke in a short amount of time (Chow, 2005). The high ceilings of atria also result in ineffective sprinkler systems and smoke detectors (Chow, 2005). Certain types of insulation used to create more energy efficient buildings also provide structural support for thin steel walls. However, this insulation can melt in extreme heat caused by fires, degrading the structural integrity of the building. The building structure can sometimes be dangerous to firefighters as these weakened walls can result in the collapse of burning buildings (Tidwell, 2010).

One major concern is that if a sustainable building burns down, many negative environmental impacts are caused. There is much loss and pollution associated with a building fire; building materials are

lost and carbon emissions are released. After the fire, reconstruction of a building requires money, more building materials, and more carbon emissions.

While some sustainable building features can compromise fire safety, there are also fire protection measures which could be more sustainable. For example, according to Paul Verheijden from Integrated Fire Services, fire sprinklers in Victoria use approximately 500 million litres of water unnecessarily in testing every year. In addition, some fire extinguishing substances such as halon gases can be harmful to the ozone layer. Today, these halons are being phased out due to their hazardous effect on the ozone layer (Pitts, 2009). Overall, there has been little communication and interaction between the sustainable building industry and fire protection industry. Therefore, buildings have included design aspects that can sometimes lead to unintended consequences.

Project goal and objectives

Through discussions with regulators and designers of sustainable buildings, along with fire protection experts, we aimed to identify mechanisms to promote more awareness about fire safe and sustainable buildings. In order to accomplish the project goal, we pursued the following objectives:

- understanding the views of the fire protection industry;
- understanding the views of the sustainable building industry;
- identifying opportunities for collaboration between fire protection and sustainable design; and
- developing an action plan to promote communication between the two industries.

Methods and limitations

We interviewed 19 fire protection experts, three building code regulators, and two sustainability experts. Of the 19 fire protection experts, five had experience with sustainable building. These experts were mostly suggested by FPA Australia. Each interview lasted about one hour, and was conducted in a semi-structured way. We asked about challenges faced between the two industries, incentives for constructing fire safe buildings versus incentives for



Nathan Lee, Molly Post, Erik Oliver and Michael Carter.

constructing sustainable buildings, opportunities for better integration, the role of the Green Star Rating Tool, the Building Code of Australia and deliverables which could reach the most professionals in both industries. We had limited input from the sustainable building industry as most of our contacts were referred by FPA Australia. Since we interviewed a small number of experts from the sustainable building industry, it is possible the information we received does not reflect the community at large.

Findings

Several fire protection experts and sustainability experts believe that in order to construct a sustainable and fire safe building, all designers and engineers should be involved with the building design process from the beginning.

Instead of simply adding regulations and requirements to enforce strict policies, several fire protection experts recommended addressing the issue by encouraging more collaboration between the two industries during the building design process. By using a holistic approach, several fire protection experts feel that it would be beneficial for the fire protection industry and the sustainable building industry to collaborate early in the building design process. By working together in these early stages, several fire protection experts felt that it would be easier to sort out disagreements that may arise between the two fields. It was also explained by several building experts that it is much easier to alter a building in its initial stages.

Nearly all of the experts that we interviewed identified multiple drivers for sustainable buildings, including regulatory legislation, economic incentives, and social pressure.

Experts from both the fire protection industry and the sustainable building industry reported that sustainable building is very appealing to a wide variety of people due to the incentives that it offers. Several fire protection experts pointed out that the Building Code of Australia (BCA) includes Section J, entitled "Energy Efficiency." As a result of this recent addition to the BCA, buildings are required to meet these sustainability regulations. Many fire protection

experts see this as the government's way of promoting sustainability throughout Australia. A variety of experts also viewed the push towards sustainability resulting from economic and financial incentives. By achieving a higher Green Star rating, building owners have realised that they can charge higher rent from tenants. In addition, many building experts noted that a more sustainable building leads to energy savings, which reduces overall running costs over time. With certifications such as the Green Star Rating Tool, sustainability can be used as a marketing factor. Several fire protection experts expressed the view that people are moving towards more sustainable options simply to gain a positive public image. Some of the fire protection experts suggested that many of the large corporate companies are using sustainability as a marketing tool to promote themselves as a company that is doing the right thing. According to many fire protection experts, people feel a growing societal pressure to become more sustainable.

Most fire protection experts believe that there are few incentives for constructing fire safe buildings that go beyond the minimum requirements of the Building Code of Australia.

Several fire protection experts claimed that fire safety in buildings is often taken for granted in Australia. Most of the fire protection experts that we interviewed suggested that with the low chance of commercial fires, and the efficiency of the fire brigades, most people do not seriously consider the risks of fire. Numerous fire protection experts stated that it usually takes a catastrophe to cause people to be concerned about fire safety. As a result, fire protection experts sometimes have trouble convincing clients of the importance of fire protection. The BCA provides detailed regulations for fire protection. As long as the criteria outlined in the BCA are met, most fire protection experts explained that people do not usually try to exceed these requirements. Instead, fire protection experts see building designers working to meet the minimum standards at the lowest possible cost.

From a fire protection standpoint, the Green Star Rating Tool considers the individual characteristics that make a

building sustainable, but does not necessarily consider the lifelong sustainability of a building.

