

THE MAGAZINE FOR FIRE INDUSTRY PROFESSIONALS

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ISSUE 7 | SEPTEMBER 2012

DEFINING THE FUTURE

Standards and Practice

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Fire NZ welcomes articles and letters from our readership. These can cover any aspect of fire protection, fire engineering (performance and design), legislation, fire safety practice, fire industry product development, firefighting operations, techniques, equipment and case studies and technical news. All articles will be assessed by an editorial panel prior to publication who, at their discretion, reserve the right to either decline use of the article or seek amendments. Articles should inform, debate, educate and help our readership through sharing of both knowledge and expertise.

Themes for the upcoming magazine production will be promoted in advance of editorial committee deadlines to ensure all contributors are able to meet the final magazine delivery timelines.

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INDUSTRY SELF-REGULATION: THE IMPERATIVE AND THE WAY FORWARD

Defining the Future: Standards and Practice is the theme for this years FireNZ 2012 Conference and Exhibition. In selecting our speakers and their respective papers for the conference we have provided delegates with contemporary fire industry information that will set the scene for debating and discussing the key area of industry self regulation.

Regulation is a fact of life in today's world. The Fire Protection sector is by no means an exception. While there is no state regulation of all but designers through the Licensed Building Practitioners Licensing Scheme, or national accreditation, certification and registration of fire protection equipment suppliers and practitioners, there is a clear signal from government and the regulators that industry will be expected to be accountable for its own standards and performance. This is evidenced by the recent changes to the compliance regime and implementation of risk-based consenting.

The industry needs to move beyond merely knowing and complying with the relevant legislation and regulations, to setting the benchmark in terms of best practice and professionalism. We need to regulate ourselves and continually strive to improve systems and performance through benchmarking practices, ongoing training, and monitoring. Standards, codes of practice and practice guidelines are vital to the fire protection industry and to this process.

Although dated (originally published in July 2006) and focused on the business and regulatory environment existing at the time under a different government, the BusinessNZ publication "Regulation Perspectives" is insightful and informative in its examination of the nature and benefits of self-regulation.

The report notes that regulations largely originate from governments as part of the lawmaking process, and from government departments charged with achieving economic,

social or environmental objectives. They are often a reaction to some form of (perceived or real) failure in the market or system requiring a response from government; a response to demand from political constituencies; formulated to correct anomalies from rushed legislation; or a means for regulators to justify and enhance their establishment and budget.

The report examines the costs and benefits of state (national and local) regulation on business, particularly small and medium-sized enterprises. It finds that while "a certain level of regulation is required for any country that wishes to provide a stable economic environment in which to do business..." (Phil O'Reilly, Foreword, Regulation Perspectives, July 2006), it incurs high compliance costs, which "stifle innovation, hinder competitiveness, hamper investment, deter compliance and result in firms being reluctant to expand or take on more staff" (Ministerial Panel on Compliance Costs, July 2001). In other words regulation can impede innovation, productivity, and growth by eroding competitiveness. Sound familiar?

The report argues that self-regulation is a middle way between stringent state regulation and complete de-regulation, which achieves responsibility and self-discipline through voluntarily accepted standards of professional practice.

It goes on to list some of the more frequently used forms of self-regulation as follows, noting that industries could and do use a combination of approaches:

It further lists the advantages of self-regulation as follows:

Institutional Knowledge

Self-regulation involves parties who generally have the best institutional knowledge about what needs to be done and what works. Although governments can hire technical expertise to draft regulations, they will almost always be slower in perceiving

TYPE OF SELF-REGULATION	HOW IT WORKS	IMPLICATIONS
Firm-based service charters	Business sets out what it is doing for its customers	Voluntary and creates no legal rights for consumers
Aspirational code	Industry comes together to outline a voluntary code of practice	Intended to raise awareness or promote industry reputation, often accompanied by an information campaign
Accreditation/quality assurance scheme	A voluntary scheme where industry body accredits participants to advertise that they are members of a scheme or have complied with certain standards	Industry association often has considerable reputation, and accreditation is an advantage
Model contracts	Provide for industry, consumers (and where appropriate, government) to agree on standard terms	Such contracts must avoid anticompetitive conduct
External dispute resolution	Establishes a formal external dispute resolution service or ombudsman	Usually the service is free to consumers and decision by ombudsman is binding
Standards	Consensus based documents which set out minimum technical or performance requirements	Often developed by the industry, and may have legal force through incorporation in legislation, or may be voluntary
Legal codes/co-regulation	Codes with some backing by legislation; may have been developed by industry but often enforced by government	Can be mandated by government but often left to industry to develop detailed rules of the code

the need for action than the participants in the relevant market, and will have less industry-specific knowledge about the kind of action required. Self-regulation provides recognition of specialised expertise.

Flexibility

When a government introduces a regulation it is more or less permanent, and one of the most difficult challenges governments face is changing existing rules. In the private sector if a regulation is inefficient, a substitute will often be developed by relevant participants. Rules developed through self-regulation are, in effect, subject to a market test.

Lower Cost

Self-regulation can be less costly for government, as the industry is responsible for enforcing the scheme. The industry will have incentives to minimise costs, thus benefiting firms and consumers. Self-regulation generally results in the costs of such regulation being fully borne in the market in which the regulation is imposed.

In addition to these broad advantages, I would argue there are two further equally compelling arguments for industry self-regulation – public perception and consumer confidence, and exercising a level of control over the regulatory environment.

By developing and imposing its own regulatory framework, industry has the potential to: gain a competitive advantage through brand association for those covered by the industry regulation; avoid having unwelcome regulations (aimed at controlling behaviour) imposed on them at their expense; and manage compliance costs. It is these benefits that drive industry groups, such as FPANZ, to develop their own regulatory frameworks and standards, even when regulatory controls exist. This is increasingly evident as more and more organisations (even individual companies) are investing considerable time, effort and money in developing their own regulatory frameworks.

A key component to any successful regulatory framework, whether it is imposed by government or industry-led, is education and learning. Through conferences, seminars, workshops and formal education and training we gain insight and learn from the experience and knowledge of others. We can use these events to consider approaches to new and existing issues and problems, and formulate practice standards and benchmarks. It is in this context that we warmly welcome the speakers and delegates to FireNZ 2012 and look forward to sharing their knowledge and experience as we strive to develop and implement an industry regulatory framework that goes beyond simple compliance.

INTERESTING NUMBERS

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for helping to create
THESE NUMBERS!

From the Presidents

The preparations for this year's Fire NZ Conference are well underway and the organisers have once again arranged an exciting line up of speakers presenting on some fascinating subjects. If you have not attended the conference in the last few years, you need to be in Rotorua on the 10th & 11th October to see how the conference has developed into the fire industry event of the year. International speakers and fire industry professionals enhance the networking and continuing professional development opportunities available. Make sure you don't miss out.



I am very pleased to welcome Metalcraft Group to the family of IFE corporate partners. Metalcraft Group join APC Techsafe as Gold level partners and of course PSL as our Platinum partners. Metalcraft produce insulated panel systems including fire resistant panels. Already we have been able to support Metalcraft at the Cold Storage Association conference and there is potential to work together in the future on the development of an Australasian identification system for sandwich panels.

The Institution of Fire Engineers New Zealand Branch recently renewed the Memorandum of Understanding with New Zealand Fire Service. National Commander and Chief Executive Paul Baxter signed the updated document at a Branch Council meeting held at NZFS National Headquarters at the end of July.



International Fire Professional, the new in-house journal of the Institution of Fire Engineers was published in July and launched at the international AGM and conference in Stratford-on-Avon. Full credit must go to Board member John Woodcock and editor Andrew Lynch for organising the production of this high quality journal in the short period of time involved. International Fire Professional, along with this publication, Fire NZ and our own newsletter rely on high quality articles from you the members to maintain their success. These publications are a way of keeping members both here in New Zealand and in the global arena, informed of our activities and achievements. Please give some thought to writing an article on an area of interest for you that will contribute to the ongoing success of the IFE.

The Branch Council has recently concluded the election process for Branch President and I am pleased to announce that Graeme Quensell was successful and becomes the President Elect. Graeme and I will transition over the next few months before he takes over at the end of the year.

I look forward to meeting as many of you as possible at Fire NZ in Rotorua.

Gary Ward MEmergMgt M.I.FireE
President
Institution of Fire Engineers NZ Branch



The Fire Protection Association New Zealand is, once again, pleased to be associated with the Institution of Fire Engineers (NZ Branch) in producing this issue of the FireNZ magazine.

We also take great pride in presenting the FireNZ 2012 Conference and Exhibition Defining the Future: Standards and Practice, with our partners – The Institution of Fire Engineers (NZ Branch) and the Society of Fire Protection Engineers (NZ Chapter).

The strength of this triumvirate of fire industry organisations is demonstrated by the fine line up of international and national speakers who will be presenting at the conference. If this isn't enough to have you registering to hear these world class papers being presented during the conference, this year's exhibition hall is the largest ever with over 40 exhibitor companies showcasing the latest in technological innovation and advances in the fire protection industry.

The FPANZ Board and Council are looking forward to re-acquainting ourselves with Association members and industry supporters, at FireNZ 2012 in Rotorua.

The Annual General Meeting will again coincide with the conference where we will demonstrate the achievements of the Fire Protection Association New Zealand over the past year in achieving our mission – to be the voice of the fire protection industry – and to deliver increasing benefits to FPANZ members.

I am particularly thrilled to welcome the Fire Protection Association Australia (FPAA) National President Glenn Talbot, Chief Executive Officer Scott Williams and the entire Board of the FPAA to New Zealand and to our conference and exhibition. A time has been set aside prior to the conference to take advantage of this significant opportunity for both Boards to meet and share information and strategies, and to further develop a closer relationship between the two Fire Protection Associations.

We welcome our Australian cousins warmly and hope that their time in Rotorua will be fruitful and beneficial and that the exchange of ideas will further our leadership roles in the fire protection industry in Australasia.

Another key strategy aimed at adding value to members that FPANZ has pursued is the development and delivery of our seminar series across the country. The first seminar in this years series was the updated NZS4512:2010 Fire Alarm Standard presented by David Percy and David Prosser and FPIS representatives. This seminar was very informative and very well attended. The second series of seminars featured Ron Green discussing building compliance. These presentations were also very well attended. FPANZ will continue to organise regular seminars with the next series, to be focused on Passive Fire Protection, planned for early November.

Representation for our Special Interest Groups has been further enhanced with the Contractors Group forming a Northern Region Alarm and Sprinklers Contractors Group. This group has now had 4 meetings with their next meeting scheduled mid September 2012. A further group has been established in the South Island with Charlie Loughnan (Christchurch) and Ken Sim (Dunedin) leading the Southern Region Alarm and Sprinklers Contractors Group. Watch this space for the establishment of the Central Region Alarm and Sprinkler Contractors Group.

We are continually enhancing and shaping the Association to ensure the standard of Members' service and products meet our objectives. Association members demonstration of professional, ethical and industry best practice to their customers will define FPANZ members' professionalism and quality of workmanship through a well qualified and strongly self regulated industry. "Defining the Future: Standards and Practice" is this year's conference theme and our speakers presentations will lend themselves well to where we are in 2012 and where we need to go through the coming years in order to achieve our fire protection industry goals for all New Zealand.



Mitchell Brown
President
Fire Protection Association New Zealand





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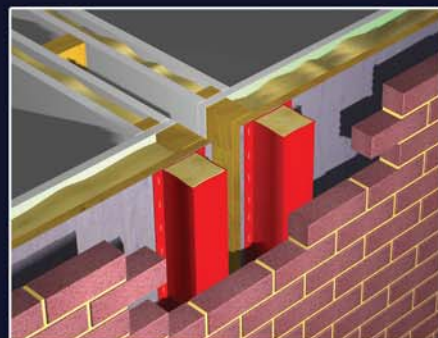
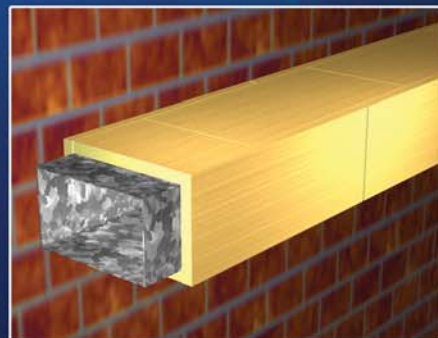
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How the Mighty Fall!!



Dr Denis Onical
Superintendent
National Fire Academy,
Maryland USA

What company dominated the photography industry in the world for the entire Twentieth Century? Who made the film, produced and sold the chemicals, the paper, the processing and the printing? Who developed digital photography, established the standards for digital photography and produced the first digital camera? (Hint – it was the same company!). What nearly destroyed the IBM company? And what happens to individuals - really talented individuals - like Tiger Woods? What breaks? What happens to organisations and individuals that cause them to drive off a cliff? Indeed - How Do the Mighty Fall?

