

THE MAGAZINE FOR FIRE INDUSTRY PROFESSIONALS

fire NZ

ISSUE 5 | AUGUST 2011

CHAMPIONS OF FIRE



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Fire NZ

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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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THE INSTITUTION OF FIRE ENGINEERS
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FIRE-NZ 2011 CONFERENCE AND EXHIBITION

Ellerslie Event Centre, 80-100 Ascot Ave, Ellerslie, Auckland | Wednesday 14 and Thursday 15 September 2011

The FIRE-NZ 2011 conference and exhibition is New Zealand's premier annual event for anyone involved with, or with an interest in, fire protection, fire safety, fire engineering, fire service operations and all aspects of the fire industry and profession. The conference and exhibition has grown each year and has become New Zealand's professional fire industry forum with presentations from world-class local and international speakers.

FIRE-NZ 2011 will continue the success of last year's conference and exhibition held in Christchurch.

The conference theme this year is "Champions of Fire". The last six months in New Zealand, and indeed around the world, have tested humanity and our ability to deal with the forces of mother nature. Our resilience to these disasters is shaped by what we do to prepare for such events, to reduce the impacts on society and respond to the needs of effected communities. The resilience of communities is also defined through the standards of safety and design as applied to our building stock and infrastructure.

The business of fire has once again been thrust into the spotlight with the design of buildings and their fire protection and fire engineering to make safe the occupants and the buildings' integrity during such calamities. This year, with such prominent events having occurred in New Zealand and around the world, our goal is to provide Fire-NZ 2011 conference delegates, sponsors and exhibitors with the inspirational and empowering theme "Champions of Fire". This theme will drive up the best of the best from fire engineering, fire safety, fire protection and our industry partners with state of the art and latest developments from exhibitors and conference speakers.

This year, for the first time, the Fire Protection Association NZ, Institution of Fire Engineers NZ Branch and the Society of Fire Protection Engineers NZ Chapter have come together in partnership to promote the FIRE-NZ 2011 Conference and Exhibition. This year's conference programme is single stream and has been designed to be of interest to the wider fire industry conference delegate – there is something in here for everyone!!

The IFE will again be supporting Continued Professional Development by arranging CPD certificates for all delegates attending the FIRE-NZ 2011 Conference. These will be available only to delegates who attend the full two days of the conference.

The Conference Dinner will again delight delegates with the wit and humour of New Zealand's original odd-fellow – Mark Wright. Some of you will remember Mark from shows such as McPhail and Gadsby or Billy T James and others will remember him from That Comedy Show or Comedy Central. Of course, the FPA President, has truly

revealed his age by going back even further and remembering Mark from "Mitchell Brown's School Days!!".

So who should attend? This two day event will provide a comprehensive national forum for fire industry professionals. So if you are involved in fire safety, fire protection contracting, fire industry consultancy, fire engineering, building design and architecture, building surveying, property development, fire protection and fire safety product distributors and installers, insurance professionals, fire equipment manufacturers, fire survey personal, regulatory authorities, fire service career and volunteer personnel, fire risk management personnel – FIRE-NZ 2011 is well worth investing your time and money in attending.

So, below are some great reasons as to why you should attend:

1. **Learning** – the programme content provides a wealth of knowledge and insight in one place at one time.
2. **Networking** – interact with your peers and others in the industry. It's a chance to talk and see what's going on in our industry from throughout the country and around the world. Make new connections and create new business opportunities. For others it's also a chance to catch up with old friends and colleagues.
3. **Exhibition** – Aside from being a great way to develop and build new and existing business connections, it's also an opportunity to catch up with some of the latest technology in products and services which will be on display, with fire industry exhibitors available to answer any questions you have. They want to meet you and it's a great opportunity to visit these stands and come face to face with companies that you may have only dealt with via email and phone.
4. The **FOOD** – let's face it – FIRE-NZ 2011 has GREAT food. We strive to ensure that the food is good quality and tasty. We tailor-make the menu to suit and if anyone has any special dietary requirements, then just let us know and we will be more than happy to accommodate you.

So these are some pretty good reasons why you should part of FIRE-NZ 2011. With the social interaction, the networking, the coming together of fire industry professionals in one place, you will be refreshed, empowered and enlightened as a well informed and updated.

We recommend you take advantage of this year's opportunity to attend FIRE-NZ 2011 and look forward to seeing you in Auckland on 14th and 15th September 2011 at the Ellerslie Convention Centre.



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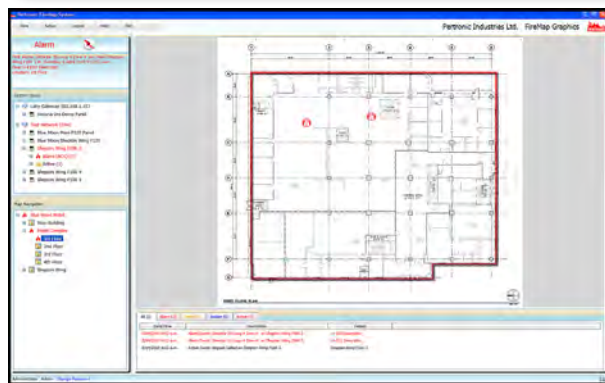
CASE STUDY: BAY OF PLENTY DISTRICT HEALTH BOARD, NEW ZEALAND

Providing fast, accurate information on fire events to key response personnel is critical in any building and all the more so in hospitals, with large numbers of bed-ridden patients creating special evacuation requirements. As part of major building upgrades and extensions at Tauranga and Whakatane Hospitals, Bay of Plenty District Health Board management wanted to ensure their staff had the best information possible from their fire protection systems to assist their decision making on evacuation and life protection responses.

Engineers at Beca Consultants researched and recommended Pertronic FireMap®, a PC-based Graphics System, to provide this critical information at multiple locations in both hospital complexes. Developed in-house by Pertronic Industries, FireMap is designed with ease of installation and ease of use as prime requirements. Most PC-based graphics systems are complex to develop. Unless the fire alarm company has staff with comprehensive training in graphics development, this work is usually undertaken by a third party contractor, adding cost and delays in the communication chain to the end client.

Pertronic FireMap simplifies the entire process. FireMap is designed so the fire alarm company can develop and maintain the entire graphics system for their client. FireMap can also communicate between multiple PC's and fire panels over the client's ethernet LAN, removing the need for additional (and often expensive) cabling. Once FireMap is operational, navigation is via a hierarchical map viewing system, which is always visible to the left of the screen. When an alarm occurs, the relevant map (or zone) automatically displays and shows the physical location of the device in alarm together with its details.

While FireMap is designed to operate primarily with Pertronic analogue addressable fire panels it can also interface with non-Pertronic panels to provide basic information in the graphics display from other alarm systems. This feature will give the District Health Board information not previously available from a number of remote buildings, providing management and staff with valuable data to ensure the correct response to any alarm event site wide.



Typical FireMap graphics screen layout

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From the Presidents

My focus for this edition is on continuing professional development (CPD). It has long been a goal of the Branch Council to increase the CPD opportunities that we offer to members of the Institution.

I am pleased to report that the Branch ran its first seminar in many years, at the Massey University campus in Wellington on 14th June, despite disruptions with volcanic ash and aftershocks.