The Green Star Rating Tool includes many categories that determine the sustainability of buildings.

The idea behind the rating system is that those buildings that add more sustainable design aspects are rewarded with a higher number of green stars. Several fire protection experts we interviewed were concerned that during the design process the number of sustainable features sometimes becomes more of a priority than ensuring fire safety. Some experts even feel that the tendency is to go above and beyond in the area of sustainability, while little effort is dedicated to fire protection. Since fire protection ensures the lifelong sustainability of a building, several fire protection experts feel that the Green Star Rating Tool should consider fire protection as one of the criteria for rating buildings.

Both fire protection experts and sustainable building experts receive information primarily from their own journals and conferences with little interchange of ideas between the two industries.

Experts from both industries have expressed that they receive the majority of their information through journal articles and conferences. All of the experts agreed that the most effective way to educate both industries would be through these mediums. However, the industries currently draw on different journals and conferences and there are few common venues to encourage sharing of ideas and research. There was a general consensus among those interviewed that a conference including the sustainable building industry and the fire protection industry would be beneficial. This conference would establish more communication between the two industries and allow for debate and discussion.

Recommendations

Below, we present recommendations regarding the next steps that the FPA Australia might take to advance this conversation in Australia. These recommendations are aimed primarily at raising awareness about sustainability among FPA Australia members, and increasing communication between the fire protection and sustainable building industries.

We recommend that FPA Australia develop and promote a definition of sustainability for the fire protection industry. Through our interviews and background research, we heard several different views about the definition of sustainability. Based on conversations with fire protection experts, we have attempted to define sustainability with regard to fire protection to provide a starting point.

Sustainability within the fire protection industry involves application of fire safety systems and design measures that support and promote building characteristics that are environmentally friendly during the building's daily use. These systems and designs must reduce the fire risk and impact that

such characteristics and uses might contribute to throughout the full life expectancy of the building. Daily use characteristics include reducing harm to the environment by minimising energy consumption, water consumption, material consumption and fire risk.

We recommend that FPA Australia survey its members, to further explore the opportunities for integration and communication between the fire protection and sustainable building industries.

The goal of a survey would be twofold. The first objective would be to prompt fire professionals to think about the role of sustainability in the context of their work. The second objective would be to generate statistical evidence that FPA Australia can use to further awareness within the fire protection industry about sustainability and its impact on fire protection.

We recommend that FPA Australia host a conference for its members focused on the topic of sustainability, as well as a joint conference with professionals from the sustainable building industry to build consensus about integrating fire protection and sustainable building.

Many conferences are held each year by FPA Australia but none are dedicated solely to the topic of sustainability. We suggest that the first step for FPA Australia should be to organise a discussion through the format of a national conference in order to define what sustainability means for the fire protection industry. Once the fire protection industry obtains objectives for sustainability, fire protection experts will be in a better position to interact productively with the sustainable building industry. Following this conference, we suggest that a combined conference between FPA Australia and a sustainable building organisation will foster learning and understanding between experts in both fields. We propose that FPA Australia provide information at these conferences to both industries and provoke discussion and debate in a constructive manner.

We recommend that FPA Australia's website include more information about sustainability in the context of fire protection.

We recommend adding a link to FPA Australia's website to inform the fire protection industry about the opportunities for the fire protection industry to become involved in sustainability and actions that the fire protection industry can take to be more sustainable. We recommend that FPA Australia provide information on its website including:

- a definition of sustainability that is applicable to the fire protection industry;
- examples of other attempts to integrate sustainable building design and fire protection from around the world;
- a blog or interactive tool to allow experts to further discuss and debate;
- appendices A-D to allow experts in the field to compare specific technologies; and
- a link to this report.

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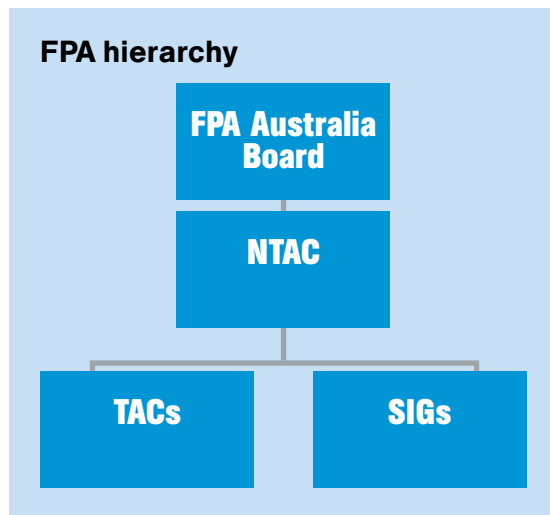
FPA AUSTRALIA TECHNICAL

By Ian Findlay, Technical Administrator, FPA Australia

FPA Australia's vision is to promote the protection of life, assets and the environment from fire and related emergencies. One of the major ways in which FPA Australia aims to achieve this is through a robust technical structure which allows for the association to draw on the expertise of its members to improve the industry.

FPA Australia employs a Chief Technical Officer and a Technical Administrator who in turn work with a number of committees to provide a strong technical presence in the industry.