Kodak and IBM didn't start out to destroy themselves; they just ignored the warning signs. They dismissed the opportunities and believed that they were so big, so smart, so "in-control" of the industry that no technology, no upstart, no change in the environment could ever affect them. That's the same thing that happened to the dinosaurs – they were pretty big, very high on the food chain. Dinosaurs didn't die of old age; they died off when the environment changed and they didn't. The alligators and crocodiles knew better; they're still around.

What about individuals? What makes them fall? Well, since people make up organisations, it's a little different behavior but the results are the same. It is a bit more personal; there's a slight twist. Individuals, particularly the very successful individuals (who eventually fall), begin by believing that they are talented rather than just lucky. They start believing that they're above average; that the rules don't apply to them. They spend a lot of time reading their own press-clippings, and after a while, begin to believe them. There's a mind-set that they're above average in both brains and talent and the rules that apply to everyone else are simply impediments. They have the rules figured out and know how to get around them; already they're on the entrance ramp to the six-lane, express highway to destruction. At the same time, they're fracturing relationships, ignoring friends who are telling them the truth, and begin listening only to those who tell them



**Dr Onical is a
keynote speaker
at FireNZ 2012
in Rotorua**

what they want to hear, the sycophants. Those sycophants are pall-bearers.

It's probably important at this juncture to differentiate "failure" from "falling." People fail all the time. Everyone reading this has failed at something. The farther you go, the more responsibility you have, the more mistakes you make. Failing isn't a problem, it's how you respond. Smart people who fail learn from their mistakes. They blame themselves even when others may have had a part in the failure, and they take the full responsibility. In response, after they learn, they do things differently, they try another way. They have a tool box filled with tools they already know don't work.

Those who "fall" spend a lot of time blaming someone else. It's never their fault. They seek to assign culpability rather than learning to prevent a recurrence.

And oh how the rest of us love to watch them fall! To get their comeuppance, to watch them squirm on the front page of the newspaper. First there's denial and it's followed by more revelations. Then there's a spokesman explaining away the circumstances rather than the behaviour. Sometimes there's a criminal inquiry, but certainly a number of enemies and victims begin talking to the press. Then there's either a criminal charge or a public announcement that they're going into a facility for "treatment and rehabilitation." It's a well-mapped route. The next time you read a public statement about someone going into rehabilitation, the message behind the message is that they got caught.

When companies or organisations "fall," the process is the same but the outcome is a little different. Those organisations will either go out of business or be purged of decision makers and their assets are acquired by a competitor. If it's a social or fraternal organisation, they will simply dissolve because of some external pressure or expose.

So, what's the lesson, why is this important to the fire and emergency services? Well, the environment is changing rapidly. To survive, your organisation will have to adapt to that new environment. Organisations can't read their own press clippings and base their decisions on what "used to be or how good we were." If you're popular right now, if you're at the top of a wave, if your organisation is doing very, very well; it's not the time to be comfortable. It's the time to look down at that wave, that foundation, and identify what you can change, what you can do better, what you can improve. Try to seek out what can go wrong and take action to prevent the fall. That goes for individuals as well. What about you?

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Review of our Standards and Conformance Bodies Essential



Debbie Chin
Chief Executive
Standards New Zealand

The Standards Council and Standards New Zealand welcome the current policy review of us and other national standards and conformance bodies by the Ministry for Business, Innovation and Employment. Indeed, we believe it is essential. We also thank the Fire Protection Association for its input to the review in July via written submission.

The aim of the review is 'to develop a viable and well-functioning Standards system that meets the future needs of business and regulators'. This work is due for completion by October this year, with recommendations going to Cabinet.

We welcome the review because it represents an opportunity to highlight:

- the importance of Standards and standardisation to New Zealand's economic and social wellbeing
- the value of the Standards development process which is independent, transparent, and robust
- the importance of the Standards Council's links with international Standards bodies and its ability to bring this international best practice to New Zealanders

and to remedy:

- the 'broken' business model that the Standards Council is operating under.

The Importance of Standards

Standards touch on all aspects of society. While we normally don't think about Standards unless their absence causes inconvenience, it would be extremely difficult to imagine daily life without them...Standards in some form are helping to shape our day, make it easier, more comfortable, prosperous, safer, and simply more convenient.

Standards are invaluable tools for companies looking to position themselves for growth and mitigate liability or risk exposure. Standards can provide a best practice road map to help New Zealand companies with a wide range of strategic issues – for example, quality management, risk management, and IT governance.

Around the world standardisation has been linked to growing economies by increasing productivity, increasing trade and securing new markets,

reducing red tape burden, driving innovation, and assuring quality.

Last year, Business and Economic Research Limited (BERL) published a report on the economic benefits of standardisation. The study shows that Standards can, over time, significantly add to a nation's annual gross domestic product (GDP). Through stakeholder engagement, we have heard first-hand about the benefits that come from the use of Standards. We have also seen evidence that many of those who benefit from Standards do not fund their development.

The Role of Standards New Zealand

New Zealand is recognised internationally as a leading developer of Standards and standards-based solutions, most of which are developed in partnership with Standards Australia.

We believe, as do many others across public and private sector organisations, professional associations, and industry groups, that it is critical New Zealand retains an independent national Standards organisation. The status quo is consistent with every other country in the OECD.

Our independence means that our Standards development process is open, transparent, and robust and involves commitment and buy-in from a cross-section of industry and stakeholders. Our Standards development committee members are experts in their field and their specialist knowledge results in high quality Standards that promote safety – as with Standards that protect people and the environment from fire – productivity, innovation, and wellbeing.

As well as working closely with Standards Australia, as New Zealand's representative at international Standards bodies, ISO (International Organization for Standardization) and IEC (International Electrotechnical Committee) we bring international best practice 'on shore' and provide a link to the international Standards community. This synergy is essential for our exporters as they target growing trans-Tasman and other international market opportunities.

We also strive to ensure New Zealand's position and opinions are incorporated into international Standards.



Debbie Chin is
a speaker at
FireNZ 2012
in Rotorua

The Challenges

It is no secret, however, that recent times have been exceedingly challenging for the national Standards body. This is due to several factors, including the economic downturn and less spending on Standards development by regulators (especially in the building and construction sector) and deteriorating market conditions for the sale of Standards. Despite strenuous efforts to offset these effects, including significant restructuring, operational efficiencies, and downsizing, we recorded a significant deficit for the last financial year.

There is a dire need to address the current business model under which we operate. We look to the current review as a way to move New Zealand Standards development to a more sustainable footing.

This is particularly urgent in light of the recommendations arising from the Royal Commission into the Canterbury Earthquakes. The release of three reports by the Commission last month led to engineers and builders calling for recommendations by the Commission to strengthen building Standards to be quickly implemented. Standards New Zealand is, and has been for some time, ready, willing, and able to act on any recommendations that require our involvement.

In our 80th year of existence, it is significant to note that, in fact, it was another earthquake – the devastating Hawke's Bay quake of 1931 – that saw the forming of the predecessor to the Standards Council, when the then government realised the urgent need for an appropriate and effective building code for our earthquake-prone land.

There are some core and significant issues that need to be addressed to overcome the current challenges that we face and which have beset us for some time. They are also issues that industry has told us are problematic and need to be fixed.

Public Good Standards

Standards New Zealand receives no public funding. Our user-funded business model relies on recouping operational costs by securing service funding for the development of Standards solutions, revisions to existing Standards, and through sales of published Standards. This includes, of course, Standards used by the fire protection industry which are critical to protect New Zealanders and ensure their safety.

Making Standards More Accessible For Industry:

With the economic downturn over the past four years, there has been less spending on Standards development by regulators. The outcome is out-of-date Standards, which are becoming out of reach for those who are struggling to make ends meet.

Duplication in Government Agencies

Currently some Government agencies are developing their own Standards, duplicating a service they are not set up to do, and for which Standards New Zealand is regarded as world-class.

Standards compliance results in less red tape, which is in line with the Government's desire to ease compliance requirements and costs.

The Future

We are proud to be celebrating our 80th anniversary this year. We are also proud of our Standards that benefit New Zealanders in so many ways. We look forward to the recommendations from the policy review that is underway enabling us to keep developing high quality Standards that meet the needs of regulators, industry, and consumers into the next 80 years and beyond. We also look forward to continuing the strong relationship we have with the Fire Protection industry and participating in your 2012 conference: Defining the future: Standards and practice next month.



Changes to Building Code Documents

Nick Saunders

Senior Advisor
Building Standards,
Building & Housing Group
Ministry of Business,
Innovation & Employment

On 10th April changes to the Building Code became effective and both revised and new supporting documents were published.

The changes were:

- New Code Clause C Protection from Fire
- Revised Code Clause F8 Warning Signs
- Revised and reformatted Acceptable Solutions for Protection from Fire
- New C/VM2 Design methodology for specific fire design
- Revised Acceptable Solution F7/AS1 Warning Systems
- Revised Acceptable Solution F8/AS1 Signs

The changes were made in part as a result of the 2007 Report on the Review of the New Zealand Building Code. This report identified that the Building Code requirements needed to be clearer, more specific and more accessible.

Up until now many performance requirements have not been specific or quantified in the Building Code itself. This has lead to challenges with different interpretations of the requirements that ultimately lead to disputes and delays.

Building consent officials, designers, engineers and building owners will all benefit from the changes. These changes give greater certainty to designers and consenting officials and should lead to cost savings, fewer disputes, and more creative engineering solutions.

The Protection from Fire documents are clearer, more specific and encourage innovative fire design.

The Changes

The new framework is depicted in Figure 1.

Note that the existing Verification Method C/VM1 remains unchanged.

Protection from Fire

Code Clause C

There are now clearer and more specific Building Code requirements with six new Building Code clauses C1 – C6, replacing the previous Code clauses C1 to C4. Whilst the objectives of the Code Clauses remain unchanged the way that the functional and performance requirements are expressed has changed and become more specific, containing metrics that can be shown to have been met.

The metrics include:

- temperatures to which combustible materials must not be raised,
- criteria for internal surface finishes, and
- maximum doses of harmful fire effects.

Acceptable Solutions

A clear and relatively straightforward set of Acceptable Solutions C/AS1 – C/AS7 replaces the existing Acceptable Solution C/AS1. These Acceptable Solutions have been simplified from the existing C/AS1 with requirements being laid out in a prescribed way and does not require any complex calculation or the need to have any fundamental fire engineering knowledge. They can be used for non-complex designs by designers without fire engineering qualifications.

The Acceptable Solutions have been reformatted so that one document relates to a defined group of building types. This division is based on 'Risk Groups', which is predicated on the risk that the building and the activity within the building presents to the occupants. This means that

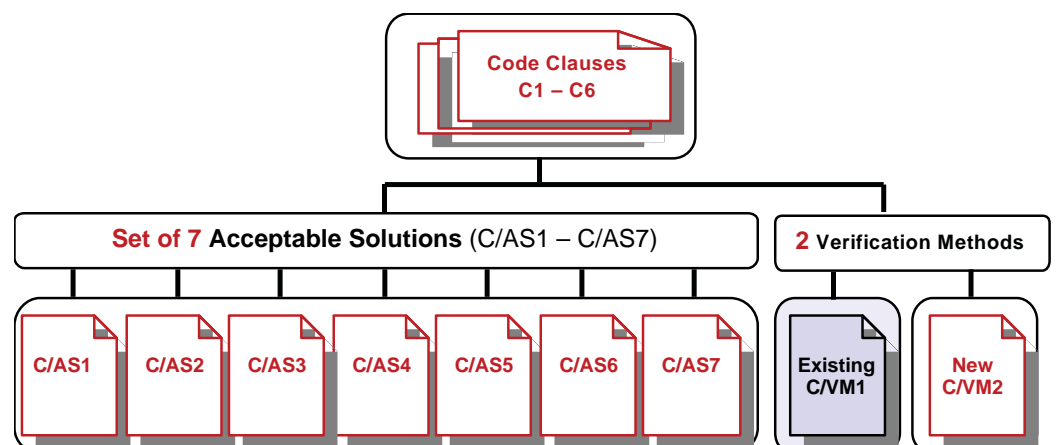


Figure 1

What Type of Fire Are You Going to Protect Your Family From?



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buildings which potentially present an equal challenge to occupants if a fire were to occur are grouped together. There are seven Risk Groups in the new format, these are given in Figure 2 along with a short description of the types of buildings although users of the documents should refer to the scope of each Acceptable Solution to determine exactly which Risk Group a particular building is part of.

C/AS1	SH	Houses and small residential
C/AS2	SM	Other residences and accommodation
C/AS3	SI	Places of care or detention
C/AS4	CA	Where people undertake activities other than working
C/AS5	WB	Where people work
C/AS6	WS	Places where people work with higher risk/storage
C/AS7	VP	Places for cars, trucks, boats etc.

Figure 2 Risk Groups

In addition to the above changes it should be noted that the scope of Acceptable Solutions no longer includes complex building features and complex building systems. Therefore features that are difficult to design with a prescriptive solution such as atria, multiple mezzanine floors or stadiums for large numbers of people are specifically excluded from the scope as are smoke control and pressurisation systems.