The seminar on Compressed Air Foam Systems included a section on environmental impacts of foam and fire-fighting. The three highly regarded speakers were Kim Olsen from Denmark, Shan Raffel from Australia and Andrea Horton from Auckland City Council. Kim presented on the ground-breaking use of CAFS at Copenhagen Airport, Shan on the development of CAFS in Australian fire services and Andrea spoke of initiatives with the UK Fire and Rescue Services from her previous role in the UK Environment Agency. The seminar attracted delegates from organisations all around New Zealand and generated significant interaction with the speakers. The success of this seminar means that the Branch Council will endeavour to provide more such opportunities in the future.

As the international organisation for fire professionals, the Institution of Fire Engineers continues to promote CPD to all its members. Developing your own CPD portfolio is a method for professionals to demonstrate how they maintain their skills and knowledge in an ever changing environment. The Institution has developed comprehensive guidelines and a CPD template for members. Currently CPD is offered on a voluntary basis however this status is under review, as many professional organisations require compulsory CPD in order to maintain membership.

A further development opportunity exists for IFE members through registration with the Engineering Council. The grades of registration align to engineering roles and have a rigorous but fair entry process. Registration with the Engineering Council demonstrates your capabilities through a globally recognised qualification. Information on CPD and IFE registration with the Engineering Council can be found on the ife website www.ife.org.uk

Continuing the theme of fire professionals, the Australasian Fire and Emergency Services Authorities Council (AFAC) is seeking feedback on the development of a Professionalisation Scheme. The scheme proposes transforming the 'fire occupation' into a profession through accreditation and validation of individuals. The Institution of Fire Engineers has had initial discussions with AFAC on how this scheme potentially complements existing IFE membership, and in particular the IFE Registrants Group. We look forward to working closely with AFAC as the scheme develops.



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



Welcome to this edition of the Fire NZ magazine. Whilst this edition is a precursor to the Fire-NZ 2011 Conference and Exhibition at the Ellerslie Convention Centre with information to promote the high quality array of conference presenters, a range of articles from our industry continues to promote new concepts, challenge and educate our readership.

With the appointment of our new Executive Director Mike Connolly in January of this year, much work has been undertaken to improve our strategies and business that supports the work of the FPANZ on behalf of the membership.

The Fire Protection Association NZ has been working on many strategic issues that will provide direction and improvements on how the FPANZ is governed and manages the needs of the Association to meet the expectations of our membership and industry.

These strategies are now producing business plan actions for the Association to focus its energies and efforts on. We continue to deliver communication to our members through our website, monthly newsletter and FIRE-NZ magazine. We have representation of our members in key industry areas, such as NZ Standards reviews, in developing reports and supporting technical studies. These contribute, influence and provide technical information and feedback from our industry, eg. the Canterbury Earthquake report commissioned post the 4 September 2010 event (which is shortly due for release). FPANZ is also a contributor to the University of Canterbury research that has been commissioned for the 22 February 2011 earthquake.

Other key actions for the Executive Director have been the establishment and delivery of a process to transition our National Executive into a Board and National Council. This structure clearly demonstrates and articulates the governance requirement of the Fire Protection Association NZ Inc., with management guidance to the Executive Director and the Special Interest Groups coming through a National Council. Work has now been tasked for an Interim Board to progress these structures with the necessary Constitution changes to be made available to the membership for consideration and adoption at this year's Annual General Meeting. The AGM is to be held at 4.30pm, Wednesday 14 September, Ellerslie Convention Centre, Auckland.

The Fire Protection Association will continue to represent its membership through involvement in our special interest groups and in particular the Contractors Group which has now evolved into a Fire Protection Association NZ Members meeting as a precursor to the National Executive meetings in Auckland, Wellington and Christchurch. We encourage you as members of the Association to invest time to attend when we provide meeting opportunities in your part of the country.

Members will have noted the re-establishment of the Hand Operated Fire Fighting Equipment Group (HOFFE). My thanks to the team that has come together in Auckland, ably led by Darryl Brown from Amerex. It is important for you, our membership, to engage with the Special Interest Groups (SIG) including HOFFE but also the Passive Group, the Water Supplies Group, the Evacuation Consultants Group and the Contractors Group. The chairs of these SIG's would very much appreciate your interest, contact and involvement.

So with a month until our annual conference and exhibition – FIRE-NZ 2011, I encourage you to commit to attending what is still the highest quality and best value fire industry event held in New Zealand.

With a focus on providing you, our membership, with world class speakers and the latest in the world from industry through the exhibition hall, we will definitely be seeing and hearing from our industries' "Champions of Fire"!!



Mitchell Brown
President
Fire Protection Association NZ





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CANTERBURY EARTHQUAKES

The Ground Zero Perspective

Duane Harding-Browne
GiFireE, Dip Ar.

Duane is employed by the New Zealand Fire Service as a full-time firefighter based at Woolston Fire Station Christchurch and is also a Branch Councillor for the Institution of Fire Engineers NZ Branch.

During the crisis that has developed in Canterbury since September 2010, an overload of pressure has been placed on all Canterbury region systems, infrastructure and manpower. With this in mind I have found it very interesting, being part of the process and present either at work responding as a firefighter or at home during all of the large earthquakes and most of the smaller ones we have had. For me personally, it has been an extremely harrowing time in Christchurch. With a young family of 5, we have suffered serious damage to our house (the most caused by February 22nd earthquake), which meant we had to leave until it could be repaired enough to move back in.

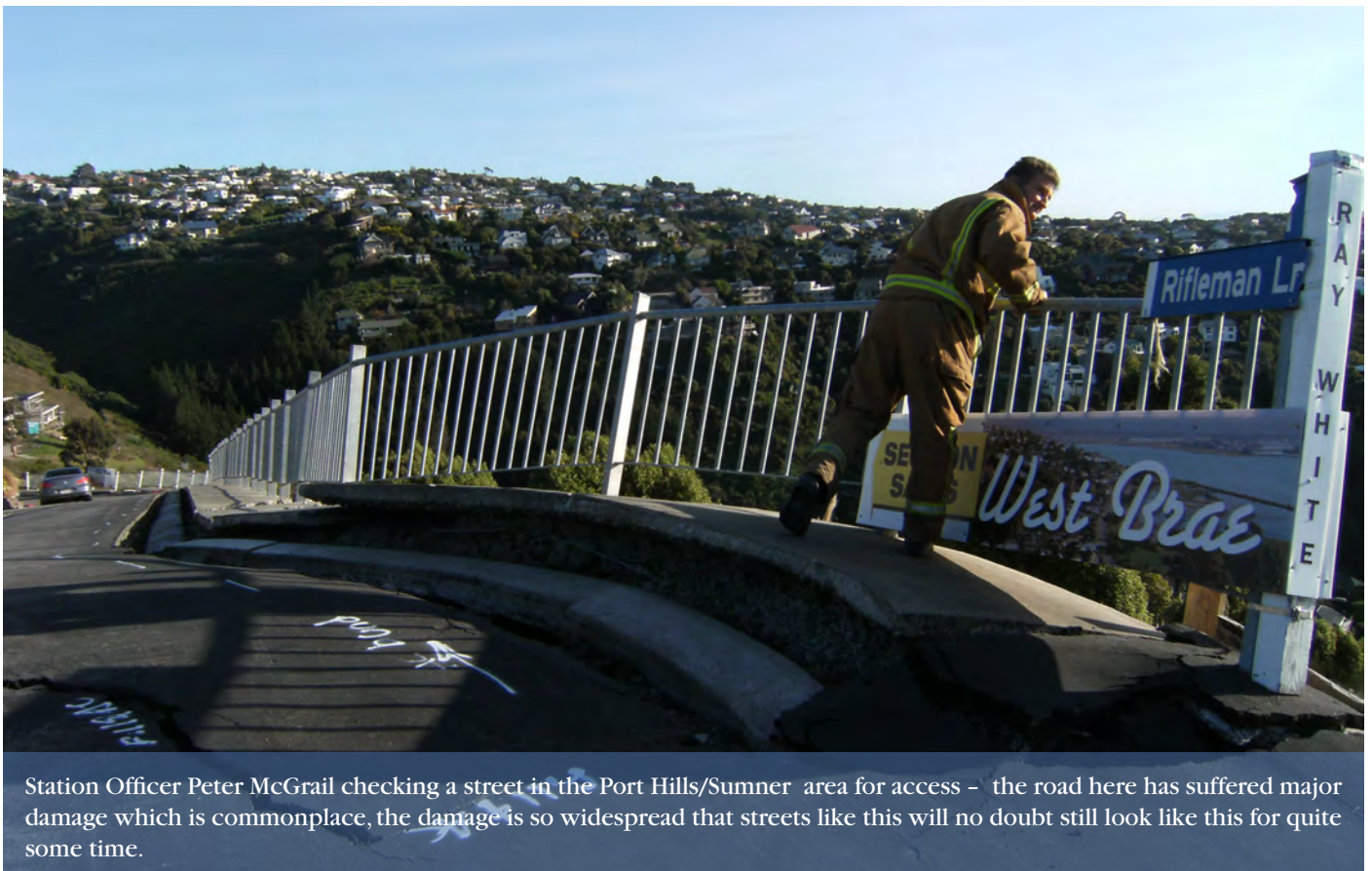
As a full time Firefighter there is a surreal feeling as I leave my damaged house to go to work, travel on damaged roads to arrive at a damaged Fire Station, which has only recently been deemed unsafe for use. For now and into