The FPA Australia Board formed a National Technical Advisory Committee (NTAC) to manage and coordinate FPA Australia's technical efforts, predominantly through the management and coordination of Technical Advisory Committees (TACs) and Special Interest Groups (SIGs).



NTAC consists of a Chair, the Chairs of each TAC and SIG, the FPA Australia CEO and National President as well as up to two co-opted members. It meets quarterly to address technical issues raised through the TACs and SIGs as well as those from the FPA Australia office, the Board of directors and from members.

There are 11 (TACs) to cover the broad range of fire protection systems and equipment:

- TAC/1: Maintenance of Fire Protection Systems and Equipment;
- TAC/2: Fire Detection and Alarm Systems;
- TAC/3/7: Portable and Mobile Equipment;

- TAC/4/8/9: Fire Sprinkler and Hydrant Systems, Tanks and Fixed Fire Pumps;
- TAC/11/22: Special Hazard Fire Protection Systems;
- TAC/17: Emergency Planning;
- TAC/18: Fire Safety;
- TAC/19: Passive Fire Protection;
- TAC/20: Bushfire Safety;
- TAC/23: Tunnel Fire Safety; and
- TAC/T: Training.

The numbering, name and scope of these TACs relates to (but is not limited to) the Standards Australia committee which drafts the Australian Standards that cover that area.

The TACs are formed with knowledgeable volunteers from corporate and organisation members of the association. They raise and discuss technical issues, improving Australian Standards, legislation and other relevant documents and assist FPA Australia to form its position on such documents and issues. The TACs also assist the association by reviewing educational material covering the fire protection systems, equipment and services under their scope.

Like NTAC, the TACs meet quarterly and they do so prior to the NTAC meeting to allow for issues raised at the TAC to be discussed by NTAC.

The TAC and NTAC meetings are scheduled around the FPA Australia Board meetings so that when issues raised at NTAC (or at a TAC then NTAC) need Board attention this is addressed in a timely manner.

In addition to the TACs, there are also four SIGs that cover more specialised areas of fire protection that are either not directly covered by Australian Standards or which use standards from multiple areas for particular applications:

- Aviation SIG;
- Inspectors and Certifiers SIG;
- Marine SIG; and
- Residential Fire Protection SIG.

Like the TACs, SIGs are formed from knowledgeable members of the association, however they are not limited to corporate and organisation members, but are also available to individual members as well.

STRUCTURE



FPA Australia Chief Technical Officer, Matthew Wright.

The SIGs also help form FPA Australia's position on relevant standards, legislation and other documents as well as assist the association in educating users, consumers and providers about fire protection systems, equipment or services under their scope.

Given the nature of the SIGs, there is more ebb and flow to the work of these committees; therefore they can meet as little as once a year or as much as quarterly or even more frequently.

The TACs and SIGs form a strong resource base on technical issues which FPA Australia can draw from to benefit its members, the fire protection industry and users of fire protection systems, equipment and services.

Aside from a forum for technical discussion, improvement of Australian Standards and review of educational material, from the TACs and SIGs, FPA Australia provides representation to various technical committees and groups. Foremost, this includes the Standards Australia committees which cover the Australian Standards for fire protection. However, this also includes many other groups such as the Australian Communications and Electrical Alliance (ACEA) Cabling Advisory Group, the Victorian Plumbing Industry Commission Fire Sprinkler Water Efficiency Project committee and many others.

It is important to note that things are always

evolving and, as part of this, so is our technical structure. Last July the rules for the operation of TACs and SIGs were revised, with the technical committees becoming Technical Advisory Committees and some SIGs becoming TACs.

Now, 12 months on, with the addition of a Chief Technical Officer, it is evolving again to better harness the knowledge and ability of our TACs and SIGs and overall technical structure to provide our own FPA Australia documents.

The first of these is the Position Statement (PS01) on the Selection of Residential Smoke Alarms (see www.fpa.com.au).

This is the first of many documents to be developed under a Technical Development and Governance policy currently under development.

FPA Australia is grateful for the ongoing commitment and dedication of the volunteers that support its technical structure and looks forward to the future development of technical documents through these groups.

MORE INFORMATION

If you would like to find out more about the TACs and SIGs or how to get involved, please contact technical@fpa.com.au



The TACs and SIGs regularly meet in the FPA Australia Board room, creating a forum of technical discussion.

Facilitated workshops – benefiting experienced technicians and new learners

June this year marked a very special occasion for FPA Australia. It was the first time we have held a facilitated (training and assessment) workshop for the Certificate II in Asset Maintenance (Fire Protection Equipment).

By Lauren St Clair, Learning & Development Manager, FPA Australia

FPA Australia has been a Registered Training Organisation (RTO) for many years. During that time we have always provided our certificates II and III in Asset Maintenance (Fire Protection Equipment), and the various individual units of competency that fall under these qualifications, as self-study guides. We have maintained a register of qualified workplace assessors around Australia who have represented FPA Australia in assessing our students. In June this year we hosted the first of many sessions designed to complement our self-study materials with a face-to-face trainer to provide refresher training and full assessment in 12 units for the qualification.