Verification Method C/VM2

The new Verification Method (C/VM2) is a methodology for specific design akin to NZ Standards for specific design of structures such as NZS 3101 and NZS 3404. It is for use by designers with fire engineering qualifications and requires knowledge and experience in either computational fire modelling or complex calculation. It allows creative and flexible engineering solutions for any building.

The Verification Method specifies the design loads in the form of design fires that need to be applied to a building. It also specifies the parameters that need to be applied to ascertain how long occupants will need to evacuate the building or space within a building.

The backbone of the verification method is a series of 10 Design Scenarios that require a designer to account for a number of situations in the design of the building and ensure that the design does meet requirements for the safety of occupants, protection of other property and aids firefighters in the event of a fire.

Acceptable Solution for F7, Warning Systems

Minor changes have been made to the Acceptable Solution for Warning Systems (F7/AS1), to align it with the new Acceptable Solutions for Protection from Fire. The revision also removes requirements that are already part of either C/AS1 to 7 or NZS 4512 Fire Detection and Alarm Systems.

F8 Signs

Changes to Building Code clause F8 include updated references to F6 Visibility in Escape Routes and to the Building Act 2004 that require the use of the International Symbol of Access to identify accessible routes.

Pictograms and photoluminescent signs are now included in the Acceptable Solution F8/AS1. These changes makes signage more universally understood and improve safety.

Changes to Code Clause C, Protection from Fire, and its supporting documents

There is a transition period of 12 months for Protection from Fire documents. Either the existing Building Code Clauses and Acceptable Solution or the new Building Code Clauses and Acceptable Solutions can be used until 9 April 2013 - but not a mix of the two.

From 10 April 2013, only the new Building Code Clauses C1-C6 and the new Acceptable Solutions C/AS1-C/AS7 can be used.

The new Verification Method C/VM2 can be used for specific design of any building and can be used immediately.

New Acceptable Solution for F7 Warning Systems

The transition period for F7/AS1 is 12 months. Either the existing or the new F7/AS1 can be used until 9 April 2012.

From 10 April 2013, only the new F7/AS1 can be used.

F8 Signs

From 10 July 2012, only the new Code Clause F8 Signs and Acceptable Solution F8/AS1 can be used.

Want To Know More?

More information about the changes is available at www.dbh.govt.nz/compliance-documents



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2012 Conference and Exhibition

The **Fire Protection Association New Zealand** in association with the **Institution of Fire Engineers NZ Branch** and the **Society of Fire Protection Engineers NZ Chapter**, invite you to participate in FireNZ 2012, New Zealand's key annual event for fire protection, fire safety and fire engineering professionals.

WELCOME

FireNZ is the annual forum for Fire Protection, Fire Safety and Fire Engineering professionals.

This two day event will provide a comprehensive national forum for fire industry professionals. The conference programme is designed to provide insight and learning and to extend current thoughts on the various speakers presentation topics.

VENUE

The Rotorua Energy Events Centre is located on Queens Drive, Government Gardens, Rotorua and is a versatile multipurpose complex located on the edge of Lake Rotorua. It also provides free carparking.

THEME

The theme for FireNZ 2012 is "Defining the Future: Standards and Practice". Education, training and high standards of practice have been identified as areas the fire industry should be striving to develop and improve.

At FireNZ 2012 we will explore current issues, address potential problems and discuss ways to lift the bar in practice within the fire industry in New Zealand.

EXHIBITION

Entry to the FireNZ 2012 Exhibition is FREE to anyone with an interest in the fire industry. Registration is not required to visit the Exhibition. A visitor sign in book will be available at each entrance for visitors to sign in. Catering is for Delegates and Exhibition Representatives only. If you are not able to attend the full Conference, you may still be able to take this opportunity to see the latest in fire industry products and services all assembled together on one place.

WEBSITE

The FireNZ website will again be fully operational with news of FireNZ 2012. The website will be the means by which we keep delegates and exhibitors up to date with the event. The website can be accessed through either the FPANZ, IFE or SFPE Websites or go to www.fireprotection.org.nz/firenz12

CONFERENCE DINNER

The FireNZ 2012 Conference dinner will be held on Wednesday 10th October 2012 at the Rotorua Convention Centre (a short 5 minute stroll from the Energy Events Centre). This is a relaxed event where speakers, delegates and guests can network and be entertained by well known New Zealand comedian, Mike King.



Known for his entertaining, candid and thought-provoking comedy, Mike King is one of New Zealand's most popular and well known comedians. Mike's humour is well received by a wide range of audiences – no stone left unturned, no culture left unbruised, Mike King is hard, funny, astute, sharp and unforgiving.

Dinner tickets can be purchased through the conference registration form. A cash bar will be available. Wine, Juice and Water will be provided on tables at dinner.

ADDITIONAL OPTIONS

MITAI VILLAGE

For those intending to stay over on the Thursday evening (11 October 2012) the FireNZ organizing committee have arranged an opportunity for you to enjoy an authentic Maori cultural experience at the Mitai Village. We have negotiated a discounted rate of \$85.20 per person inclusive of GST. A special booking page has been arranged direct with the Mitai Village. Please go to the FireNZ website if you wish to book. Booking forms will also be made available at the conference registration desk.

NZFS NATIONAL TRAINING CENTRE FIELD VISIT

On the morning of Friday 12 October, the New Zealand Fire Service will open up the newly completed National Training Centre and the Stage 2 practical training area and facilities for FireNZ 2012 conference delegates to visit.

This complex is adjacent to Rotorua airport. You are invited to enjoy a light morning tea and then a full guided tour of this world class training establishment from 9.30am to 12.00noon. If you have an interest in joining this guided tour, please tick the required section on the conference registration form. Transport to the National Training Centre will leave at approx 9am from outside the Millennium Hotel. Assistance with transportation from the city centre out to the Fire Service National Training Centre is limited. If you require transport, please tick the transport required section on the registration form.

WHO SHOULD ATTEND

Under 25 Cadet/Apprentice Students | Fire Protection Contractors | Fire Consultants | Fire Engineers | Architects | Building Surveyors
Property Developers | Distributors and Installers | Insurance Professionals | Fire Equipment Manufacturers | Fire Survey Personnel
Regulatory Authorities | Fire Service Career & Volunteer Personnel | Fire Risk Management Personnel | Property and Facilities Managers
All full 2 day conference delegates will receive a Continuing Professional Development (CPD) Certificate

Programme Wednesday 10 October

8.00 am	Registration Desk Opens
8.30 am	Conference Opening and Powhiri
9.00 am	How the Mighty Fall! Dr Denis Onial - National Fire Academy, Maryland USA What company dominated the photography industry in the world for the entire Twentieth Century? Who made the film, produced and sold the chemicals, the paper, the processing and the printing? Who developed digital photography, established the standards for digital photography and produced the first digital camera? (Hint – it was the same company!). What nearly destroyed the IBM company? And what happens to individuals - really talented individuals - like Tiger Woods? What breaks? What happens to organizations and individuals that cause them to catastrophically fail? Indeed - How Do the Mighty Fall? In this presentation, the very predictable behaviours and actions of organizations and individuals leading to catastrophic failure will be identified and discussed along with the strategies and warning signs to prevent them from happening.
9.45 am	Minister Address: Hon. Chris Tremain, Minister for the Department of Internal Affairs
10.15 am	Morning Tea
10.45 am	Performance based fire engineering over 15 years – Lessons to share between New Zealand and Australia Peter Johnson - Arup New Zealand and Australia have now had performance based regulations and performance based fire safety engineering for more than 15 years. It is therefore timely to compare and contrast some of the similarities and differences, as we perceive them, arising from the experience of fire safety engineering as practiced in New Zealand and Australia over this period, and where we might be headed into the future. New Zealand has a new Building Act and Regulations as well as a new Practice Note 22, and in Australia, inquiries into private certification in Queensland and Victoria and problems with fire safety practice and quality of buildings are likely to lead to some significant regulatory changes. The issues on professional certification and occupational licensing, and the challenges requiring further research are areas from which both countries could benefit. This paper canvasses these issues of practice and standards and offers some suggested lessons to share across the Tasman.
11.30 am	Is there a future for New Zealand's Fire Service, and what might it look like? Paul Baxter – NZ Fire Service Fatalities, injuries and property losses caused by fire in New Zealand are at an all time low, so too are rural fires both in incidence and total burned areas. These are the result of continued pressure from our fire service on legislative change in the building environment, better design and material, better enforcement, excellent education programmes that have brought about more awareness and changes in behaviour. Now we face the "victim of our own success" syndrome where as an organisation we must think about how our value as a traditional "fire service" is in danger. Where do we go from here, and what is happening in this sphere. Paul will discuss current pressures, the restructuring of the organisation he as undertaken so far, and what else is going on in the big picture of emergency management.
12.00 noon	NZ: At the bow of the Fire Regulation Canoe? Nick Saunders – Department of Building and Housing On 10th April 2012 the new Building Code Clauses and supporting documents for Protection from Fire became effective. Halfway through the transition period, it is an opportune time to review how the implementation is progressing and what the major issues have been with the use of the new regulatory framework. This session will look at the new framework and investigate implementation issues and other growing pains.
12.30 pm	Lunch
2.00 pm	Building Consenting! "The new "Risky Business" Robert Tierny – Holmes Far Sight Amendment 3 to the NZ Building Act gained approval in March 2012 and it now provides the ability to process building consents based on the assessment of risk. In this current era of 'regulatory risk aversion' the road ahead will be an interesting one as human nature generally believes that the bigger the beast the bigger the risk. However, are all consenting risks equal? And specifically, is that the case with commercial consenting? Rob Tierny provides an insight into the challenges and solutions for the future of risk based consenting.
2.30 pm	Fire Codes and Standards: Where do They Come From and Where are They Going? Dr Geoff Thomas - Victoria University of Wellington Codes and Standards (including Acceptable Solutions, Verification Methods and system or product standards) have developed over time and have generally become more risk based. There are still a large number of requirements that are historical with unknown or debatable origins. Some are a reaction to isolated events with little thought to the likelihood of such events recurring and with less thought to whether modern methods of construction and ways buildings as are used now would preclude such events from happening anyway. Often such requirements are looked on with veneration, but do they really stand up to rigorous analysis using modern tools and methods? Is the cost to mitigate risks justified if more likely hazards are ignored? This paper will look at the development of some requirements in various codes and standards in a thought provoking way, and use these examples to look at ways code development may be more rationally approached using deterministic and risk analysis tools and cost modelling in the future.
3.00 pm	Afternoon Tea
3.30 pm	Multi-Agency Asset Management Robin Mackie, Wanganui District Council and Gary Ward, NZFS Operational Asset Management falls under the Local Government Act 2002 and loosely under the NZ Fire Services Act 1975. The existing process for hydrant testing is both labour intensive and error prone. Modern web based technology used in Wanganui is user friendly, cost effective and provides one point of truth for the Fire Service and the Council. From an operations perspective the new system has added value giving accurate hydrant locations with supporting information and provides a reliable view of a hydrants test history. There is potential for other users such as fire sprinkler designers and the insurance industry to access for business development.
4.00 pm	Integration of Fire Safety Legislation Simon Davis, New Zealand Fire Service The recent implementation of the Building Amendment Regulations has seen the introduction of a completely new set of acceptable solutions and a new verification method. This has been accompanied by the publication of "Guidelines for Documenting Fire Safety". Of particular interest is the provision of both new and modified definitions that now align the Building Code with the Fire Safety and Evacuation of Building Regulations. This is a major step forward in the integration of fire safety legislation. These developments allow designers to be more holistic in their approach to fire safety design. The author explores the opportunities these developments offer.
4.30 pm	What is Extraordinary about Fire Safety in Temporary Buildings? Stuart Harris and Martin Feeney – Holmes Fire Buildings are typically designed for 50 year life spans, flexibility of use and widely variable hazards throughout their life. Design of temporary facilities is usually in direct contrast to this philosophy. Events in these facilities are typically characterised by high occupant loads, often associated with hospitality, specific functions and exhibitions. In designing the fire safety of short term risks prescriptive solution designs seldom fit well. Agreeing on appropriate levels of design fire occurrence in these temporary buildings can be controversial. This presentation will discuss a performance based approach to these design challenges, acknowledging the limitations of temporary buildings and also recognising compensating features specific to these facilities.
5.00 pm	Day One Ends
7.00 pm	Conference Dinner Guest Speaker: Mike King – Proudly sponsored by Winstone Wallboards Ltd Known for his entertaining, candid and thought-provoking comedy, Mike King is one of New Zealand's most popular and well known comedians. Mike's humour is well received by a wide range of audiences – no stone left unturned, no culture left unbruised, Mike King is hard, funny, astute, sharp and unforgiving.