the foreseeable future, this leaves myself and the rest of the station personnel living in shipping containers and portacombs.

As a result, I suppose I have a unique perspective on what is happening in our beloved city at this time, as we are living it both day and night. The situation here has now been going on for so long that the way we are living is becoming normal – or the “new normal” as they say here in Christchurch.

There have been five Earthquakes (four of which were “aftershocks”) that are considered to be once in a lifetime occurrences which we have gone through since September. The latest large earthquake of June 13 caused more damage which is yet to be assessed.

This type of extreme event has definitely taken its toll on the people here as we continue to



Station Officer Peter McGrail checking a street in the Port Hills/Sumner area for access – the road here has suffered major damage which is commonplace, the damage is so widespread that streets like this will no doubt still look like this for quite some time.

be bombarded by this constant battering of our moving earth. Just when we start getting water and power back up and the roads clear of liquefaction we get hit again.

Many people from Christchurch who travel elsewhere in the country often comment how strange it is to walk down a street and not see portaloos, or to drive on a smooth road, or to not hear the constant drum of bulldozers and heavy machinery. We are now so used to riding on bumpy roads, losing power and drinking water that tastes like it is from the local pool while also making use of our friendly portaloos down every street.

There has been so much said about our quakes down here already and we all know of the devastation that has been wrought and worst of all the loss of life, but what of the future here for us and specifically in regards to Fire Engineering? This year our conference has the theme of “Champions of Fire” and we, as people in the fire industry, responders, engineers and emergency planners etc., need to realise that we should take what has happened, examine it, learn from it, and make our industry better across the board. This means for people like myself who respond to incidents, we need to do it more efficiently, faster and with better equipment and planning, to save more lives and property in the future. For the Fire Engineers

it may include building more failsafes into the suppression systems, stronger more durable piping for the sprinkler systems, back up water systems and so forth.

In my opinion, we should also look at other places in the world that have suffered similar catastrophes and learn from what they did in the aftermath. Sometimes there is no need to re-invent the wheel – somebody has probably already done it, so let’s find it, learn from it, use it or adapt it. I am sure that there will be many great talks on these topics during the conference this year and I trust all those reading this and attending the conference will be ready to take notes.

From my own perspective and living the situation here in Christchurch, the most important thing is to work towards becoming operational again across the board, and to bring our Cantabrian community back to a functioning status.

Let’s turn the destruction here in Christchurch into a vehicle for positive change through the initiation of new ideas and systems that will have far reaching appeal and use around the world.

We are the “Champions of Fire” and we need to work quickly and efficiently to better prepare and future proof as best we can, not just for the good of the businesses and communities we are here to serve for but also for future generations.



This building was extensively damaged in February – but also strengthened (the metal bars you can see that are now bent). The aftershock of June 13th effectively finished this building and as this is written this building is now an empty site awaiting future rebuild.



CHAMPIONS OF FIRE

FIRE-NZ 2011 CONFERENCE & EXHIBITION

14 – 15 SEPTEMBER 2011

ELLERSLIE EVENTS CENTRE

80-100 ASCOT AVENUE | GREENLANE | AUCKLAND

A warm welcome to FIRE-NZ 2011

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 FIRE-NZ 2011, New Zealand's key annual event for the fire protection industry.

THE EVENT

The Fire Protection Association New Zealand (FPANZ), Institution of Fire Engineers NZ Branch (IFE) and the Society of Fire Protection Engineers NZ Chapter (SFPE) invite you to attend FIRE-NZ 2011 to be held on 14th and 15th September 2011 at the Ellerslie Event Centre, 80-100 Ascot Ave, Greenlane, Auckland.

This year we are pleased to advise that FIRE-NZ is again a collaborative event with the Fire Protection Association NZ and Institution of Fire Engineers NZ Branch but we also welcome into this partnership the Society of Fire Protection Engineers NZ Chapter.

THEME

This year the theme is "Champions of Fire". The last six months in New Zealand, and indeed around the world have really tested humanity and our ability to deal with the forces of mother nature. Our resilience to these disasters is shaped by what we do to prepare for such events and what we have done to define standards of safety and design.

The business of fire has once again been thrust into the spotlight with the design of buildings and their fire protection and fire engineering to make safe the occupants and the buildings' integrity during such calamities.

This year, with such prominent events having occurred in New Zealand and around the world, our desire is to provide our annual conference delegates, sponsors and exhibitors with the inspirational and empowering theme of "Champions of Fire". It's a little tongue in cheek, given this year's annual conference and exhibition is in Auckland during the time of the Rugby World Cup. Hopefully, we will see the Champions of Rugby come from New Zealand - Go the All Blacks!!

Our conference and exhibition theme will drive up the best of the best from fire engineering, fire protection and our industry partners with state of the art and latest developments from exhibitors and conference speakers.

Our conference presentations will again see the theme "Champions of Fire" represented with key note speakers and addresses from world class local and international presenters.

We are the Champions of Fire and we need to continue promoting, supporting and providing agenda for change in excellence for fire protection, fire engineering and indeed the entire fire industry in New Zealand. Let's show the world we are truly "Champions of Fire."

EXHIBITION

The conference also provides a forum for direct interface between providers of fire protection products and services. Many of these providers will be exhibiting during the conference.

Exhibitors for all aspects of fire safety will be on hand to discuss your needs and arrange demonstrations and/or presentations.

Come and see how technical innovations are able to protect property, life and the environment from fire.

CONFERENCE DINNER

This year we will be issuing conference dinner tickets. Each ticket will be accompanied by two complimentary drinks tickets. A cash bar will be available. Wine, Juice and Water will be provided on the tables at dinner.

Liquor Licensing rules will apply and anyone under the legal drinking age may be asked for ID for proof of age by Ellerslie Event bar staff.