Our pilot session took place in Adelaide, with ten technicians who had experience in Fire Protection but did not hold the Certificate II in Asset Maintenance (Fire Protection Equipment). One of our Registered Workplace Assessors, Brooke Batley, trained and assessed the participants using equipment generously sponsored by Firecorp SA Pty Ltd. All ten participants achieved their qualification.

Anyone, whether experienced or just learning the ropes, can benefit from a facilitated workshop. Experienced technicians sometimes lose sight of the qualities and needs of the customer. You do a job long enough and it begins to feel like second nature, but how do you know when you become a bit out-dated or take a few too many short cuts? I spoke recently with a participant from the Adelaide workshop who explained that, even though he had been doing the job for years, he still learnt new skills and was reminded to think about his work from the customer's perspective. He explained how he was more aware of the codes and standards now, and also was reminded about how important it is to maintain a professional image and

high standards, such as cleaning up after yourself when you have finished a job. During the workshop he completed units in Emergency Lighting and can now offer additional services to his regular clients.



New FPA Australia Learning & Development Specialist Bob Goninon.

There were so many things for us to organise from a distance to ensure that the workshop would be a success. We needed equipment; a room with enough external space to discharge extinguishers; a facilitator; catering; and most importantly, participants. We had additional costs but managed to keep our pricing the same as if it were a self-study program. The value and benefits to our participating members was incredible. They received full catering, the venue and the facilitator for no additional charge. And achieving the qualification within a week is much faster than most workshops or self-study options would normally allow.

We also learnt how important it

is to work with our members in achieving these sessions. We need your assistance in obtaining suitable venues for training and we also need your help in providing us with the equipment for use in these sessions.

FPA Australia has since employed a leaning and development specialist, Robert Goninon, to facilitate our workshops and additional training and assessments planned for around Australia. Having our own dedicated resource enables us to provide more opportunities for our members to achieve competence. Competence is an important aspect in this industry considering the outcome is human safety and asset maintenance.

Our second certificate II in Asset Maintenance (Fire Protection Equipment) facilitated workshop occurred in Sydney in July, and we have plans to do the same in Melbourne, Perth and Brisbane over the coming months. We are also adding day sessions where we will train and assess technicians in a few related units. We will be producing a calendar with various events on it on our website shortly and will provide our members with updates to our training sessions throughout the coming months. With the addition of a new trainer, so many possibilities await us.

MORE INFORMATION

Brooke Batley resides in Brisbane and travels interstate to undertake assessments for FPA Australia.

He can be contacted directly at bnbatley@bigpond.com

If you have any queries about upcoming training events please email training@fpaa.com.au

If you can assist with providing a venue or equipment for FPA Australia training workshops, please contact Lauren at lauren.stclair@fpaa.com.au

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Cooperative wildfire arson investigation: a new approach

Richard Woods has led the development of a wildfire arson investigation course, to enhance the skills of fire and police agency investigators in Australia and New Zealand.

By Richard Woods, Operations Manager, ACT Rural Fire Service

Traditionally, the investigation of deliberately lit wildfires has been assumed to be an issue solely for police agencies to address. Whilst the investigation methodology has been enhanced in some states through a task force approach (for example, S/F TRONTO in New South Wales, Operation Nomad in South Australia), these models still rely heavily on police to solve this crime. Whilst there have been some successful prosecutions of wildfire arsonists across several states and territories in recent years, the challenge of successfully prosecuting persons responsible for deliberately lighting wildfires continues across Australia.

More importantly, the majority of wildfires that break out across Australia do not result in property loss, injury or death, hence there is a tendency for them to not be thoroughly investigated, particularly when no wildfire 'arson task force arrangements' are in place. These 'nuisance fires' are generally not given a high priority in the investigation spectrum due to workload priorities of police and fire agencies. However, as statistics indicate, they mostly occur at the hand of arsonists and do not develop into major conflagrations due only to the conditions at the time (for example, prevailing mild weather, fuel condition, fire agency intervention and so on). Responding to these 'minor' fires on a regular basis makes up a large percentage of response costs that have to be met by state and territory fire agencies.

Furthermore, experience has shown that the collation of wildfire arson intelligence is often 'siloed' between fire and police agencies. For example, fire occurrence information is often not readily shared between rural fire agencies, urban fire agencies and police due to differing information management systems and processes.

These issues therefore result in the camouflaging of the wildfire arson problem and as a consequence a limited coordinated effort is employed to investigate these (mostly 'minor') deliberately lit fires. Ultimately this creates a challenge for investigation collaboration and has a direct influence on conviction rates.

Additionally, the need for police and fire services investigators to share intelligence and mutually approach the investigation of wildfires has emerged as a significant priority to be addressed from the 2009 (and 2010) federal Attorney General's forums on wildfire arson.

Overseas experience leads to the adoption of a new training course

The North American 'Wildland Fire Investigation Case Development Course' was developed to provide police and fire service fire investigators with an understanding of serial wildfire arson and how to tackle it using a joint approach. Developed by the National Wildfire Coordinating Group (NWCG) and well received in the US and Canada, this newly adopted course has been directly responsible for the successful conviction of a number of serial wildfire arsonists in both countries (some serial cases extending back 12 years). The underlying focus of the course is getting police and fire service investigators to work together to share information and to identify offenders.