Programme Thursday 11 October

7.30 am	Breakfast AGMs for IFE/SFPE and FPANZ	
8.30 am	Registration	
9.00 am	The Future of Fire in 2020 – Have we got perfect vision? Roy Bishop – OBE QFSM BA (Hons) FIFireE, IFE International President The world is changing fast and those of us working within the fire sector need to keep pace. What are the key areas that will impact the world of the Fire Professional and what can we expect in 2020? From robotics to social media, population growth to economic austerity, sustainability to public expectation, all these and more are on the change agenda. How do we use the coming years to identify and prepare for the changes to come?	
9.45 am	Exploring Opportunities – how the fire industry and Standards New Zealand can continue to work in partnership to raise the bar Debbie Chin, Standards New Zealand For 80 years the Standards Council, and its predecessors, have created value for the community by bringing together independent experts to help develop Standards solutions. National Standards help protect people and properties, increase productivity, promote innovation, and boost economic growth and trade opportunities by connecting New Zealand to international markets. The Standards development process has proven to be an invaluable way to build support for industry best practice and ensure it is continuously improving. The question Debbie will be posing to the audience is not just what you gain from standardization, but what you lose without it.	
10.15 am	Morning Tea Stream One Stream Two	
10.45 am	Dangerous Discussions: The convergence of fire services, emergency management and tertiary education Dr Val Ingham, Charles Sturt University What enables and prepares fire officers to fulfil modern organisational demands and activities previously 'not on the radar' when they signed up for the job? Synergies between emergency management, fire services and tertiary education will be explored, especially in relation to a work-based learning perspective.	Are New Zealand Road Tunnels Too Safe? Paul Williams – Norman Disney & Young A recent International Transport Forum report places New Zealand 25th on a list of 33 recorded countries for road deaths with 8.9 fatalities per 100,000 inhabitants in 2009. This presentation highlights that in many tunnels the risk of fatality is significantly less than this and as such disproportionate in comparison to 'open road'. Typically, safety systems are installed on the basis of codes or local requirements and this can lead to solutions being "over the top" when compared to the benefit gained and this ultimately adds cost to the tunnel construction and ongoing costs through the regular maintenance requirements. By minimizing costs, tunnels can become a much more attractive proposition and perhaps more importantly, allow the cost savings to be used tackling the wider road safety issues.
11.15 am	I'm as well qualified as the next bloke! Liz Hamilton – EMQUAL Recent New Zealand events have put the spotlight on our response capability. Qualifications play an important role in our emergency response. Consistency of learning outcomes, support from industry in the development of qualifications, and national moderation should provide communities with confidence. As a standard setting body for emergency management, EMQUAL has a responsibility for identifying strategic trends for current and future skill needs; and for integrity and consistency in delivery.	What can a tunnel teach us? Lessons and application of tunnel fire engineering for buildings Simon Weaver, Aurecon As a result of several catastrophic fire events, and a new tunnel building spree, Tunnel Fire engineering has emerged as a new speciality in the New Zealand fire engineering community. With its large budgets, high levels of analysis, emphasis on real safety rather than comparing to prescribed codes, Tunnel Fire Engineering is quickly becoming the Rolls Royce of fire engineering which other sectors aspire to. This presentation will cover what fire engineers involved primarily in buildings can learn from Tunnel Fire Engineering.
11.45 am	Meeting the skills needs of the Fire Protection industry – so whose responsibility is it? Bill Sole – Competenz The education sector is awash with new buzzwords. The Youth Guarantee, Trades Academies and Vocational Pathways are providing a raft of new options for students as they navigate their way through the transition from school to work, and the Targeted Review of Qualifications (TRoQ) is fundamentally changing the way certificates and diplomas are defined. But what does all this education-speak mean and what is the relevance to employers seeking to identify and nurture talent. This presentation will shed light on these changes and present some ideas as to how the Fire Protection industry can get the most out of the education system.	Fire Risk Evaluation Paul Clements – Clements Consultants Ltd Fire risk evaluation is primarily influenced by business continuity constraints. It follows a distinct trail from recognition of a requirement for the evaluation to be undertaken, to completion when the level of risk assumed by the enterprise to be acceptable has been reached. The process is based upon identification, measurement of frequency and micro impact, consideration of the macro impact upon the total enterprise, and then (if required) consideration of the appropriate methodology to reduce the risk to an acceptable level.
12.15 pm	Lunch Stream One Stream Two	
1.30 pm	Seismic Sway Bracing for Fire Sprinkler Listing Test Standards – UL & FM David Jelts – ERICO Protect your fire sprinkler installations with LISTED seismic sway bracing. Listed products are required for bracing installations. Learn about the two most common testing standards for listing sway bracing components, how they differ, and decide which listing is best for you.	Blue Card Incident Management Training in Australia and New Zealand Inspector Nicholas Ferrante, Fire & Rescue NSW Faults in command and control procedures have been mentioned as a common factor with incidents that result in fire fighter death or serious injury. In making considerations for command training, one of the problems is the fact that a poorly managed incident will often give the same end result as a well managed incident. The landscape is then set for the agency to have latent errors habitualised into their training doctrine. The Blue Card incident management training system recently trialled in NZ and Australia, seeks to build multiple layers of error management into operations. This approach links to the crew resource management (CRM) curriculums developed by the commercial aviation industry in the early 1980's.
2.00 pm	Artificial Intelligence – The Essential Element of a Next Generation Fire Alarm Communication Network Neville Clifton – Alarm New Zealand. Over the last decade there have been vast amounts of money spent on R&D deployed towards creating next generation Fire Alarm technology that can collect, store and transfer this extended Fire Alarm data to the Fire Dept, Fire Service agents and building owners. This extended Fire Alarm Data information will provide fire fighters, engineers, business managers and building owners with more decision making options when dealing with Fire Alarm events as they occur. Many in the Fire Alarm industry today askWhy do it?how will it be achieved?and when will it start? This presentation aims to answer these questions and qualify the level of success achieved in the industry so far and clearly identify those essential elements that make up this so called Next Generation Fire Alarm Communications Technology.	Use of Social Media during the London Riots Roy Bishop – OBE QFSM BA (Hons) FIFireE, IFE International President London Fire Brigade has embraced the use of social media and is proactive in both promulgating and receiving information through a variety of social media sites. This presentation will look at how social media is utilised by London Fire Brigade including managing the risks associated with this type of communication. Use of social media by the public and the authorities during the London riots will be explored.

2.30 pm	Fire Protection or Business Protection? Peter Matheson – PF Consulting Does our industry give the customer value for his money and should Compliance be a four letter word? Business today is continually being assailed to implement and comply with a myriad of conditions that sometimes have minimal if any effect on their bottom line. Are we imposing rules and regulations that could put them out of business or at best reduce their ability to employ and remain profitable? No profit, no business, no community. Should we be looking at their businesses in the first instance rather than ours? If you don't understand the business, how can you provide counsel? Thinking outside the square is easy when you know you are in one. Can we accommodate rather than aggravate?	Tall Buildings – Fit for Purpose? Adam Bittern – Astute Fire A review of the available literature reporting on historical tall building fires questions the suitability of the current Tall Building design philosophy and provisions. Current international design practices mainly assume no vertical fire spread, while the historical reporting shows that both internal and external vertical fire spread is a serious concern in high rise buildings. Other notable issues identified include the frequency that vertical escape stairs become impassable due to smoke and heat, especially at an early stage of a fire often effecting two or more stairs within the building. Can we learn more from tall building fires?
3.00 pm	Afternoon Tea	
3.30 pm	The only way is up.... Claire Bulmer – New Zealand Fire Service The Auckland Plan contains a strategy of a quality compact Auckland: "A high grown scenario of an extra 1 million people living in Auckland in 30 years, means an extra 400,000 dwellings. Of these, 300,000 dwellings can be accommodated within the 2010 Metropolitan Urban limit (MUL) through intensification. This equates to a 75:25 split between growth in existing urban areas and growth in new Greenfield land (currently classified as rural land) and rural satellite towns". To achieve this, the only way is up. The Auckland plan indicates the number of mid to high-rise (4-10+ storeys) will increase from 2% now to 11% in 2040. Therefore, the author believes the fire engineering community need to consider high rise design as a potential large part of their future market. This session provides a brief comparison of international high rise design guidance in 8 countries, and considers the key design considerations from a NZ perspective.	
4.00 pm	Moving fire engineering beyond magic numbers and golden rules Judith Schulz, Arup, London, UK Despite ongoing and worldwide progress in fire safety research, many of our guidance documents are still brimming with magic – those rules and numbers that stand without assumptions or justification. The large scale and variety of buildings for a major sporting event in London provided a platform to test exciting new alternative approaches to fire engineering.	
4.45 pm	Close of Conference – Mitchell Brown, President FPANZ	

International Speakers

Dr Denis Onieal Superintendent, National Fire Academy, Maryland USA

Dr Onieal was appointed Superintendent of the National Fire Academy in 1995. Dr Onieal has a Bachelor of Science Degree from New Jersey City University, a Masters Degree in Public Administration from Fairleigh Dickinson University and a Doctor of Education degree from New York University. He taught in the Master and Doctorate programs in Education at NYU for five years and has written numerous articles in the fire field. He joined the Jersey City Fire Department in 1971, rose through the ranks from firefighter to Deputy Chief, and then acting chief in 1995, leading 620 firefighters and officers. He spent his entire time "in the street" as a line fire officer. During his tenure, the national Fire Academy expanded its outreach program to work more closely with State and local training agencies to increase NFA training from 15,000 in 1995 to 115,000 today. The Academy's on-line training program trained over 40,000 people last year. Beginning September 12th, 2001, he led the US Fire Administration's team at the World Trade Centre, working behind the scenes to help the New York City Fire Department re-establish their systems of command, control and on-site communications. In 2005, he was sent to Atlanta GA to lead the in-processing, training and dispatch of 4,000 firefighters to assist in the response to Hurricane Katrina.



Roy Bishop OBE QFSM BA (Hons) FIFire – International IFE President

Roy has been a member of the IFE for over thirty years (London Branch) and has been a Director and Trustee for the past three. He believes that the IFE is uniquely placed to support all those who work in, or are protected by, the 'fire industry' worldwide. Roy currently works as a consultant on Fire issues internationally. He served for over thirty years in the London Fire Brigade (LFB) and concluded his career in the fire service as Deputy Commissioner and Director of Operations (1999-2009). This challenging role entailed the responsibility for 6,500 staff and 112 fire stations, and the management of LFB's annual £250 million service delivery budget.



David Jeltis ERICO

David Jeltis is a Registered Professional Engineer with over 25 years experience. His background includes project development/design/construction, product applications, training, committee representation and product management. As Product Manager for Seismic, David represents CADDY® on two national seismic committees: (1) NFPS Technical Committee on hanging and Bracing of Water-Based Fire Protection Systems, and (2) ASHRAE TC 2.7 "Seismic and Wind Restraint Design". In addition, David has experience in the development and approval of seismic bracing Pre-Approvals for California OSHPD (Office of Statewide Health Planning and Planning Development) for both fire sprinkler bracing and MEP distribution system bracing.



Judith Schulz Associate with Arup's Fire Engineering Team in London, UK

Judith's interest in fire engineering was sparked in the Civil Engineering course at the University of Canterbury (further fuelled by a real fire in her student flat). After completing her Masters of Fire Engineering there in 2002, she went on to work for Holmes Fire & Safety in Auckland. In 2008 she moved to London to fulfil a dream and work on the London 2012 Olympics. With Buro Happold, she worked on the L2012 Main Stadium, the Media Centre. Judith currently studies part time towards a Masters degree at the Cambridge University, while working for Arup.



Adam Bittern Astute Fire

Adam is a consulting fire engineer based in the UK with a wide range of fire engineering experience working in New Zealand, UK, Europe and the Middle East. Adam studied at the University of Canterbury and is presently researching tall building fires at University of Edinburgh, specialising in smoke control.



Peter Johnson Arup

Peter Johnson has more than 35 years in the fire safety field in the area of equipment testing, applied research, education, risk assessment and fire safety engineering on buildings and transport infrastructure. Peter is an Arup Fellow and Principal of the international consulting firm of Arup, and formed International Leader of the Arup fire engineering practice. Peter is a Fellow of SFPE, a member of NFPA, a Fellow of Engineers Australia and a member of IAFSS. He is an Honorary Life Member and Board Advisor to the Fire Protection Association, Australia.



Dr Val Ingham Charles Sturt University

Val joined Charles Sturt University in 2005 where she lectures in emergency management and course coordinates for the fire investigation program. Her PhD examined the somatic and aesthetic awareness of incident controllers on the fireground in time pressured decision making. She is a founding member of the Bangladesh Australia Disaster Research Group and her research interests include perceptions of risk and resilience in Bangladeshi and Australian communities, and the tertiary education of Emergency Managers. Val has extensive experience in the design, development and delivery of social science programs in the disciplines of emergency management, fire services, adult education and community services.



Inspector Nicholas Ferrante Fire & Rescue NSW

Nicholas Ferrante joined Fire & Rescue NSW in 1986. Over the previous two years he has managed Fire & Rescue NSW's evaluation of the Blue Card incident management training system. Nick has taught incident management principles internationally and has a special interest in migrating error management principles common within the Aviation and the Medical sectors across to the emergency community. Nick was a high school dropout who now holds graduate certification with the IFE and a masters degree in science.