CHRISTCHURCH EARTHQUAKE APPEAL RELIEF FUND

Each year FIRE-NZ has raised funds to support the Burns Support Charitable Trust. After the devastation of the 22 February earthquake and the ongoing quakes in the Canterbury region, it is clear that Christchurch has a long road of recovery ahead. As an industry and with all partner organisations having members in this region, we have chosen to support Canterbury by raising funds for the Christchurch Earthquake Appeal Relief Fund.

When you register for the conference dinner \$10 of your dinner cost will automatically be donated to the Christchurch Earthquake Appeal Relief Fund. This donation will be reflected on your tax invoice.

WHO SHOULD ATTEND

Under 25 Cadet/Apprentice Students | Fire Protection Contractors | Fire Consultants | 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

All conference delegates will receive a Continuing Professional Development (CPD) Certificate

Programme Wednesday 14 September

8.30 am	Registration
9.00 am	OPENING MINISTERIAL ADDRESS – Minister to be confirmed
9.45 am	Earthquakes: Vulnerabilities and Lessons to be Learnt Panel Discussion with Ross Aitken, Brent Houston, Greg Baker, Tony Abu The series of Canterbury earthquakes has highlighted a number of risks which have exposed vulnerabilities with both passive and active fire systems and their infrastructure. These risks applied both immediately and now, remain after the earthquake, perhaps in some cases for many years. This panel discussion will examine these events and look at the implications for fire protection and pose a series of questions for future consideration.
10.30 am	Morning Tea
11.00 am	Lessons learned from the evacuation of high rise buildings following earthquakes when there are no stairs Charles Fleischmann University of Canterbury At 12.51pm on 22 February a magnitude 6.3 earthquake rocked the Central Business District of Christchurch. As a result of the earthquake, three high-rise structures, each over 15 stories, suffered the loss of their concrete egress stairs trapping the occupants above ground level. This presentation will focus on the human behaviour of the occupants that were trapped above the ground floor in the high-rise buildings that suffered stairway collapse.
11.30 am	Insurance for New Zealand Post Christchurch 2011 Peter Hughes Aon New Zealand The Christchurch earthquakes have indelibly affected the insurance industry in New Zealand. Peter will take us through the experiences and lessons learnt from this major event and the implications and affect on insurance and loss control for future insurance cover in New Zealand.
12.00 pm	Don't Panic – Saving Heritage Collections from Disaster! Lynn Campbell, Christchurch Art Gallery Te Puna o Waiwhetu Heritage collections can be direly affected by disasters including both fire and water. In many instances the water used to douse a fire can cause more damage than the fire itself. The experiences of the Canterbury Disaster Salvage of Heritage team and their relationship with the NZ Fire Training department in Canterbury has been essential in the special way that heritage collections are dealt with in disaster scenarios by not only to the museum staff but also by those who arrive to put the fire out.
12.30 pm	Lunch
2.00 pm	“Carpe Diem” – The New Zealand Fire Service at the Crossroads Mike Hall New Zealand Fire Service NZFS responds to around 75,000 emergency calls in a normal year, although this year has been abnormal with events in Christchurch adding to around 10,000 calls to the normal total. Calls are split roughly 1/3 fires of all types, 1/3 false alarms, mainly from automatic systems, and 1/3 all other types of calls (e.g., rescue, medical, weather etc). Long term trends show fires steadily decreasing with “others” steadily increasing. Effectively the NZFS is becoming New Zealand's defacto Fire, Rescue and Emergency Service. Mike's presentation will position the NZFS in the contemporary scheme of things, discuss some of the major issues, challenges and opportunities facing the service over the next few years, and outline ways in which the service might respond and benefit from them.
2.30 pm	Operational Assurance – Reality or Rhetoric Gordon Gilmore Command Dynamics Ltd What is the link between Uncertainty, Risk and Safety? Is there a gap in our knowledge? Given the inherent dangers of fire operations, what will an effective Commander equipped with the skills to manage give us? When things go pear shaped, and firefighters are likely to become a statistic themselves, having experience renders meaning to situations. For those with little experience to call on, the way forward is strewn with uncertainty and risk. What would normally be routine becomes the unexpected. Its why there needs to be training, within a structure, using a safe system of principles, and other set of eyes. The Fire commander, a guardian angel if you like, equipped with a level of confidence expertise and proven operational assurance, that will reduce uncertainty and support the management of dynamic risks. It means that each member of the operation response has a sense of safety that is at the forefront of their mindset, and organically flows through each firefighter, so when they step over that line the daily judgments that can potentially affect their lives and the lives of others are within the safe limits of calculated risk. Gordon Gilmore will talk about the essence of effective Command from the viewpoint of the Fire Commander and the feelings of the firefighter, but particularly focus's on the organisational benefits of establishing and maintaining an operational audit regime.
3.00 pm	Afternoon Tea
3.30 pm	Fire Protection for Art's Sake Martin Feeney Holmes Fire & Safety The Auckland Art Gallery is the oldest public art gallery building in New Zealand and a treasured Auckland icon. Necessary closure of the building for seismic strengthening presented a unique opportunity to restore its heritage features and improve the overall design and functionality. The vision for a 21st century art museum provides more than double the collection display and exhibition space of the former building. This presentation outlines the fire engineering design challenges that arose during the 8 year design and construction programme to realise the vision to create a world-class public art gallery appropriate to house the country's finest art collection.
4.00 pm	“Raw Deals: Some Engineering Analyses Stripped (at a Resolution Unable to be Covered Up for the AHJ)” Scot Deal At the bottom of the BRANZ invitation flyer appear the following: “what value do you add?” and “the future belongs to those that know...” The first question is brilliant, but is left for the audience to answer as to whether their time was valuably spent. The second statement remains to be seen - if these kinds of revealing discussions became a sustainable part of the future fire protection scene. Through yet another series of fire engineering case studies, lessons learned are attempted through what was burned, rather than a perspective to impress us by sheer high-dollar project value and over-specified techno-babble. At the end of this presentation, is offered one solution for the AHJ regarding fire modeling and the design fire—a solution that puts all fire designers across the planet on equal footing regarding an equal grading of hazard posed by their fire design that cuts across distinctions of geography, physical boundary conditions, culture and ethnicity.
4.30 pm	IFE / FPANZ Annual General Meetings
6.30 pm	Drinks and Nibbles
7.00 pm	Conference Dinner Guest Speaker: Mark Wright – Proudly sponsored by Winstone Wallboards Ltd This years dinner will enjoy the wit and humour of the very talented Mark Wright. Mark is an actor, comedian, entertainer and raconteur. After finishing High School at Selwyn College, Auckland with fellow Film Studies class mate and FPANZ President Mitchell Brown, he graduated from the NZ Drama School some 20 years ago and worked extensively in professional theatre before embarking on a successful television career appearing in over 20 different series including the ‘Billy T James Show’, ‘Issues’ with McPhail and Gadsby, ‘That Comedy Show’ ‘Comedy Central’ and ‘Newsflash’. He has also graced our screens in ‘What Now’, ‘Shortland Street’, ‘Celebrity Squares’, and ‘The Mean Team on Sports Night’. And more recently in ‘Amazing Extraordinary Friends’. Mark has won two NZ Film and Television awards both for Best Performance. He is also a talented improviser, being a regional, national and international Theatresports champion. Despite all of this, Mark is perhaps most well known as New Zealand's original “ODD-FELLOW”