The course identifies ways in which the skills of police and fire agency investigators can be combined to lead to more thorough investigations. It is designed to apply a joint approach to serial wildfire arson investigation and involves the use of serial arson case studies, using intelligence made available to investigators at the time of the fires, and exposure to an actual brief of evidence and conviction of a serial arsonist in the US.

Broadly, the intent of the course is to provide students with tactical skills to:

- address administrative and management functions during the investigation of serial wildfires;
- provide skills in advanced investigation using data analysis tools;
- identify follow-up actions in a wildfire arson case and the investigative roles based on wildfire arson intelligence;
- review case file information and develop an investigative strategy;

- identify and apply strategies associated with the management of a serial arson investigation team or task force; and
- prepare, collect, organise and disseminate all relevant investigative data.

Australia/New Zealand adoption

In 2009 it was recognised that the North American course could have application in addressing the wildfire arson issue in Australia and New Zealand. The opportunity to modify the content began in 2009 through the ACT Rural Fire Service (RFS), resulting in this agency hosting a pilot course in Canberra.

Three US-based trainers, Mr Paul Steensland, retired senior special agent with the US Forest Service, Mr Alan Carlson, chief investigator with Calfire and Mr Jeff Bonebrake from the Oregon Department of Forestry, assisted in the delivery of the pilot course along with Superintendent Richard Woods. A sample group of police and fire agency investigators from across Australia and New Zealand attended with a view to verifying the content for local application.

An overall positive response to the course was received from attendees, however a number of key issues were identified requiring further refinement of content to ensure its application in the Australian and New Zealand context.

From this initiative, a project to further refine the content was subsequently developed, which has been managed by the ACT RFS.

In 2010-11 the federal Attorney General's department (AGD) allocated funds for its future development via the National Emergency Management Program, to suit Australian jurisdictional arrangements. At the same time the course was endorsed as part of the National Bushfire Arson Reduction Plan arising out of the 2009 AGD National Bushfire Arson Workshop.

VICTORIA: between 2001-2005, 55 persons were convicted of arson (structural & wildfire).

NEW SOUTH WALES: between 2001-2005, 26 persons were convicted of wildfire arson.

Both states had 27,000 bushfires between them in 2004. If half were due to arson, the identification and conviction rate is 4:1000 fires.

data: Australian Institute of Criminology



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Enhancing the skills of fire and police agency investigators in this challenging field will ultimately benefit their ability to detect and prosecute wildfire arsonists.



The challenge of successfully prosecuting persons responsible for deliberately lighting wildfires continues across Australia.

A working group was formed to validate changes necessary comprising an external training consultant, former students from the first ACT pilot course, ACT Emergency Services Authority training staff, Australasian Fire and Emergency Service Authorities Council (AFAC), Australian Institute of Criminology (AIC) and AGD staff, with Superintendent Woods managing the project development.

Assisted by the ACT ESA training section, the refinement of content in accordance with the recommendations from the first pilot course was developed by a Queensland based-training consultant.

The revised content now promotes best practice from across Australian and New Zealand wildfire arson investigation models.

Consultation

A number of briefings and updates on the course development have been provided across Australia and New Zealand. These have included AFAC, the NSW, Queensland and Victorian Association of Fire Investigators conference in Sydney in 2010, the Australia New Zealand Policing Advisory Agency and the 2010 federal Attorney General's Arson Prevention forum.

This was particularly important given the need to ensure the suitability of the course across all jurisdictions and the variability in roles and responsibilities in wildfire investigation across their respective police and fire service investigation units.

Pilot course

After extensive re-modelling of the original content of the 'Wildfire Arson Investigation Management course', the second pilot course was held at the Mt Macedon Institute of Emergency Management between 3 and 8 of April 2011.

This second pilot course saw 17 police and fire service investigators attend from around Australia and New Zealand. Additionally, five facilitators (some selected from students who attended pilot course I) along with two US-based facilitators, lead each of the training sessions, overseen by the project manager Superintendent Woods.

The major changes saw greater focus on Australian content and local experience in relation to wildfire investigations (for example, Task Force Phoenix, Victoria Police, Australian Institute of Criminology, NSW Police and so on). This had students gaining skills based on the original course theory while at the same time building in local experience and research on the wildfire arson problem.



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Course review

At its conclusion, facilitators conducted a debrief based on a student feedback process adopted during the course. The clear indication from all students suggested the course was well worthwhile and that all had gained significant skill sets from the sessions delivered. A number commented that they would be immediately adopting methodology taught to apply to unresolved cases in their home jurisdictions. Positive suggestions were also provided with regard to streamlining subject content to allow for more time in other subjects, thus leading to a greater opportunity for exercising skills taught.

Based on this student and facilitator feedback, the course program and content will now be finalised.

As a result of hosting this second pilot course, it was confirmed it should be regarded as a 'stand-alone specialist course' to enhance skills of investigators working in arson investigation. It was agreed that the need to award a formal qualification was seen as a lower priority against gaining skills and expertise to solve this specialist area of investigation. It is proposed to deliver this course to specialist fire investigators from across Australia and New Zealand, using police and fire service facilitators from across these jurisdictions.