National Speakers

Paul Baxter **New Zealand Fire Service**

Paul Baxter is the new Chief Executive/National Commander of the New Zealand Fire Service. Paul has been with the Fire Service for the past 30 years. Starting out as a volunteer with the Napier Fire Brigade, he became a career firefighter in 1986. Moving through the ranks rapidly, in 1998 he was promoted to Chief Fire Officer for Napier. In 2007, Paul was appointed Fire Region Manager for the Eastern Fire Region which stretched from Hicks Bay to Eketahuna. After an intensive and thorough world-wide candidate search and lengthy selection process for the National Commander position, Paul was appointed by the Fire Service Commission in October of last year and officially took up the role on 1 January 2012. Paul has a business degree and has completed the four-year Executive Fire Officer programme at the United States Fire Academy - Department of Homeland Security. He has also recently completed the Advanced Management Programme at the Melbourne School of Business. Paul is obviously excited about his role and the challenges that lie ahead and is committed to continuing to deliver an effective, efficient and accountable fire and rescue service to the public of New Zealand.



Debbie Chin **Standards New Zealand**

Debbie Chin is Chief Executive of Standards New Zealand, a role she has held since 2007. Prior to that Debbie was Deputy Director, General Corporate and Information for the Ministry of Health. Debbie is a Chartered Accountant with a Bachelor of Commerce and Administration from Victoria University, Wellington, New Zealand.



Nick Saunders **Department of Building and Housing**

Nick has worked for the Department of Building and Housing since 2004. His specialist role is advising on Building Fire Safety. Nick has focused on the development of the new Building Code requirements and associated means of compliance. He has led the project with the Department and an industry working group since its inception in 2006. Originally from the UK, Nick has a first class honours degree in Fire Engineering and a Masters in Business Administration. He has 25 years' experience working in the fire sector including roles with the New Zealand Fire Service and BRANZ Ltd.



Gary Ward **New Zealand Fire Service**

Gary Ward is an Assistant Area Commander for New Zealand Fire Service (NZFS) based in Area 13 Wanganui. In this role he is responsible for managing the career fire station and assisting with management of the Fire Area. Gary is the current President of the Institution of Fire Engineers (IFE) New Zealand Branch. Gary has a Masters of Emergency Management from Charles Sturt University. He has twenty-five years fire-service experience including Manager Simulation Training with NZFS and a significant operations and training background with Hampshire Fire and Rescue Service in the UK.



Dr Geoff Thomas **Victoria University of Wellington**

Dr Geoff Thomas was awarded the first PhD in fire engineering in New Zealand in 1997. He worked for Kinston Morrison Ltd and Sinclair Knight Mertz from 1996 to 2000 as a Fire Engineer. He has been a Chartered Professional Engineer (CPEng) since its inception and has been a practice area assessor for fire engineering since 2007. Since 2008 he has been on the Competence Assessment Board, the board that is responsible for design on initial and ongoing- registration of Engineers as CPEng. Geoff has worked as a lecturer at the School of Architecture, Victoria University since 2000 and has established two on-line courses "Fire Safety Design" and "Building Code Compliance". His research interests include fires following earthquakes, structures and fire and performance based building codes. His research has been published in journals such as Earthquake Spectra and Fire and Materials.



Simon Weaver **Aurecon**

Simon Weaver is a technical director and service leader for fire safety engineering at Aurecon. He has been involved in fire engineering for several of NZ and Australia's major tunnel projects and building projects.



Stuart Harris **Holmes Fire**

Stuart is a Senior Fire Engineer with Holmes Fire (Auckland) with eight years' experience in consulting practice in Ireland and throughout New Zealand. Stuart's experience in fire engineering is wide ranging and includes work on the new Forsyth Barr Stadium in Dunedin, Auckland Art Gallery, Eden Park Pavilion, Thomond Park Stadium (Limerick, Ireland). He is a Chartered Professional Engineer (NZ) and holds a Masters Degree in Fire Engineering. He manages the Holmes Fire office in addition to his usual workload of complex fire engineering design projects.



Claire Bulmer **New Zealand Fire Service**

Claire is the Leader of the NZFS Auckland Engineering Team. Before this she was International Project Director at Niras A/S in Denmark and had opportunity to work on projects in over 15 countries as a Fire Engineer for Ove Arup and Partners. Some of her highest projects include being project manager of the fire design of the 63 storey Pinnacle in London, the 43 Storey Project Olympic in London, and the 33 storey Port Baku tower in Azerbaijan. She also contributed to the design of the 55 storey Marina Bay Sands complex in Singapore, and the Shard, the tallest building in London.



National Speakers *continued*

Bill Sole **Competenz**

Bill has held leadership roles in engineering education for many years, most recently on the Governance Group for the National Engineering Education Plan (NEEP) project. Having started his career as a civil engineer with a large contractor, he has spent the past eighteen years in the tertiary education sector, including as Head of School at an ITP, and has worked for the Tertiary Education Commission. Bill currently works for Competenz, leading a number of projects based around the changing needs of industry. Bill serves on the New Zealand Board for Engineering Diplomas and the Maintenance Engineering Society of New Zealand Executive Committee.



Neville Clifton **Alarm New Zealand**

Chief Executive and Managing Director ALARM New Zealand since 1999. Telecommunications and Alarm systems Engineer (NZ POST); 27 years in the Fire/Security/Medical/Automation Alarm Industry; Chief Architect for NZFS Computer Interface System (CIS) used by NZFS; Lead Architect for Dot.NET C# Development of Broadband Fire Alarm Switch Technology; Principle Designer of the Open Source IP CSV and XML Alarm signalling Protocols; Global Solution Partner for Vodafone Mobile Lone Worker Service; Primary Innovation Partner for CHORUS creating the CPE Power solution for the UFB rollout.



Robin Mackie **Wanganui District Council**

Married with 4 adult children, Robin is Wanganui District Council's Asset Management Team Leader responsible for asset management plans, advanced data recording, optimised replacement valuations and analytical profiling of \$1.7B of assets, covering Plant and Vehicles, Libraries, Art Gallery, Roads, Water Supply, Drainage, Parks, Buildings, Airport and Sea Port. He has worked in asset management for 17 years and had 23 years previous experience in a range of positions relating to Roding, and the 3 Waters, specialising in Water supply Reticulation.



Peter Matheson **PF Consulting**

A career lasting 47 years since joining the NZ Fire Service in 1965 with experience in loss control procedures in aviation and underground mining operations in Southern Africa. Responsible for all risk management services provided by ACE Insurance NZ for over twenty years developing cost effective loss prevention programmes and education in loss control concepts with large industrials and multinational businesses in the Asia Pacific region. Combined with courses in Hartford USA and the American Insurances Services (New York) allows Peter to provide sound risk management principles for business continuance and ongoing profitability for clients within his consultancy.



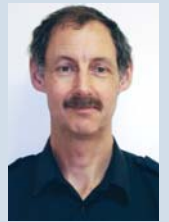
Rob Tierney **Holmes Farsight**

Rob Tierney lead the successful Commercial building consent team at Wellington CC for 8 years and is now the Principal at Holmes Farsight, an exciting new company who are rapidly becoming the industry's leader in regulatory risk management.



Simon Davis **New Zealand Fire Service**

Simon Davis is the Engineering Manager for the New Zealand Fire Service. Simon leads two groups, the fire engineering unit consisting of a team of engineers, technicians and administrative staff and a fire information unit primarily responsible for the processing of evacuation schemes. These units are responsible for the discharge of the NZFS regulatory functions in terms of the Building Act and the Fire Safety and Evacuation of Building Regulations. The engineering unit also works on a broad range of both regional and national projects, both in fire safety and operational optimization. Simon completed a Bachelor of Mechanical Engineering at Auckland University in 1981 followed by a career in Building Services. He has worked as a consultant, contractor and in the manufacturing fields in New Zealand and overseas. Simon completed a Masters in Building Science from Auckland in 1997 and a Masters of Engineering in Fire Engineering from Canterbury in 2000. Simon has also completed both a Graduate Certificate in Applied Management in 2007 and Graduate Diploma in 2009.



Liz Hamilton **EMQUAL**

Liz is the Development Manager for EMQUAL, whose responsibilities include the development of qualifications and associated learning and assessment resources. She has been with EMQUAL for 7 years. Her background includes other senior roles in training and vocational education. She has a strong focus on developing solutions that are learner centred. Over recent years Liz has worked closely with the Australasian Fire and Emergency Services Council (AFAC) Learning and Development Group, and understands the need to ensure that qualifications and learning in emergency management meet the needs of an increasing cooperative environment.



Paul Williams **Norman Disney & Young**

Paul Williams is the New Zealand Fire Engineering Manager for Norman Disney & Young. He has responsibility for all engineering projects across NDY's three New Zealand offices including fire strategy development for a wide range of building and infrastructure projects. Prior to joining NDY, Paul worked for Arup in the UK and Denmark and has experience of fire safety design across a number of countries and regulatory environments. Paul has provided fire engineering and project management for numerous design, construction and research projects comprising transport, education, hospitals, commercial, residential, multi-use development and infrastructure. Through this project experience, Paul has knowledge and understanding of many aspects of fire safety and is able to provide tailored performance based solutions to any problem.



Paul Clements **Clements Consultants Ltd**

Paul is an extremely experienced fire safety engineer, and was the fire safety manager for the Sinclair Knight Merz Group. He has been responsible for the fire safety design of some thousands of projects, over a thirty year span, covering the complete range of occupancies in both New Zealand and offshore. His application experience includes all types of fire related risks, from the largest public buildings, all types of commercial and industrial structures, power generation, and energy storage, through to industrial process safety. Fields of special competence include risk analysis, the development of complex fire risk control concepts, life safety, smoke control, computer based fire modelling, and explosion control methodologies. The majority of his work involves undertaking detailed risk analysis for a project, followed by the application of performance based codes. He also designs and builds very fast human powered boats.



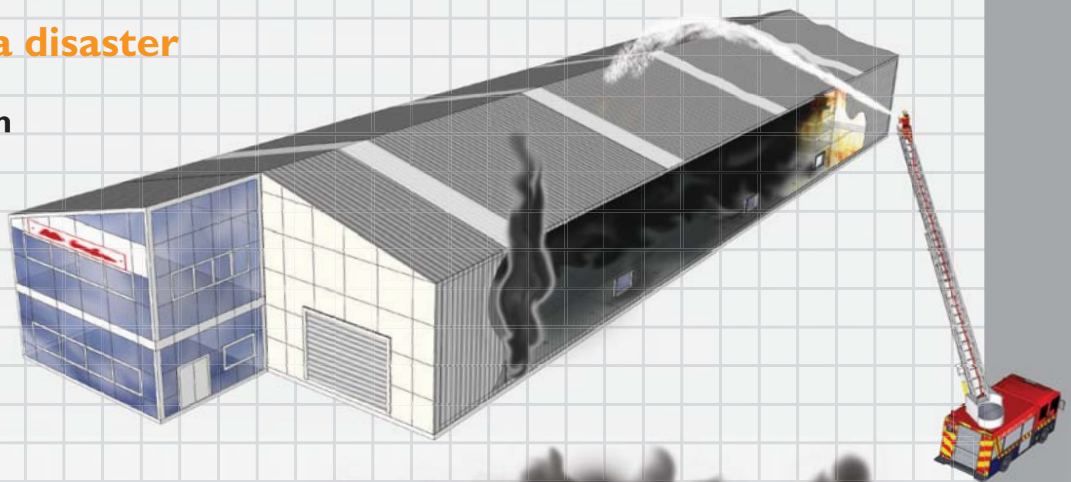
“Are you prepared for a fire in your industrial building or warehouse?”

Colt can provide you with world leading smoke control systems, and for little or no extra cost, they double as a natural ventilation system.