Programme Thursday 15 September

8.30 am	Registration
9.00 am	<p>Resilience – Are We Ready! Gordon Gilmore Command Dynamics Ltd</p> <p>Are we lacking the will to engage with the extra work involved in emergency preparedness? When you're in an emergency response service, it's OKAY when it's your day job but how do others like Local Authority employees fit the extra training in to your working lives? What is the motivation when events may only happen once a year? Integrated Emergency management (IEM) is an approach to preventing and managing major incident and national emergencies which entails six key activities – anticipation, assessment, prevention, preparation, response and recovery. IEM is geared to the idea of building greater overall resilience in the face of a broad range of disruptive challenges. It requires a coherent multi-agency effort, but it also requires the commitment of organisations and agencies that perhaps are a world away from emergency response activities. With Response and Recovery as key stages, are there hidden benefits for organisations who embrace an effective Business Continuity model especially in the recovery process. Gordon Gilmore will discuss the UK resilience model and how organisations are coming to see that discharging their duty under Civil Contingency Act 2004 and the joint working arrangements has greater advantages in raising the efficiency of their management and organisational process.</p>
9.45 am	<p>Delivering Better Fire Safety Performance – How New Zealand is Championing change Worldwide Brian Meacham Worcester Polytechnic Institute</p> <p>Although performance-based building codes have existed for over 25 years, there has been increasing pressure worldwide to develop better performance measures and to deliver more consistency in the market. Recent changes in New Zealand aimed at addressing such concerns have attracted global interest, and once again New Zealand is seen as a champion of positive change. This presentation will outline how New Zealand activities are influencing fire engineering and performance building codes around the world.</p>
10.30 am	Morning Tea
11.00 am	<p>Firing Up the Code Peter Thorby Department of Building and Housing</p> <p>The Department of Building and Housing has been working with experts from the fire design sector to develop a world class performance-based Building Code for fire safety design. Peter will retrace the steps of this journey, putting the work in the context of reforms to the Building Act.</p>
11.30 am	<p>Simple Techniques to Improve Fire Safety Quality in the Building Construction Phase Keryn Goble Holmes Fire & Safety</p> <p>A range of parties are involved in constructing the myriad of components that make up the overall fire safety system for a building. Unfortunately, many of these contributors have no understanding of how their construction work contributes to fire safety objectives and don't appreciate the implications of poor construction. Fire engineers can support and guide these parties to improve the quality and reliability of as-built fire safety systems. This presentation outlines some of these simple initiatives, introduced during recent construction of buildings in Auckland. These have been very positively received and significantly improve the contractors understanding of fire safety construction expectations.</p>
12.00 pm	<p>Crowd Escapes Inferno Elissa Fazio Norman Disney & Young.</p> <p>Not all buildings are the same ... obviously! And although the overall philosophy of getting people out safe and sound in the event of an emergency is the same, the way in which this can be done is wide and varied – especially when you throw a unique building design into the mix. Consider a high rise residential tower, a sports stadium, a heritage building and a commercial office. This presentation will explore some of the challenges posed by such buildings over the last 10 years, in terms of their design, the characteristics of the occupants as well as the good 'ol design change along the way! The solutions presented will illustrate that it's not a matter of "one size fits all". So, don't get left behind, make sure you come along and don't miss out.</p>
12.30 pm	Lunch
1.30 pm	<p>Subcontracts for Cashflow and Profit Peter Degerholm Calderglen Associates Ltd.</p> <p>Peter will provide an update on the CCA including the likely impact of proposed changes. He will also explore some of the contractual, risk and payment issues involved in subcontract agreements, and how fire protection contractors deal with them.</p> <ul style="list-style-type: none"> • CCA Update – Effects of proposed CCA changes. • Subcontracts – tender tags, pre-acceptance meetings and subcontract agreements. • Managing your cashflow – progress payments, retentions, variations and disputes.
2.00 pm	<p>Sprinkler Contractors – Why Bother Listing Them? Chris Mak Aon</p> <p>NZS4541:2007 has expanded the criteria for contractor listing, however, the approved sprinkler contractor regime has been ineffective over a number of years. How can we revitalise this process? What are we trying to achieve? The fundamental intent of contractor listing is examined.</p>
2.30 pm	<p>Independent Qualified Persons (IQPs) – Are They All Born Equal? Ron Green Fire Security Services Limited</p> <p>Currently under BA04 it is the responsibility of individual TAs to approve IQPs. Many TAs have grouped together, offering IQP status for multiple geographical areas. However, requirements to gain IQP status are inconsistent and sometimes questionable. This is concerning when we consider how much power and liability IQPs are responsible for. As Judge McElae stated in 2008, with the prosecution of an IQP "The Councils and Public depend on the IQP for safe buildings". An opportunity remains for a more robust approach – should there be a national IQP register with a professional approval body overseeing more stringent requirements?</p>
3.00 pm	Afternoon Tea
3.30 pm	<p>In the Age of Google and Facebook, Why Don't We Have Better Fire Safety System Information? Kevin Frank University of Canterbury</p> <p>One of the key challenges to understanding fire risk is to know how well the systems that are designed to mitigate it actually work in practice. Unfortunately, good data on fire safety system performance in real fires is difficult to come by. In a time when the quantity of information available is increasing at an astonishing rate and the rules to access it are changing, is our fire data improving? This presentation will look at recent sprinkler performance data from fires in New Zealand and discuss some of the limitations of its use for risk analysis, with suggestions for potential improvements.</p>
4.00 pm	<p>Christchurch From Within - An Urban Search and Rescue Perspective Jim Stewart-Black New Zealand Fire Service</p> <p>As a country used to experiencing earthquakes, we thought "our turn" had come and gone with the 4 September 2010 earthquake or maybe even the 26 December one – all in Christchurch. The events of 22 February 2011 were to prove us wrong and the devastating impact of the 22nd February earthquake will remain etched in the memories of all New Zealanders. 181 people from 15 countries lost their lives in the 6.3 magnitude shake. As a core part of the emergency response, the New Zealand Fire Service deployed its largest ever response including all three Urban Search and Rescue teams, nine of the new HAZMAT Command vehicles and hundreds of firefighters and officers. The rescue efforts were augmented by personnel from Australia (New South Wales, Queensland and an inter-jurisdictional team), America, Japan the United Kingdom, China, Taiwan and Singapore. The presentation will provide an overview of the response and will consider what it means for a fire service to manage such an event using national and international resources.</p>
4.30 pm	Close and Finish

Keynote Speakers

Tony Abu | University of Canterbury

Dr. Anthony Abu is the New Zealand Fire Service Commission Lecturer in Fire Engineering at the University of Canterbury. Tony obtained his Bachelor's degree in Civil Engineering from Eastern Mediterranean University, North Cyprus and then completed his PhD in Structural Fire Engineering at the University of Sheffield, UK, on the behaviour of composite floor slabs in fire. He has been involved in the implementation of the structural fire engineering Eurocodes in the UK and also worked on a number of structural, and structural fire engineering projects, including a number of sports stadia, office complexes and airports, during a brief period with Buro Happold Engineers Ltd. UK.

Ross Aitken | Chubb New Zealand

Ross Aitken has worked in the New Zealand Building Construction and Service environment for more than 35 years in a variety of positions inclusive of Design and Project Management, then leading onto Branch, Regional and General Management. Ross's current role also includes a significant responsibility in the ethical leadership of Chubb New Zealand and Directorships of a variety of associated Fire Protection companies for which Chubb has a shareholding. Ross has a New Zealand Certificate in Engineering (Mechanical) and along with his roles in Chubb he has actively supported the goals and strategies of the Fire Protection Association NZ for many years.