Future development

It is clear that, given this course is aimed at co-operation between police and fire service investigators at a national level, a national delivery approach is preferred. Also, the course is heavily reliant on the use of a common IT platform between students from different agencies. To this end, the use of the Australian Emergency Management Institute (AEMI) was confirmed as the ideal facility to host this course and negotiations are underway with AEMI to host the course in future, with plans for the next course there in July 2012. Additionally, it is hoped to engage AFAC and the Australia New Zealand Policing Advisory Agency (ANZPAA) as part of this process. It is anticipated it will be hosted once a year, initially on a self-funding basis, to a maximum of 20 students.

Conclusion

Currently no similar course is available in Australia. The final version of this training course will provide fire agency and police state and territory wildfire investigators with an opportunity to be exposed to best practice methodology and the latest in wildfire investigation techniques.

The problem of wildfire arson is very real across Australia and New Zealand. Importantly, the

community expect it to be addressed and arsonists to be detected and placed before the courts. Enhancing the skills of fire and police agency investigators in this challenging field will ultimately benefit their ability to detect and prosecute wildfire arsonists.

Finally, the cooperation and support of the federal Attorney General's Department, South Australia Police, New Zealand Fire Service, Australian Institute of Criminology, New South Wales Police, Victoria Police, the ACT Emergency Services Agency and 'Permission Granted' Pty Ltd needs to be acknowledged in the development of this important training opportunity.

The working group, led by Richard Woods, includes Julie Nolan, ACT ESA, Gerry Seppelt, South Australia Police; Wayne Hamilton, New Zealand; Penny Brown, New South Wales Police; Warwick Jones, formerly Australian Institute of Criminology; and Rob Kilpatrick, ACT ESA.

ABOUT THE AUTHOR

Richard Woods is the operations manager for the ACT Rural Fire Service in Canberra, holding this role since 2009. Previously, from 2001, he was the manager for fire investigation for the New South Wales (NSW) Rural Fire Service, his primary role being the establishment of a Fire Investigation capability for this fire service. During this time Richard established a close working relationship with partner agencies such as NSW Police, NSW Fire Brigades and the Coroner's Court. This included working with Police Strike Force 'Tronto', investigating the cause of major bushfires across NSW.

From 1976 until becoming an employee in 1991, Richard was a volunteer with the Rural Fire Service and a Police Officer in NSW for over nine years. More recently he has been working with the federal Attorney General's Department in Canberra, tasked to develop National Bushfire Arson Prevention standards.

Richard completed a Graduate Certificate in 2000 and Diploma in Fire Investigation through Charles Sturt University in 2005. In 2007 he completed a Graduate Certificate in Applied Management at the Australian Institute of Police Management.

He is the current Chair of the International Association of Arson Investigators, Wildland Arson Committee; Australian representative of the North American-based National Wildfire Coordinating Group Wildland Fire Investigation Team; and is a former president of the NSW chapter (47) of the International Association of Arson Investigators. He has been a member of the AFAC Fire Investigation and Analysis Working Group since 2000. Richard can be contacted at richard.woods@act.gov.au



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POST-INCIDENT ANALYSIS

Fire sparks in recycle paper depot

On 15 June 2011 a fire occurred at the Amcor Fibre Packaging Fairfield Mill in Alphington, Melbourne. The mill produces packaging products from recycled paper that are used for a large variety of products.

It was in the waste paper building number six that the blaze started. A forklift driver working within building six noticed a fire near the area he was working in. He raised the alarm and initiated the delude system. Once operated this reduced visibility within the area. Due to the increasing fire and the reduced visibility, the shift manager on duty at the time decided to withdraw the company's fire fighting crews. He did notice that the fire at this stage had not advanced to the area of the conveyor belt. They awaited the arrival of the Melbourne Fire Brigade (MFB).

The MFB Fire Investigation and Analysis unit was called in to investigate the cause of the fire.

Fire investigation

Fire fighting operations had seen the removal of most of the stored waste

paper. This left no burn patterns to indicate the precise location of the fire. But information from Amcor staff and fire fighting crews indicated the fire was around the centre and toward the north side and on top of the bales of waste paper. Examination of the wall approximately above this area revealed a large mercury vapour light, with a number of these lights being fixed to the north and south walls of the waste paper plant building to provide lighting for operations within the building. Comparing this light with the others revealed that it was missing its glass front face. Staff were unable to indicate when the glass front had disappeared.

The site was equipped with the following:

- equipped fire hydrants;
- a hydrant system fed by street fire mains;
- an internal hydrant system operated by pumps drawing water from the Yarra River;
- fire hose reels;
- portable fire extinguishers;
- fire alarm points; and

- fully equipped and maintained breathing apparatus sets.

Conclusion

With the above information, it was concluded that the fire started when paper dust collected around the mercury vapour light's globe. Once the paper dust was ignited the embers would have fallen down onto the waste paper stacked below, causing ignition.

Recommendations

After considering the use of the building, its size, location and type of construction and the number and type of people likely to use it, the MFB believes a regular inspection and maintenance programme, which includes electrical equipment and lights within the complex, should be set up. This will ensure that faulty or broken lights are appropriately dealt with in a timely manner.

If implemented, a greater degree of fire safety will be afforded to the building, its occupants and the public, and assist fire crews to effectively combat another fire should one occur.