Pouring water on a disaster

No effective ventilation

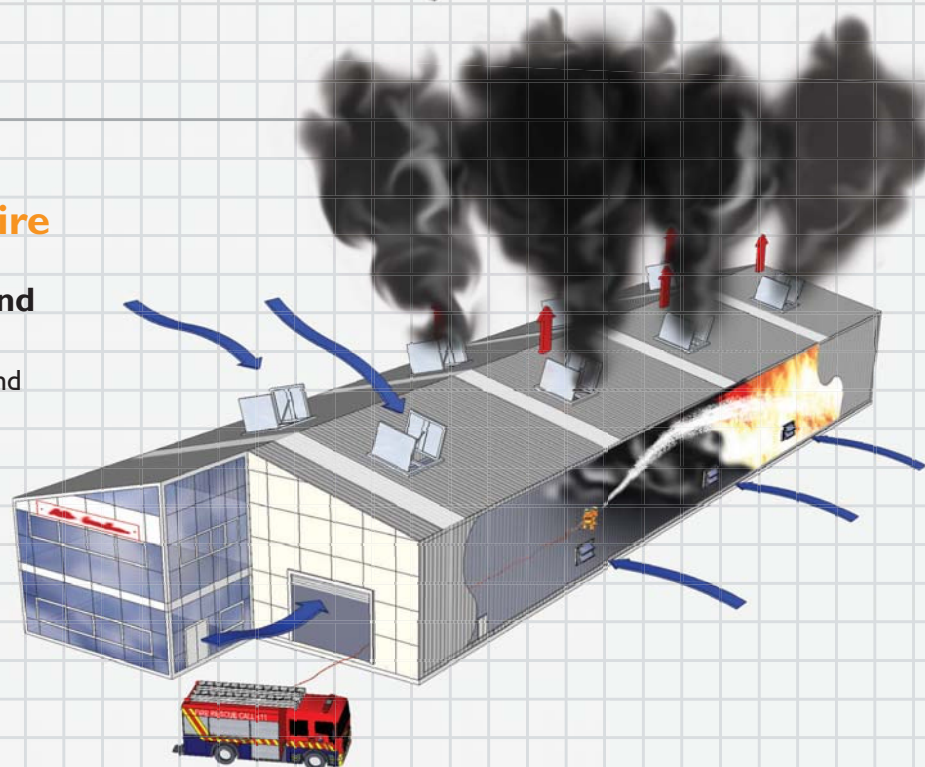
- Building smoke logs in 3 minutes
- Fire fighters can't fight fire
- Stock lost, customers lost, jobs lost, total building lost
- No ventilation, too hot in summer, much lower productivity



OR putting out a fire

Colt effective smoke and fire ventilation

- Automatic, so covers inlet and exhaust requirements
- Smoke layer kept high so fire fighters can fight fire
- Provide natural ventilation, cooler temperatures mean higher productivity
- Internationally tested products and systems



111 TEXT SERVICE

for the Deaf and Hearing Impaired

Quinlan Webster
*Senior Station Officer
NZ Fire Service
Takapuna, Auckland*

Quinlan Webster is a Senior Station Officer with the New Zealand Fire Service. At the 2011 AFAC and Bushfire CRC Conference, he was awarded the Laurie Lavelle Award in recognition of his outstanding achievements in advocating and improving fire safety and awareness for the Deaf and Hearing Impaired including his involvement with the '111 Emergency TXT Service'.

Since his return from the conference, he has been busy preparing for the New Zealand Fire Service 2011/2012 Study Scholarship he was awarded in July, 2011 to research:

- How international fire brigades impart fire safety knowledge resulting in fire safe behaviour to the Deaf and Hearing Impaired, as well as gain a better understanding of issues faced by this group
- How international fire brigades carry out BA search and rescue techniques. Focussing on practical deployment, recording, communication and telemetry procedures along with emergency rescue team role

Below, Quinlan outlines his work with the Deaf and Hard of Hearing, and the challenges they face when dealing with emergency preparedness.



I joined the New Zealand Fire Service as a paid firefighter in 1988, I am currently a Senior Station Officer at Takapuna Fire Station on Auckland's North Shore.

My interest in fire safety issues facing the Deaf and Hard of Hearing stem from my maternal grandparents who were Deaf and communicated using sign language, although to my regret I did not learn New Zealand Sign Language (NZSL) at the time.

A number of years ago I was based at Balmoral Fire Station which is close to the Auckland Deaf Club. While on duty on a Friday night shift I made a point of visiting. During this visit I decided to test their fire safety knowledge. After asking a few simple questions regarding fire safety it quickly became apparent that this was an area that had not been fully addressed by the New Zealand Fire Service (NZFS). Thanks to the support of fire service senior management and night classes in NZSL, I have been able to make some progress in addressing the concerns faced by the Deaf and Hard of Hearing.

Initially I targeted Deaf people who use NZSL. This group is comparatively small and network amongst themselves very effectively. I worked closely with, and received a lot of support from, Deaf Aotearoa New Zealand (DANZ).

In October 2010, the New Zealand 111 Emergency TXT Service for Deaf and Hearing Impaired people was launched, providing a national service to registered users in New Zealand within cell phone coverage. This

service provides direct access to New Zealand Police Communication Centres and enables a two-way text conversation to occur. This has proved popular as well as successful and has led to many Deaf people registering for the service. The Deaf community are very happy that they have equal access to emergency services, giving them a sense of security and trust in the service.

This level of trust was achieved because the NZ Police engaged with the Deaf community very early in the program. It was designed to suit their specific needs and the launch was preceded by a national 'road show' throughout New Zealand. Meetings were held with Deaf people the length and breadth of New Zealand to explain this service and answer their questions. I was lucky enough to be part of this road show and, along with Police Constable Debi Leahy who is fluent in NZSL and Catherine Greenwood from Deaf Aotearoa; we were able to communicate with the Deaf in their own language. We were accompanied by three senior members of New Zealand Police as well as representatives from the St Johns Ambulance Service and this fact was not lost on the Deaf community.

We have held Deaf Awareness workshops targeted at all levels of our organisation - volunteers, paid operational and civilian staff, fire engineers and senior management. This has assisted in the recognition of the specific needs of this community. The fire service

is now aware that in most instances the written information we provide is too generic and does not meet the specific communication needs of the Deaf. Thanks to the support of recently retired New Zealand Fire Service CEO and National Commander Mike Hall, a TV commercial in NZSL aired in late 2010 and again during sign language week in 2011

Our next challenge is accessing, communicating and recognising the specific needs of the Hard of Hearing community. Many people do not realise that hearing aids and cochlea implants can take quite some time to become accustomed to. Further, most Hearing Impaired people I have met remove these hearing assistive devices when they are in their own homes as they can be uncomfortable to wear. It is simple things like the fact that cochlea implants, without visual clues or knowledge of the person they are conversing with, can make the conversation non-gender specific.

There are certain pitches that cannot be heard and this can be a real issue if they are trying to speak with an emergency Comcen operator over the phone. All of the Hearing Impaired people I have met remove these devices when they sleep effectively rendering many individuals deaf so they cannot hear standard domestic smoke alarms. These are just some of the difficulties they face.

This is where I will be focussing my energies for the foreseeable future. I have been working in New Zealand with Louise Carroll, the CEO of the National Foundation for the Deaf (NFD), and I am gaining a better understanding of the issues and frustrations facing people with a hearing impairment. I see the NFD as a good start to gaining understanding and access to a large portion of our Hearing Impaired community. This community represents 10% of New Zealanders and is set to expand as our population's average age increases.

The same team from New Zealand Police are currently working closely with NFD in rolling out the next stage of the III Emergency TXT Service for the Deaf and Hearing Impaired. Once again, this approach of working closely with the Hard of Hearing and meeting the specific needs of the Hearing Impaired community is paying dividends. This inclusive approach is a key component to the success of such initiatives and the New Zealand Police are to be applauded for this approach as there is a lot to be learned from this methodology. We hope to start the roll-out later this year.

The New Zealand Fire Service is also in the process of creating a DVD targeting disability groups to better inform people of how to keep fire safe.



In the last 12 months, the New Zealand Police III TXT Service received the Institute of Public Administration New Zealand Excellence Award in the Working Together category, the New Zealand Fire Service received a Public Service Award from Deaf Aotearoa for our NZSL Television Commercial, and I was joint recipient of the 2011 Laurie Lavelle Industry Award at the AFAC and Bushfire CRC Conference.

One of the areas we are addressing at the moment is access to fire alerting equipment specific to the deaf and hearing impaired. We have formed a team within the fire service that works in partnership with hearing therapists approved by the Ministry of Health (MoH) as Hearing Assistive Technology (HAT) assessors. This team works with clients that meet MoH funding criteria and involves a meeting between the hearing therapist, the Hearing Impaired client/s and a member of the fire service in the clients home.

The fire service is there to provide advice to the hearing therapist as to the minimum number of alarms and the locations that best suit the client's individual needs. We are also able to carry out a home fire safety check for the occupants at the same time. This process has been trialled over the last 18 months and has proved very successful. We are currently in the process of formalising this partnership so that it becomes part of normal fire service business.

I am also keen to find out more about low frequency smoke alarms. A number of research papers have identified that a low frequency alarm operating at 520 Hz (square wave T-3 sound) is very effective for alerting people to fire - especially those with a hearing impairment. This alarm type may have the potential to resolve some of the issues faced by the Hard of Hearing.

As I write this article, I am in Los Angeles as a result of being awarded the NZFS 2011/2012 Firefighters Study Scholarship enabling me to study two topics.

Deaf and Hard of Hearing Fire Safety

How brigades internationally address the needs of their deaf and hearing impaired communities and what lessons can be learned from this.

Breathing Apparatus

Emergency Rescue Teams, BZ command and control plus the practical use of BA telemetry.

To this end I am visiting or have visited the following:

VicDeaf AFAC (Melbourne Australia), Deafness Forum of Australia (Canberra, Australia) the Hearing Loss Association of America, (Washington DC, USA) staff from Gallaudet University (a Deaf and Hard of Hearing University campus in Washington DC, USA) and Action on Hearing Loss - formerly known as RNID (London, England). I also intend to visit a smoke alarm manufacturer in the UK to discuss the future of fire alerting devices for the Deaf and Hard of Hearing. I anticipate that I will learn a great deal about how the NZFS can improve the way we work with Deaf and Hard of Hearing communities to improve their fire safety knowledge and behaviour. I look forward to sharing this information with the AFAC community.

Due to time and funding constraints I have not been able to meet with everyone that I would wish to. I intend to return to Australia in the near future to see the work that Melbourne Fire Brigade (who work closely with VicDeaf) and other Australian Brigades are involved in so that I can progress this initiative further.

Industrial Fire Fighting in Abu Dhabi

Trent Fearnley
IFE Branch Councillor

One of the newest Industrial Fire Brigades in the Middle East is situated at the new AED 21 Billion (\$USD 5.75 Billion) Emirates Aluminium (EMAL) Aluminium Smelting Complex at Al Taweelah, located between the cities of Abu Dhabi and Dubai in the United Arab Emirates. The EMAL project consists of a two-phase construction. Phase 1 was completed in 2009 and hit full capacity in 2011. Phase 1 currently produces 750,000 tonnes of aluminium per annum. This will double to around 1.5 million tonnes per annum when the \$USD4.5 Billion investment in Phase 2 is complete and operating, in 2014. EMAL is a strategic joint venture between aluminium producer DUBAL (Dubai Aluminium) and Abu Dhabi investment vehicle MUBADALA.

This month I was fortunate enough to catch up with Aaron Waterreus, a friend and colleague, who has recently returned to New Zealand and the New Zealand Fire Service (NZFS) from a 3 year stay in Abu Dhabi, UAE. Whilst in Abu Dhabi, Aaron worked for NRC (formerly Seacor Environmental Services Middle East (SESME)).

NRC is an established company, providing international on-site Emergency Fire, Rescue and HazMat Services to private and high risk industry. The service being delivered to EMAL is in conjunction with other contracts including Emergency Response Teams in place at the construction site of EMAL's Phase 2 project and an Emergency Response Team looking after an Oil and Gas pipeline in Georgia. NRC onsite response teams provide pre-emergency planning and risk identification and assessment, fire fighting and fire safety services, technical rescue including road traffic accident and high angle rescue, HAZMAT response / cleanup, and fire prevention, inspection and fire engineering services. All services are rendered according to emergency plans and standard operating procedures prepared by NRC and reviewed and approved by the client.

The NRC fire team at EMAL is made up of an Emergency Response Manager five Fire Officers and 24 Fire Fighters on a rotating shift. The Officers are qualified Fire Officers from the New Zealand Fire Service and UK Fire Service. They bring to the team a comprehensive skill set which includes being qualified trainers, specialist high angle and confined space trainers, fire investigators, fire safety inspectors and fire engineers. The fire fighters also come from a variety of brigades from India, Turkey, Philippines and Zimbabwe.

Aaron, where were you last stationed in New Zealand and how long for?

I began my fire fighting career in 1990 as a fire fighter with the Royal New Zealand Air Force, where I was based at Whenuapai in Auckland for six years. In 1996 I joined the NZFS, and spent the following three

years at Rotorua Station. I transferred in 1999 and for the next four years served at a number of stations in the Wellington region. Training has always interested me so in 2003 I took a secondment as a National Training Instructor and worked back in Rotorua for recruit training. In 2004 I rejoined the Rotorua Fire Brigade as a Station Officer and I left that position in 2009 to go overseas.



Aaron Waterreus

What made you decide to move to Abu Dhabi?

Prior to us leaving, my wife and I had been discussing going overseas for a year or two as a bit of an adventure, and we had always talked about wanting to travel with our children. New Zealand is such a long way from the rest of the world, it is very expensive to holiday and be able to see all the wonderful sights the world has to offer. So we were very keen to do a "working holiday". My wife then got the opportunity to take a contract in the UAE as an education advisor. We decided the time was right for us so we both resigned from our jobs, said good-bye to family and friends and left.

How did you get involved in the Industrial Fire Brigade?

I was still doing some University papers when we got there, so after I finished them I started looking online for jobs. I found that most positions there were for the Oil and Gas industry and that in order to be seriously considered you had to have a reasonable amount of previous industry experience, and qualifications such as NEBOSH, which we don't have in New Zealand. I applied for several positions, and received a phone call from a company that were about to set up and run a private industrial fire brigade. I was fortunate that the company had an ex-Senior Fire Officer from Australia in the management team, who recognised my qualifications and experience and offered me a position.