Greg Baker | BRANZ

Greg Baker has been employed in the New Zealand building and construction industry for 25 years, having started in engineering consultancy, then working in the manufacturing and building construction sectors, before moving into the area of building industry research. For the last nine years Greg has been employed by BRANZ Ltd, based near Wellington, where he is the Manager of the Fire and Structural Engineering Section, co-ordinating a programme that provides research, testing and consultancy services to the New Zealand, Australian and Asia-Pacific building and construction industries in the fields of fire safety and structural engineering. Greg has also been Chair of the FPANZ Passive Fire Protection Special Interest Group for the last 5 years and in 2007/09 was a member of the FPANZ project team that conducted research into the standard of passive fire protection in New Zealand buildings.

Brent Houston

Brent Houston has been involved in the contracting, testing and inspection areas of the fixed fire protection industry for over 30 years, most of which has been in the Canterbury region. Brent was contracted by FPANZ following the September 2010 earthquake to review and document the effects of the Canterbury earthquakes on fixed fire protection systems and passive fire protection features in the region.

Gordon Gilmore | Command Dynamics Ltd

During his 31 years in the Fire and Rescue Service, Gordon Gilmore served in an area with one of the largest collections of heavy industrial, petro-chemical, coastal, dockland, commercial and rural risks in the UK. He also helped create a computer simulator to teach and assess those involved in Incident Command. Now teaching through his business, Command Dynamics Ltd, he delivers learning and development programs and customised coaching for incident managers, emergency response teams and strategic co-ordinating groups, not only in the UK, but also internationally. He serves on several committees and notably assisted in the drafting and formulation of NFPA 1026 Standard for Incident Management Personnel Professional Qualifications 2009 and co-authored Industrial Exterior & Structural Fire Brigades Training Manuals for the International Fire Service Training Association. He is currently teaching in a Resilience Division of the UK Government.

Brian Meacham | Worcester Polytechnic Institute

Brian is an Associate Professor in the Department of Fire Protection Engineering at Worcester Polytechnic Institute (WPI) in the USA. He is internationally recognized as a leading authority on risk-informed performance-based approaches to fire engineering and building regulations. He teaches, undertakes research, consults to governments and the private sector, and publishes widely on these topics. He is immediate past Chair of the IRCC (www.irccbuidingregulations.org), which is comprised of representatives from fifteen building regulatory agencies from thirteen countries that have implemented performance-based building and fire regulations, and serves on the Board of Directors of the Society of Fire Protection Engineers (SFPE).

Speaker Profiles

IN ALPHABETICAL ORDER

Lynn Campbell | Christchurch Art Gallery – Te Puna o Waiwhetu

Originally from the UK, where Lynn obtained a BA Hons in Fine Art and postgraduate qualifications in teaching and the Conservation of Fine Art, Lynn has worked at the Royal Scottish Museum in Edinburgh, as well as in Zanzibar East Africa, and Antarctica for three summer seasons. Lynn emigrated to New Zealand twenty five years ago and is the paper conservator at the Christchurch Art Gallery Te Puna o Waiwhetu. Lynn set up the Canterbury Disaster Salvage Team as a training mechanism to make small heritage institutions from the Canterbury region more aware of disaster preparedness processes and systems for their heritage collections.

Scot Deal

Sometimes I have learned from my own mistakes; you can judge how much by learning from the mistakes, that for me, have taken decades to sink in. Looking back, I have been a firefighter (but just a volunteer), a chemistry college lab instructor, a fire researcher, an NFPA code member, a scab-consultant for the most-grubbing clients, an AHJ, a fire inspector, and not least a fire systems designer. I have had the distinct opportunity to design fire protection on 4 continents embedded in as many contexts of religion and ethnicity, and even more was the diversity of fire Codes and Standards we applied. After all this, one could think I would be a lot smarter; but of one thing I am sure, the future does not belong to me unless I start to work a lot smarter.

Peter Degerholm | Calderglen Associates Ltd

Peter Degerholm has over 35 years experience in quantity surveying, contract administration, project management and senior management in building services. He established the NZ Building Subcontractors Federation in 1997 to lobby for payment legislation, and has written extensively and conducted many seminars on the Construction Contracts Act. Since 2001, Peter has acted as an adjudicator, mediator or expert witness in numerous disputes throughout New Zealand. Through his consultancy, Caldeglenn Associates Ltd, Peter provides advice in relation to the establishment of contracts, and advisory and advocacy services for parties involved in dispute resolution.

Elissa Fazio | Norman Disney & Young

Elissa is a chemical engineer with a post graduate diploma in Fire Safety and Risk Engineering. Elissa has also completed a Master of Engineering (Research Thesis) in Fire Safety on the Effectiveness of Stairwell Pressurisation Systems. Prior to joining NDY, Elissa gained more than ten years practical industry experience. She has worked closely with various stakeholders, been exposed to commissioning, testing (including troubleshooting) and maintenance of building systems, conducted research projects, delivered comprehensive reports to clients, and mentored and managed staff. Her experiences enable her to provide practical knowledge on industry issues associated with fire engineered solutions in order to assist with solving problems and implementing design solutions.

Martin Feeney | Holmes Fire & Safety

Martin Feeney is a Principal and Senior Fire Safety Strategist with consulting fire engineering firm Holmes Fire & Safety, based in Auckland. He holds a Masters degree in Fire Engineering from the University of Canterbury. During his 28 years of consulting engineering he has developed particular expertise in performance based fire safety design for a wide range of building types. He is passionate about performance based design and spends much of his time on initiatives for improving the standards of applied fire safety in New Zealand. He is a Chartered Professional Engineer and Past-President of the New Zealand Chapter of the Society of Fire Protection Engineers.

Charles Fleischmann | University of Canterbury

Charles Fleischmann is an Associate Professor at the University of Canterbury in Fire Engineering where he teaches in the Fire Engineering postgraduate program and conducts his research in several areas of Fire Engineering.

Kevin Frank | University of Canterbury

PhD student in Fire Engineering Department at the University of Canterbury. Primary research is focused on evaluating the effectiveness of fire safety systems for performance-based building fire safety design. Previously employed with Sintra Engineering in Edmonton, Alberta, Canada as a forensic fire investigation engineer, volunteer firefighter with the Lincoln Fire Brigade, New Zealand Fire Service, Auxiliary firefighter with Vegreville Emergency Services, Vegreville, Alberta, Canada. Secretary of the Canterbury IFE Group.

Keryn Goble | Holmes Fire & Safety

Keryn is a Senior Fire Engineer at Holmes Fire & Safety in Auckland, with a Masters in Fire Engineering from the University of Canterbury. She is a Chartered Professional Engineer, experienced in performance-based fire engineering design from first principles for a range of buildings, with specialist interest and knowledge in modeling smoke spread and occupant egress. An important focus for Keryn is improving the implementation of fire safety engineering design and co-ordinating construction processes and construction monitoring to improve efficiency and quality.

Ron Green | Fire Security Services Ltd

Ron has been working in the Fire Protection and Building Compliance industry for 33 years. His experience covers Special Hazard and Sprinkler System Design, Fire Alarm Systems, Fire Equipment, Backflow, Fume Cupboards, Emergency Lighting, Passive Fire protection, Building Compliance and many other Specified Systems. He has held many senior roles with multinational companies including his current employer, Fire Security Services Limited. He is the Chairman of "Association of Building Compliance" and a member of the National IQP Registration Board. Ron's passion is for the IPQ industry to be recognised as 'professional' Independent Qualified Persons.