Above left: The AMCOR Fibre Packaging company in Alphington.

Above: Inside the factory.

Left: This large Mercury Vapour light was missing its glass front face upon examination after the fire.

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We are inviting members from Fire Protection Association Australia to register for the inaugural Emergency Response Management Australasia conference, which will bring together **emergency services organisations, local councils, state and federal governments, armed forces, defence and security**, along with **volunteer groups and industry**, to maximise their preparedness and ability to respond to large scale emergency situations.

In addition to the early bird discount (ends 29th July) we would like to offer a **further 10% discount off the price of registration to all Fire Australia readers.**

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CALENDAR

August and September

Disaster Research Seminar series University of Western Australia, Perth

This four-part series, by UWA's School of Psychology in partnership with the Bushfire CRC and FESA, explores individual and social factors and processes that influence preventing, preparing and responding to natural disasters, with a focus on bushfires and earthquakes. Dates are 5 and 26 August and 2 and 30 September. For information contact Dr Petra Buergelt at petra.buergelt@uwa.edu.au

22 August – 8 September

AS 1851 Public Comment Forum - The Future of Maintenance QLD, NSW, VIC, SA, WA, TAS

The current revision of AS 1851 (Maintenance of fire protection systems and equipment) will be open for public feedback and comment by industry personnel on its direction and content. For more information visit www.fpaa.com.au/events

29 August – 1 September

AFAC-Bushfire CRC Annual Conference

Darling Harbour, Sydney

The AFAC and Bushfire CRC Conference is the premier knowledge event for the emergency management industry. The 2011 conference will explore the changing nature of emergency services in a changing society. Visit www.afac2011.org for more information.

1 September

Maddocks & AFAC 2011 – NSW Emergency Services Seminar Program 2

123 Pitt Street, Sydney

This is the second in the NSW Emergency Services Seminar Program hosted by Maddocks. Mark Henry will present on statutory and common law duties, with particular reference to emergency services organisations. Mark will discuss the relevance of these duties and their implications for the good governance of a fire service. To register go to www.knowledgeweb.afac.com.au and select events.

5-6 October

AFAC Professional Development Event Series – Emergency Communications – how well did it work?

Dallas Brooks Centre, East Melbourne

This seminar will focus on how the high volumes of emergency information was received, used and dispatched during the recent disasters in New Zealand and Australia. It will also provide an opportunity for the sharing of critical information, lessons learned and other factors relevant to a mining disaster, two earthquakes, a cyclone, major floods and major fires.

20 October

Maddocks & AFAC 2011 NSW Emergency Services Seminar Program 3 123 Pitt Street, Sydney

This is the third in the NSW Emergency Services Seminar Program for 2011 hosted by Maddocks.

Presented by James Smart and Jeff Goodall, this session will cover some of the key issues involved in drafting and negotiating commercial agreements, particularly in relation to technology procurement. In addition, we will consider how to manage contract failures by third parties during emergencies and some of the issues around cloud computing solutions with particular reference to emergency services organisations

To register go to www.knowledgeweb.afac.com.au and select events

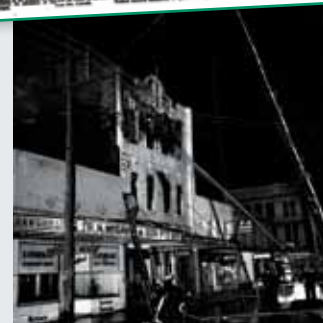
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Fire Australia 2011 conference and exhibition will be held at the Adelaide Convention Centre from Wednesday 16 to Friday 18 November 2011.

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BLAST FROM THE PAST

Big city building destroyed

Newcastle Morning Herald

Tuesday, October 2, 1962

Fire destroyed a large Newcastle city building last night, causing 100,000 pound worth of damage.

The building destroyed was Commerce House in Scott Street.

At one stage the flames, fanned by a strong north-east wind, threatened most of the Scott Street block.

The building burst into flames about 7 o'clock and firemen from eight brigades took two hours to bring it under control.

Firemen donned gasmasks to get close to the seat of the fire as flames leapt 50 feet in the air.

Commerce House was occupied by Gestetner Pty Ltd, Duplicator Sales and Service, Alec Bone Loss Assessor, The Renown Hemstitching and Pleating firm, Miss Richards dressmaking, Newcastle Sample Rooms, Paul and Gray Pty Ltd and Civic Arcade Card Shop.

Records Lost

Commerce House is owned by Northumberland Insurance Company. Stock and records in the premises were destroyed. There was also hundreds of pounds worth of water damage in Newcastle City Arcade as water flowed through from the adjoining Commerce House.

Fire brigade chiefs were trying to find the cause of the fire late last night.

Police established that the last person left the building at 6pm and there was no sign of a fire at that time.

Youth Injured

A youth fractured an ankle and was overcome by smoke as he tried to help save the equipment from the fire.

He is Ralph Norris, 17, of Merewether Street, Merewether. Norris fell down stairs in dense smoke as he tried to carry goods from the Arcade Card Shop storage room in the rear of Commerce House.

He got to his feet and tried again to get back into the storage room, but the smoke was too dense.

"The flames were everywhere," he

said. "It was just too much for us."