How did your previous experience with the NZFS help you in your role in NRC?

Lots of skills and experience that I had gained while working in the NZFS were transferable to my role with NRC. When we employed our fire fighters during the start up phase of the project, we had to train everyone and ensure consistency across the watches. Skills gained during my time as a National Training Instructor were valuable at this time. As an operational Station Officer/Senior Station Officer and command and control simulation trainer in the NZFS, these skills were able to be utilised during operational incidents to ensure these incidents were dealt with safely and efficiently. The NZFS had been championing





diversity in the work force for a number of years prior to me leaving. This was particularly useful for me as it taught me tolerance and patience - particularly with language and cultural issues that were common, as all our fire fighting staff were made up of a multinational band of men from the Philippines, Turkey, India, Zimbabwe and Sri Lanka. Working for the NZFS I had also learnt the benefits of practising emergency planning and fire risk reduction, as this was a large part of what we did for our clients.

What type of fire fighting appliances did they have there?

We had a Scania pump which carried water and foam concentrate, a Ford F-550 Rapid Intervention Vehicle which had water, foam and DCP on board, we also manned a rescue boat, and the Station Officer would respond in a Ford F-150.

What were some of the interesting aspects of your work there?

The list is long...

Setting up private fire brigades is a great experience, from recruiting staff to PPE evaluation. Travelling to other countries to interview and employ staff was a key aspect of our employment strategy, as we had to make sure we employed the right people. It is a considerable cost and lengthy process getting new staff into the country and their employment visas issued, so we needed to be sure they were suitable and would commit several years of service to us to ensure we got a return on that investment.

The weather in the UAE is like continuous a summer, with the warmer months being extremely hot. After coming from New Zealand where it rains every week, it was interesting that in three years we had around five days in total where there was a heavy fall of rain. Therefore fire fighting water was a prime commodity. The fire fighting water was supplied from EMAL's own water desalination plant, using reverse osmosis. As EMAL was situated on the coastline, it pumped seawater from the harbour to supply the desalination plant. This supplied water for the aluminium process, potable water and to the fire fighting water tanks. These tanks feed the dedicated fire fighting ring main around the entire site to supply hydrants and the sprinkler system.

Learning about the specific industries that we provided our service to was a very interesting aspect. EMAL had its own 4 Megawatt power plant on site, along with bulk fuel installations and over 2000 tonnes of molten aluminium being transported around the site everyday. Working in a strong magnetic field around the potlines was also an interesting aspect,

as it would affect your vehicles and some equipment.

Most high risk or high value industry maintains their own emergency management and crisis management teams. We would often be contracted to build capacity in those teams, deliver training or run exercises for them. This meant that I got to get into places that the general public wouldn't such as large oil and gas installations, oil and gas pipelines, ports and military bases.

How did you find working within a multi-cultural work place?

Initially it was a bit daunting, but I quickly got to know and understand the differences between each of the cultures we had in our company. One thing that came through quite early in the project set up was that fire fighters are fire fighters; it doesn't matter where you come from. They all shared the same values and reasons for choosing fire fighting as a career, and all enjoyed a good sense of humour and fire station banter. One area of challenge was to take our crews that came from a response only background, and upskill them in order to place emphasis on our readiness and risk reduction strategies, which were highly valued by our clients.

Did you have to learn any other languages?

I didn't have to learn any other languages, as English is the predominant language and language of business in the UAE. I did learn key words and phrases in Arabic as I believe that you should be open to local culture, traditions, beliefs and language when you are a guest in another country. This helps in building relationships with local business people and existing clients. Also due to our multi-cultural workforce, I learnt words and key phrases in Turkish, Tagalog and Hindi.

Did you have any other roles outside of the Industrial Brigade?

Officers in the Fire and Rescue arm of our business would often provide support and training to our Oil Spill and HazMat response teams. My role included delivering HazMat, Emergency Response and Emergency and Crisis Management Training to a variety of our clients throughout the Gulf Cooperation Council (GCC) countries. My role grew from being a Station Officer to the Emergency Response Manager, and as such I became involved in new business development, meeting clients and presenting our business to potential clients. I became involved in evaluating businesses that our company was looking at acquiring. I also wrote and presented a paper at the 2nd Annual Fire Safety Technology Forum UAE conference. I was fortunate to do a fair bit of travel while in the role and see some very interesting places, and to meet and work with some really neat people.

Would you recommend others to follow in your footsteps and what advice could you give them to get there?

I totally recommend anyone who is interested in expanding their experiences to venture off in search of other opportunities. While these opportunities can be hard to find they are out there. As with many things it is often a case of who you know, so if you know someone in a similar position, this would be a good way to open a door to an employment opportunity. Learn about the area you intend to work in, find what qualifications are valued by industry in that area, and upskill yourself to better increase your chances of work. I found that once you were in the country you intended to work in, it was easier to find a position, rather than looking for one from your home country.

I would like to thank Aaron for his time in sharing his experience with myself and the readers of FireNZ magazine.



GASEOUS FIRE SUPPRESSION SYSTEMS

Pressure Relief Vent Guidelines

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Co Author:

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Introduction

The effectiveness of a gaseous total flooding fire fighting system depends, in part, on retention of the air-extinguishant mixture within the protected enclosure for a period of time. Retention of the air-extinguishant mixture requires that the enclosure is well sealed to minimise leakage between the enclosure and the ambient environment.

Discharge of a gaseous fire fighting extinguishant into an enclosure will naturally result in a change of pressure in the enclosure. If the enclosure is sealed too tightly during the extinguishant discharge the pressure change could exceed the structural strength of one or more of its bounding surfaces – windows, doors, walls, ceiling. This can result in both failure of the enclosure and then failure of the gaseous flooding system to achieve suppression due to the air-extinguishant mixture leaking out through the structural failure.

In designing a gaseous total flooding system it is necessary to manage both the need for a well sealed enclosure, and the need to provide vent area to prevent over or under pressurisation of the enclosure and subsequent structural failure.

The fire protection industry has long known about discharge pressure dynamics for various types of fire extinguishing agents. Testing for Halon replacements in the early days of Halon replacement activities documented pressure relief requirements for Inert gas extinguishing systems for all manufacturers. What was not so clear was the requirements of Halocarbon agents - products like FM-200 and NOVEC 1230, which are the two most used Halocarbon agents used in New Zealand and Australia.

The discharge dynamics for Inerts versus Halocarbons are different and should be considered when designing any type of gaseous extinguishing system. The figures below show the different discharge pressure profiles associated with the different agent types.

Permissible Enclosure Pressures

In the early 1990s the NFPA2001 guidelines allowed the internal pressures differential for room structures to be 2500 Pascals for heavy weight construction, and 1200 Pascals for medium weight construction. These figures may have been suitable for the US but it was found that in many circumstances they were too high for UK and possibly Australian structures.

In 1993, following work carried out in conjunction with structural engineers, the figures that we use today were adopted - 500 Pascal's for medium construction and 250 Pascal's for light construction. These figures were then included in previous Australian Standards for gaseous extinguishing systems and have become industry-accepted conservative figures today. Though these figures give guidance to various construction types, enclosure strengths should be verified to ensure enclosure structural strengths are not exceeded.

Quantifying Vent Area

The issue of pressure relief venting was pushed forward in the 1990s with the push for Halon replacement technologies. Around this time the NFPA 2001 standard developed a testing procedure to quantify an enclosure's natural leakage via the use of room pressurisation testing to predict the enclosure's agent retention hold time. This was a positive step and became part of the industry's overall assessment of agent retention and pressure relief.

The unfortunate part of quantifying an enclosure's natural leakage was the potentially misguided belief that it could be used for all or part of the enclosure's pressure relief venting. The problem with this approach to using the leakage area in place of dedicated pressure relief vents is that an enclosure's natural leakage can change over the life cycle of the enclosure and suppression system, which creates a risk of over or under pressurisation should the enclosure become better sealed at any stage during its life cycle.

The LPC has guidelines that require a risk that is protected by Inert Gaseous Agents to be hermetically sealed to give the maximum hold time for the agent and the correct pressure vents fitted to prevent over or under pressurisation, and that no account is to be taken for the risks of natural leakage. This should be the case for all gaseous agents.

Thanks to the cooperative efforts of several fire protection equipment manufacturers and interested parties, experimental data has been obtained from testing a full range of agents (both inert and halocarbon) at the Fike facility in the US. This experimental data is the basis of the new "Fire Suppression Systems Association (FSSA) guide to Estimating Pressure Relief Vent Area's". The FSSA was the organisation that has collected and produced this guideline document for all agents.

What is new in the FSSA document is the quantification of negative and positive pressures for halocarbons during discharge. The fire industry now has something solid to ensure safe vent design and compliance.

The FSSA documentation clearly highlights the factors that influence maximum enclosure pressures, and discharge dynamic behaviour is clearer these days due to the FSSA testing.

The Fire Industry Association (UK) have also produced a document that explains more than just the quantification of formulas. It also guides the reader to other factors for consideration when reviewing or designing pressure relief venting, including guidance on cascade venting.

Pressure Relief Vents Characteristics

Different types of relief vents behave differently and this must be taken into account in the design of a pressure relief vent(s). Calculating the Free Vent Area (FVA) is only half of the overall design of a pressure relief venting system. The selected vent must actually deliver this FVA under discharge conditions.

The best performing vents are those that do not take much energy from the start of opening to fully open, and have blades that are designed to not introduce resistance to air flow. Balance bladed systems are one such vent type that is known to perform best under pressure relief conditions. Vents should also have a known FVA instead of an estimated FVA. When selecting the appropriate vent type the following design information is needed to ensure correct selection and design:

- Actual FVA of the vent taking into consideration the effectiveness of the vent blades efficiency at the predetermined maximum room pressure

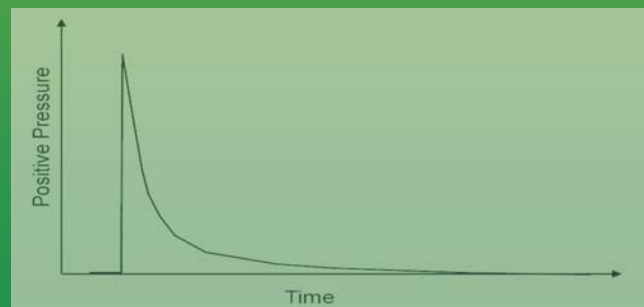


Figure 1:
Inert gas discharge pressure characteristics

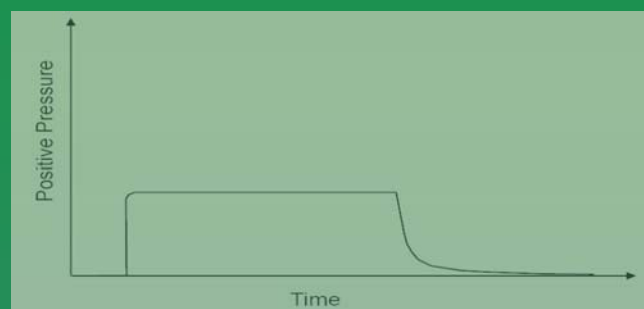


Figure 2: Constant Flow Inert gas discharge pressure characteristics



Figure 3: Halocarbon gas discharge pressure characteristics

- Pressure required to initiate opening of the vent/blades.
- Pressure required for the vent to open fully.
- What is the vent's RTOP (Resistance to Opening Pressure) compared to an open hole.

Research has been undertaken by AFP Air Technologies UK that explores the impact of vent behaviour on pressure relief venting design. AFP undertook a series of tests using inert gases (as well as halocarbons) to establish the impact of standard vent types used in current gaseous suppression systems. The testing was conducted under the watchful eye of the British Research Establishment in the UK (BRE UK).

The testing established that each vent type and style had its own Dynamic Co-Efficient, which created marginally different enclosure pressures even when the suggested FVA provided by the vent manufacturer was stated to be the same for all vent types tested.

Dynamic Co-Efficient can be summed up as the force exerted on the vent blades when exposed to a very rapid increase in pressure or blast and the resistant back pressure produced. Unlike a co-efficient used for fire dampers, which is a fixed test with a damper open and a set air flow with a pressure drop measured and providing the results, with a dynamic co-efficient, that blast or rapid increase in pressure and resultant air flow, as well as the position of the vent blades, is measured over time. This will be measured in the space of one second. The only true way of achieving an understanding of a vent co-efficient is to carry out a live test, which must be based on a comparison with an open hole.

In the tests conducted by AFP Air Technologies the test enclosure was tested with gas discharge with an open hole area of 0.09m². The resulting peak pressure recorded was 219 Pascals. Then three types of pressure relief vents were tested to compare peak pressures and establish each vent's dynamic co-efficient or RTOP (Resistance to Open Pressure) co-efficient.

Type of Vent	Dynamic Co-Efficient	Peak Pressure Recorded
SHX Vent (Balanced Bladed)	1.15	251 Pascals
HXD Vent	1.60	349 Pascals
Top Hinged, Bottom Weighted	3.61	790 Pascals

What is clearly shown with the different vent types tested is that all vents are not created equal. The comparison between a balanced blades SHX-style vent and a bottom-weighted, top-hinged vent created far different results for vents that were supposed to have an equivalent FVA. The testing conducted by AFP Air Technologies and the BRE UK clearly found that vent design plays an equally important role in pressure relief venting design, as does FVA formulae.