Mike Hall | New Zealand Fire Service

Mike Hall is currently Chief Executive Officer and National Commander of the New Zealand Fire Service. Mike commenced his fire service career in Manchester in 1969, moving to the Queensland Fire and Rescue Service in 1974. Mike has held every operational rank across the three Services, with key functional roles such as strategic planning, human resource management, and technology integration. In Queensland, Mike played a fundamental role in defining, developing and introducing key organisational and cultural reforms into fire service management – a process he is now continuing in New Zealand. Mike was awarded the Australian Fire Service medal in 1995 for work in the communications centre reforms. He is a Fellow of the Institution of Fire Engineers (IFE) a Fellow of the Australian and New Zealand Institutes of Management, and a Director of the Australasian Fire Authorities Council (AFAC).

Peter G Hughes | AON New Zealand

Peter has had over 40 years in the field of Risk Management and Loss control, both in New Zealand and the United Kingdom, 25 years in the British Fire Service as a senior fire officer, British Building Control Department – Fire Safety and Means of Escape officer and then an Assistant Emergency Planning Officer in North Wales UK. In New Zealand Peter worked as a Regional Council Emergency Planning Officer and then a Loss Control Engineer in the insurance industry for the last 18 years having responsibility for the delivery of technical risk assessments, audits of Loss Control and Fire Safety standards, Review and Audit Fire Protection, detection and suppression systems, development and implementation of disaster/business continuity plans for major New Zealand clients, audit and advice for fire suppression systems and product safety and environmental risks. Peter is primarily responsible for the Fire Safety auditing and Loss control inspection regime for Aon Corporate clients accounts.

Chris Mak | AON New Zealand

Chris Mak has over 25 years experience in the fire protection industry in engineering and management positions. He is currently employed to head Aon's Technical Services business unit, which includes Sprinkler Certification, Inspection and Loss Control businesses. Previously, he was the engineering manager for NZ's largest fire protection installation and service company. He is a Chartered Professional Engineer and is the current President of the Society of Fire Protection Engineers (NZ Chapter). He has recently been elected a Fellow of the Institution of Professional Engineers, New Zealand. He has been involved in the preparation of numerous fire protection standards, including Chairing the committee that drafted the latest revision of NZS4541 "Automatic Fire Sprinkler Systems".

Jim Stuart-Black | New Zealand Fire Service

Jim is the National Manager, Special Operations for the NZFS, based at national headquarters in Wellington. He has held this position since 2004 and his responsibilities include the provision of comprehensive strategic and operational direction for:

- Emergency/major event planning
- Crisis and consequence management (domestic and international).
- Hazardous material response.

- Technical rescue including Urban Search and Rescue.
- Operational policy and standards

Jim has a background in national and international emergency management and disaster response. Jim is a Team Leader with the United Nations Disaster Assessment and Co-ordination (UNDAC) team and is an assessor for the International Search and Rescue Advisory Group.

Peter Thorby | Department of Building and Housing

Peter joined the Department in 2004 to lead a review of the New Zealand Building Code and took on the role of Manager of the Building Standards Group in 2008. He is responsible for the technical content of the Building Code, including amendments to the regulations and supporting documents. With a Masters degree in Chemical and Materials Engineering, Peter has a technical background and has worked in both the public and private sectors in research, consultancy and policy development roles. Peter is also the acting Manager of the Department's MultiProof service, which issues approvals for multiple-use building designs.



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Paul Dykes

News a Plenty Ltd

Case Study: Fire Stopping and Sealing at Tauranga Hospital

Might the fire stop and sealing work completed for the Tauranga Hospital east wing extension set the standard for best practice in fire stopping and sealing systems in high risk buildings in the way the job was specified, installed and recorded and the way the work was completed involving the project manager, designer, contractors, IQP and consenting authorities? Those involved certainly seem to think so.

Every single one of the 2,750 holes made through the walls, floors and ceilings for services such as plumbing, electricity and heating has been sealed against fire, smoke, gas and water using specialist products. In addition, every penetration was given a unique identity number by the certified installer, Fire Stop & Sealing NZ Ltd, and the specific product used to seal it was recorded on an online database provided by CID International Ltd. As a final safeguard, the installation work was audited by RedCo NZ Ltd, providing certainty that every fire or smoke-stop wall complies with the hospital's fire rating.

It was Beca Consulting that championed the idea of using an integrated system approach with Fletchers.

"We had been given a demonstration by Frank Wiseman of CSD Sealing Systems and we could see that this was exactly what we were after for the hospital site," says Ben Hume, Senior Fire Engineer at Beca Consulting. "The solution achieved for the DHB is exemplary and sets the example of how things should be done. It certainly gives us greater faith that the fire engineering system designed for the building will function as intended."

Peter Lawson, Project Manager for Fletcher Building at the Tauranga site, says it had been typical for all subbies, such as electricians and plumbers, to do their own fire stopping whenever they penetrated a wall, floor or ceiling, with no way of anyone else knowing exactly what had been done.

"We asked that the fire stopping for this project for all trades be handled by the one body," explains Mr Lawson. "This is the first public building to be constructed in New Zealand to the new Seismic Code Level 4 standard, and we wanted to be able

to monitor every penetration and ensure quality was achieved.

The work has all been recorded on a web database, along with the precise products used, so the District Health Board (DHB) knows exactly what has been done, and where. It's a great way to do it. It puts certainty on the integrity of the fire and smoke-stop walls, which is vital in a public building. It's been a very successful fire-stop project and the system will likely be called for on all similar projects. It's the way the DHBs' will go, especially following the lessons learned in the Christchurch earthquakes."

Ken Jackson, Managing Director at Fire Stop & Sealing, says this is the first time passive fire protection has been done to such high standards anywhere in New Zealand. "We handled the whole installation for penetrations required for all purposes, including the fire sprinklers, heating and ventilation, medical gas, plumbing and electrical. Stopping the spread of fire and smoke is extremely important in a hospital situation and by using the CSD products and CID certification database we have restricted any outbreak to the one fire cell."

For the DHB's Project Director, Jeff Hodson, the clear benefit of the work is that the DHB has a system that is effective and compliant from Day One. "We are driven by outcomes and price, and they have delivered a good outcome. The system is designed around fire cells and any penetration has to be reinstated to the correct fire rating after any subsequent work. The walls are clearly labelled and we can rely on that."

Tauranga City Council Building Warrant of Fitness Technical Officer, Andrea Evason, has seen the system at the hospital and is very impressed with it. "From my perspective, the system gives clarity to Independently Qualified Persons (IQP) when they need to inspect all the fire separations – or to identify where the fire separations are, which can be a big issue. Everything is very clear – it is great building safety practice."

Her colleague Roger Bruce, the Council's Building Inspections Manager, also applauded the initiative.

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Case Study: Fire Stopping and Sealing at Tauranga Hospital

continued

people who stand behind their work, we welcome it. In the past we have had problems with various sub-trades (including fire alarm installers) penetrating fire separations with services and not using the correct products to ensure that the integrity of the fire separation would be maintained in a fire."

"There is a general misunderstanding out there in the industry about what is the appropriate product. For example, there are inert flame barrier sealants that are meant to be applied around things like steel sprinkler lines that penetrate concrete walls. We have found people using these to seal around small plastic pipe or electrical cable penetrations in timber framed walls lined with fire-rated gypsum board.