Newcastle Ambulance took him to Royal Newcastle Hospital for treatment.

Witnesses said the flames shot out of the window on the second story of Commerce House.

Flames quickly spread and within minutes the front of the store was a blazing inferno.

Brigades raced to the scene and soon had three hoses on the building.

The wind drove the blaze to the back of the building. The City Arcade, Royal Globe Insurance Building, Ell's Book Store, McGavin's Butcher Shop and Jayes Travel Service were all seriously threatened.

3000 Watch

Extra brigades arrived but firemen were hindered by the crowd of about 3000 which milled over footpaths and streets.

North-eastern Police District called for extra police to hold back the crowd.

Police held off traffic in Scott, Hunter, Newcomen and Bolten Streets to isolate the entire block.

Just as the fire looked likely to get out of hand, firemen entered the Royal Globe Building and from fourth-story windows played water down to Commerce House.

Mr Max Ell, of Ell's, then let firemen into the front door. Firemen carried hoses to the third floor of the building and, standing on the Arcade roof, were able to stop the flames from spreading.

As the fire started to abate, the officer-in-charge of the burning wall firemen became worried that it might crash on surrounding buildings and start another threat.

Firemen placed hoses on the side walls of Commerce House, and they held.

In Scott Street, firemen climbed to the roof of Jayes Travel Service and McGavins Butcher Shop. A fireman hung precariously on the extension ladder about 30 feet above the flames to play a hose on the fire.

Firemen and police were told no one should have been in the building when the fire broke out.

People passing by the first saw the flames and rang Cook's Hill Brigade.

The window of a station wagon parked near the blazing Commerce Building was smashed so that it could be moved away from the fire.

About 10 young men from Lester's Gymnasium ran to the aid of firemen and helped carry office equipment and records out of Jayes.

Mr E. Elvin, Travel Manager of Jayes was weightlifting in the gymnasium when he saw the blaze.

He called to other men and they ran to the burning building.

"When we were coming down I thought Jayes had gone up," he said.

Elvin opened the front door of Jayes and the team of men from the gymnasium carried all movable equipment.

Navy Men Help

Crew members of the H.M.S Cassandra, on an official visit in Newcastle Harbour, were sent to help in the fire.

About 20 crew members carried tarpaulins and helped firemen with hoses.

The Gestetner Manager, Mr C. Britts, said he was at home watching television when he received a call that his office was on fire.

He said about 40 duplicating machines, about 15,000 reams of paper and other equipment were destroyed. He estimated the damage to his premises at 50,000 pounds.

Valuable machinery in the dressmaking business was turned into molten metal by the flames.

Irreplaceable office records and equipment were destroyed in Paul and Gray's office.

Mrs L. Watson of Newcastle Sample Rooms said she had her premises insured for 1000 pound.

She said a traveller left about 1000 pound worth of samplers in the rooms yesterday.



STANDARDS AUSTRALIA UPDATE

Standards Australia Awards presented to fire sector

Each year, Standards Australia presents Standards Awards to individuals, and one committee, who have made significant contributions to standardisation and who have demonstrated outstanding service in enabling Standards Australia to attain the objectives for which it was founded – to enrich the quality of life of all Australians.

This year, two of the awards were from the fire sector.

Award recipients were selected on criteria including:

- input and participation in committee meetings and deliberations;
- contribution to problem solving and conflict resolution;
- involvement in national and international standards work;
- research work; and
- advocacy of Standards and standardisation.

The outstanding service award was awarded posthumously to Mr Charlie Herbert for his significant contribution to standards development over many years including as the chair of FP-020 construction in bushfire prone areas.

The outstanding committee award was awarded to committee FP-002 fire detection, warning, control and intercom systems.

The second round of project prioritisation has concluded with a number of projects having been submitted in the fire sector. These included:

FP-002 fire alarms and detection

Adoption of ISO 7240-16 sound system control and indicating equipment; adoption of ISO 7240-20 – aspirating smoke detectors to AS 7240.20; adoption of ISO 12239 smoke alarms using scattered light, transmitted light or ionisation.

FP-004 fire sprinklers

Revision of AS 2118.1 – automatic fire sprinkler systems – general systems.

FP-008 fire pumps and fire tanks

Revision of AS 2941-2008 – fixed fire protection installations – pumpset systems.

FP-011 special hazard systems

Revision of AS/NZS 4487-1997 – pyrogen fire extinguishing systems to a generic condensed aerosol standard.

Active standards development projects

FP-001 fire maintenance

Final styling and editing is being undertaken with respect to the public comment draft of AS 1851.

FP-009 hydrants

Work is continuing on the revision of AS 2419.1 fire hydrants – system design and installations and also AS 2419.3 fire hydrant installations – fire brigade booster connections.

FP-020 bushfires

Amendment 3 to AS 3959 is out for public comment which opened on 29.6.2011, to close on 10.08.2011.

FP-024 bushfire water spray systems

New Australian Standard for bushfire water spray systems. Committee work is progressing well with a meeting in July to review a first draft. We are aiming for a public comment draft by December 2011.



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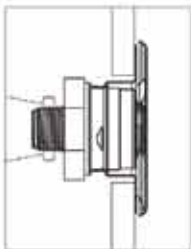
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