The tests conducted by AFP Air Technologies and BRE UK show that it is important that vent manufacturers conduct tests to establish the dynamic characteristics of the pressure relief vents to allow proper vent design and selection.

It has not been uncommon in the past for installers to use standard HVAC one-way flaps or louvers as pressure relief vents. These vents were not specifically designed for this service, and their suitability should be checked and confirmed by the system designer and manufacturer to ensure that the vents will be able to perform as required.

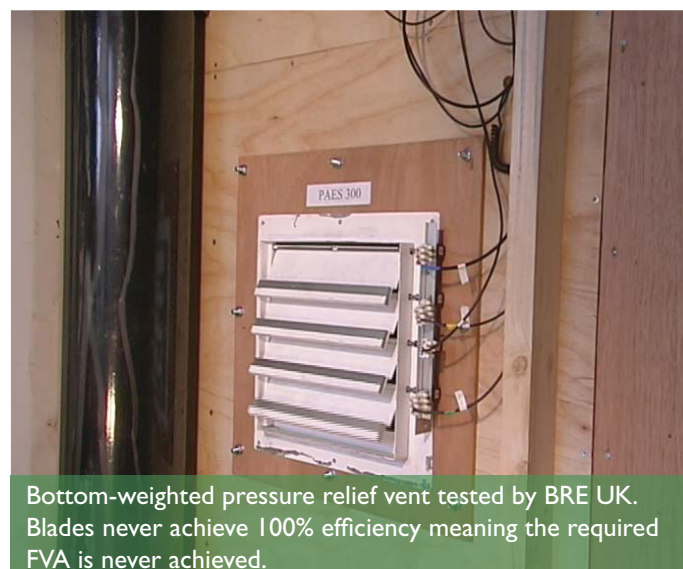
Conclusions & Recommendations

It is critical that specifiers and designers of gaseous fire suppression systems understand the discharge characteristics of the suppression agents being used and that the pressure relief vents installed are suitable for use with these agents (e.g. vents used with a halocarbon agent must allow venting in two directions).

The pressure relief vents used need to be correctly sized to give the required FVA under dynamic conditions at the pressures that will be present during gas discharge. The vents also need to be proven by testing to have suitable characteristics to ensure that they will safely prevent under or over pressurisation of the enclosure.

Failure to design or select appropriate pressure relief vents for gaseous fire suppression systems creates a risk that the structure of the protected enclosure will be damaged during a discharge. In addition, the gaseous suppression system may be rendered ineffective to leakage caused by the structural failure.

System designers and specifiers should be familiar with the latest guidance, including the Fire Industry Association (UK) guide, which can be downloaded from http://www.fia.uk.com/en/info/document_summary.cfm/docid/68A81813-ED03-4229-9F0DFDFAID90CD9B





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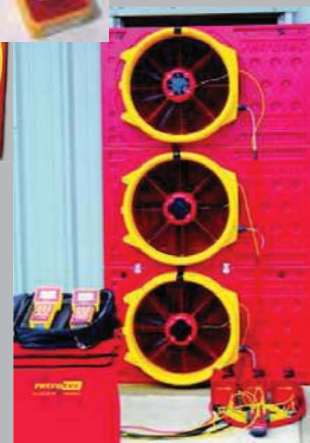
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IPENZ Practice Note 22:

GUIDELINES FOR DOCUMENTING FIRE SAFETY DESIGNS

Martin Feeney
*Secretary of the
NZ Chapter Society of
Fire Protection Engineers*

The Society of Fire Protection of Engineers (NZ Chapter) in conjunction with the Building and Housing Group (MoBIE) and the Institution of Professional Engineers NZ (IPENZ) recently published the IPENZ Practice Note 22 – Guidelines for Documenting Fire Safety Design. The Guidelines provide guidance for fire designers, other design professionals, Building Consent Authorities (BCAs) and the New Zealand Fire Service about how fire designs should be communicated and documented, including providing evidence of design methodology. However, the Practice Note does not describe the design process.

Fire engineering design documentation, like all other engineering design documentation is principally about communicating information – about the project, the design, the solution and verification of compliance with design objectives. One of the significant concerns with fire design practice in New Zealand has been poor fire design documentation. This has led to uncertainty about how to incorporate fire design into the construction plans and specifications, and how the designs have been justified. This issue was identified by the IPENZ/SFPE Fire Engineering Task Force in 2007 in the findings and recommendations of its “Hot Topics” report.

Fire safety design must be properly communicated and incorporated into a building’s final design documentation. The documentation must describe and justify the fire safety design to enable a building consent to be issued. Design documentation submitted for consent must describe the building’s intended use and provide the detail from which the building work can be completed. It must also justify, if necessary, the fire design’s adequacy and advise proposals, if any, for checking on-site construction. Finally, if specified systems are involved the design documentation must nominate the necessary ongoing maintenance and inspection requirements to keep those systems functional after the building work has been completed.

The Practice Note outlines the documentation required to adequately describe a building project’s fire engineering design solution, and how to record it for building consent. It also describes the type and extent of information required to record fire design requirements, how to communicate these to other members of the design team and the type and extent of information required to support applications for building consent. It specifies the information that is expected to be provided by designers and that a Building Consent Authority can reasonably require with a consent application. The

Practice Note applies to new work and alterations to existing buildings.

The fire designer’s documentation is provided for at least two purposes:

1. During the design process the documentation identifies what must be included in construction documentation prepared by others (eg. by architects, engineers or the building owner) to meet the fire safety design requirements
2. For building consent approval the fire designer’s documents provide the justification that the fire safety design complies with the building code.

The information contained in the fire designers documents is categorised into three main format types:

- i. Narrative – text that is usually descriptive in nature and may include tabular information
- ii. Plans and sketches – including figures, graphs, sketches and drawing mark-ups.
- iii. Verification and calculations documentation, which is usually numerical, although sometimes qualitative. This may include background descriptive text relating to application, method, assumptions and limitations. Calculations include hand calculations, spreadsheet output, computer input/output and fire modelling analysis.

One of the key features of the Guidelines is the emphasis on graphical communication, rather than traditional text-based reports. This is especially useful as a record of the completed building. When building alterations are being planned, access to the building’s original design details – including confidence in understanding the design methodologies used, assumptions made, and any limitations that apply – is very important for assessing the impact of proposed changes.

Every fire design is different, so not all items included in the Practice Note tables will be relevant to every project. Although the Practice Note applies both to designs that follow a prescriptive approach (using an acceptable solution) and to those using specific fire engineering design (eg. using the Verification Method C/VM2), the level of verification will differ. For example, design documentation for fire designs that use fire engineering design and verification by calculation need to include more design justification (i.e. the basis for the design along with specific assumptions, limitations, etc.) whereas verification of a design using a prescriptive compliance document such as an acceptable solution might only need narrative explaining how the acceptable solution has been used.

As well as covering the documentation produced by the fire designer, the Practice Note also identifies the design disciplines responsible for producing the plans and specifications which detail the fire design for building consent approval. This is because in almost all cases, a fire designer produces documentation for another design discipline to incorporate into their building consent and construction documents.

One of the most important expectations from the new documentation guidelines relates to design coordination. The fire designer and other disciplines share responsibility for correct interpretation and accurate representation of the fire design requirements in the other disciplines' documents. Primary responsibility for co-ordinating this design rests with the consultants for the other design disciplines. However, it is expected that the building consent documents (e.g. drawings, wall and closure schedules, etc.) are referred back to the fire designer who undertakes a secondary review of the documents for compliance with the fire engineering design.

The building consent authority is expected to request a 'design coordination statement' advising that the fire safety design requirements have been coordinated with and accurately transferred to the drawings, specifications and documents prepared by these other disciplines. The extent to which a BCA relies on design coordination statements is entirely at their discretion. However, they may undertake additional design or document reviews if they feel there is evidence of insufficient design coordination carried out by the designers.

The Practice Note also covers expectations around documentation of procedures proposed for monitoring the building work during construction. In their application the building consent applicant is expected to describe how their fire designer or the BCA will monitor the building work as construction progresses. This includes how they will verify the building's fire protection systems are working properly (through commissioning and acceptance testing). Information about the proposed observations of the building work should specify:

- Who will carry out the observations
- When they will be carried out (and how often, if more than once)
- What needs to be observed
- The method of measurement or acceptance (if it is not otherwise clear from the plans and specifications)
- What confirmation or certification, if any, will be provided for the monitoring.

It is generally considered advisable for the fire designer to be involved in the inspection process, as they understand the fire design better than anyone and are therefore in the best position to ensure the design is implemented correctly in accordance with the plans and specifications. The level of the fire designer's involvement will depend on the complexity of the fire design solution. Having the fire designer on site can also help to promptly resolve any issues that may arise and advise on any necessary variations to the building consent.

If the building consent applicant intends to provide producer statements for aspects of the construction process, this needs to be noted in the application. The BCA can then advise the applicant before work starts if it is willing to rely on those producer statements to show work complies with the building code.

If the fire design includes, or impacts on, a specified system, the specified system needs to be identified in the design documentation, along with the proposed procedures for inspection and routine maintenance to ensure it remains in good working order.

The Practice Note is published as official guidance under section 175 of the Building Act 2004. It is available by free download from the SFPE NZ website: www.sfpe.org.nz



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If New Zealand society is to achieve the vision of reducing death, injury and property loss by fire then there needs to be a concerted approach that includes behavioural change in relation to fire safety practice for our domestic housing stock.

If we are to achieve excellence with fire safe homes, we need to first utilise building standards and the most up to date building materials and designs that include integrated domestic fire protection systems in the home (including smoke, heat detection and home sprinkler systems coupled to warning and alerting processes for the home occupant). Then the final stage will be to see fire safe behaviours and escape plans achieved and practiced by the entire population of New Zealand in the home.

Is this vision achievable? Yes. Over time this could be achieved but to do so the current building stock would need to be retrofitted with fire protection systems, including heat detection and smoke alarms with home sprinkler systems.

Support for the vision would need to be co-ordinated through the NZ Fire Service Commission. It should involve the NZ Fire Service, the Fire Protection Association NZ, Building Control Authorities, Territorial Local Authorities, associated building industry associations such as the Plumbers, Drainlayers and Gasfitters Association, manufacturers, designers, suppliers and installers.

It's a big vision but the journey to complete home fire safety has already taken its first steps. Through NZ Fire Service initiatives and promotions on home fire safety strategies aimed at practice and behaviour change, to the Building Act requirement for new builds or alterations to have a single stand alone smoke

alarm installed in the home, this journey has begun.

A decade ago NZ Standard 4517:2002 Fire Safety for Houses was launched. Whilst the initial thrust of the strategy was to achieve industry and community awareness and

understanding of this newly developed Standard, the uptake to install home sprinkler systems was slow for new builds, and even slower for retrofitted installations. The design specifications sought to utilise the water supply to the home by having either an integrated or parallel system using the water supply to the home from the street reticulation to meet the home sprinkler system needs. The home sprinkler system could also be applied to homes in the rural sector with the tank-to-pump option being favoured. However, with back flow prevention, cost, and water supply pressure issues, the designs of home sprinklers have now moved into the realm of tank and pump home sprinkler systems in the urban sector.

In 2010 the NZS4517 Standard was updated. It provided clearer identification for the type of risk the Standard can protect against. It emphasises the use for domestic occupancies and clarifies the type of building that is not within the scope. The updated Standard also addresses design and installation issues (including a number of formal interpretations), and includes a helpful home inspection checklist, as well as discussion about testing and maintenance of home sprinkler systems to ensure reliability.



In 2012, the NZ Fire Service Home Sprinkler strategy group reinvigorated the many streams of activity needed to complete the home fire safety vision, which included keeping home sprinklers promotion and public profile on track. As a result the Fire Service Corporate Communications Manager, Scott Sargentina, achieved a major promotional coup with the TV 3 production of the hugely successful Australian renovation programme – The BLOCK, where teams compete to renovate similar houses. This included having the ultimate fire safety products installed in each of the four houses. The NZ production of The Block has seen the installation of a home sprinkler system and also a wireless, interconnected 10 year lithium battery home smoke and heat detector system.

This show has rated highly over past weeks and culminated with two public Open Homes in late August and early September with the houses being auctioned on television.

As a way of demonstrating the vision of the Fire Service to see a continuing reduction in fire starts the promotion of Home Sprinklers and state of the art smoke and heat detection systems for the home only leaves the fire safe behaviour practices of the home occupant to complete the home fire safety vision.



THIS IS YOUR CHANCE to make New Zealand homes and families fire protected 24/7

The New Zealand Fire Service Home Sprinkler strategy is supported by the Institution of Fire Engineers (NZ Branch) and the Fire Protection Association New Zealand.

For more information go to www.homesprinklers.fire.org.nz or www.fireprotection.org.nz to assist in making our homes fire protected 24/7.

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