Needless to say, when the fire wipes out the plastic pipe/cable within seconds it can penetrate the wall, destroying the framing which has lost its protection from the board, while allowing naked flame to pass through the small opening to spread fire. In such situations the correct sealant-type product to use is an intumescent-type product that expands when exposed to extreme heat. However there is a limit to the size of the penetration that this product can be used for.

For pipes or bunches of cables over 20mm an intumescent-type sleeve needs to be used. Then there is the problem that the sleeve has to have something to work against as it expands to crush the pipe and provide the required barrier. Just confining it by the GIB layer on each side of the wall will not work. So you have to use a fire collar that contains its own backing frame to resist movement away from the pipe. On a two-sided fire wall using surface-mounted collars, they will be required on both sides.

As you can see this becomes a bit complex so to have people trained in the use of specific products and systems makes sense, as long as the training is repeated and revised as and when required."

RedCo monitored the installations on site as IQP and was overseer of the new identification system. Its Senior Technician, Paul Dempsey, says the new system has certainly proved its worth, enabling RedCo to certify that each seal will work as specified.





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Post-Earthquake Performance of Fire Protection Systems

Greg Baker

Chair of FPANZ Passive Fire Protection Group

In this context the term “passive” fire protection relates to the parts of the fabric of a building that have a fire containment function – often termed “compartmentation” in the context of fire resistance ratings. Passive fire protection features occur predominantly in commercial and industrial premises – retail (e.g. shopping malls), transport (e.g. tunnels and stations), accommodation (e.g. hotels), large crowd situations (e.g. sports stadia), and the like. Passive fire protection features consist of things like fire rated walls and floors, fire and smoke doors, floor protection coatings on structural elements, fire rated glazing, and fire stopping of service penetrations.

In the April 2011 edition of the FireNZ Magazine, an article was published entitled “The Performance of Passive Fire Protection in Earthquakes”. The purpose of the article was to raise awareness of the importance of passive fire protection systems in buildings in the event of fire breaking out after an earthquake.

The concluding comments in the article were that “the recent events in Canterbury provide a rare opportunity to investigate at real-scale the impact of a severe design-level or higher earthquake on buildings. While much attention, rightly so, will automatically focus on aspects of structural performance and ground subsidence and liquefaction, the opportunity also exists to mine a wealth of information relating to the performance of passive fire protection features in a seismic event.”

Momentum has been building since the publication of the previous article in April. In May, the University of Canterbury (UoC) and the Fire Protection Association of New Zealand (FPANZ) successfully obtained funding from the Natural Hazards Research Platform to investigate post-earthquake fires and damage to fire safety systems that occurred after the second earthquake in Christchurch in February 2011.

The Natural Hazards Research Platform (NHRP) is a research consortium hosted by GNS Science that was established in September 2009 by Government to ensure a secure and long-term funding mechanism for research into natural hazards and to also help promote research providers and end users working more closely together. GNS Science and NIWA are the two Platform anchor organisations, with the University of Canterbury, Massey University, Opus International Consultants and the University of Auckland as Platform partner organisations.

The Platform’s research develops quantitative estimates of geological and weather-related processes such as earthquake, volcano, flood, snow, wind, landslide, tsunami, and the like. The research also evaluates how well New Zealand society is prepared for such events.

The Platform research is organised into five themes:

1. Geological hazard models;
2. Predicting weather, flood and coastal hazards;
3. Developing regional and national risk evaluation models;
4. Societal resilience;
5. Resilient buildings and infrastructure.

The Platform has a baseline \$14M pa to invest in this research programme.

Following the 22nd February event, the NHRP is investing an additional approximately \$3M in a national programme of work focussing on short term research needs stemming from the Canterbury earthquakes, and has been allocated an additional \$12M over the next four years.

This UoC/FPANZ project is built upon earlier research by FPANZ following the first Canterbury earthquake in September 2010, where it was deemed necessary to only investigate the performance of active systems, due to the nature of the earthquake. The second earthquake in February was different however, in that much more extensive damage was caused to commercial/ industrial/retail premises, including failure of both active and passive fire protection systems. The aim of the project was therefore to catalogue the post-earthquake fires that had occurred and the damage to fire safety systems.

In June 2011, a second application was successful in obtaining additional Building Research Levy funding for a collaborative project which combined the UoC/FPANZ research with further work by BRANZ on the performance of passive fire protection systems. The extended scope of the second collaborative project will quantify actual damage to passive fire protection systems, based on inspections of buildings in Christchurch that have suffered damage in the February earthquake. Once damage levels are quantified, passive fire protection assemblies with corresponding damage will be subjected to fire resistance testing in the laboratory, to predict the impact on system performance. This elemental-scale information will then be used to predict whole-of-building fire safety.

The issue being investigated by the combined project, involving UoC/FPANZ and BRANZ, is whether the current fire protection provisions in the NZ Building Code are adequate in the event of a major earthquake.

The combined project team will publish its findings over the period October 2011 to March 2013. Where appropriate, possible recommendations for changes to the provisions of the fire safety compliance documents will be made to the building regulator.

It is also planned to hold a nationwide seminar series in early 2012 to publicise the findings of the research project.



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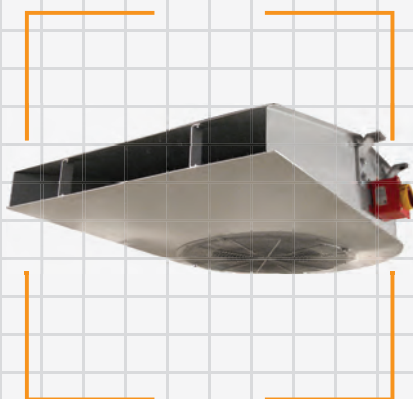
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THE DETERMINATION PROCESS

DETERMINATIONS ARE BECOMING USED MORE FREQUENTLY TO RESOLVE BUILDING CODE COMPLIANCE ISSUES. WE TAKE A LOOK AT THE PROCESS AND WHAT PARTIES CAN DO TO MAKE THE PROCESS EASIER.

By John Gardiner

*Manager Determinations,
Department of Building
and Housing*

Before 2003, determinations were rare, numbering less than 20 in a calendar year. Since then, they have become used more frequently, and Territorial Authorities regularly recommend them as a option where a Building Code compliance impasse has been reached.

Most determinations concerning private residential homes cover:

- weathertightness
- durability
- fencing of swimming pools
- protection to neighbouring property.

Commercial property-related determinations have often been about:

- fire engineering
- accessible facilities and access routes for those with disabilities.

Once an application for a determination has been received, the initial step involves the DBH assessing the eligibility of an application. Reasons for declining an application could include:

- the applicant not being seen as a party – there is no direct link between the applicant and the outcome
- the issue is not covered by the Building Act, for instance, it may be a land use issue and therefore related to the Resource Management Act.

Information gathered from parties and experts

The next step in the process is the gathering of information. The parties are required to submit all relevant information in a timely manner. This will include all documents held by the Territorial Authority or regional council and any correspondence between the parties. It can also include other forms of information such as invoices that will provide evidence of the materials used in construction or photographs taken during construction.

The DBH uses this information to help it reach its decision. At this stage the department can engage the services of an expert to provide additional information, if the information from the parties is insufficient to reach a decision.

As with the parties' submissions, the expert's report is provided to the parties for comment or clarification.

Hearing can be sought on draft determination

Based on the analysis of all information, a draft determination is prepared. It is provided to all parties so that they have the opportunity to make comment on the information, analysis or decision. If necessary, the parties can seek a hearing.

A hearing provides the opportunity for each party to make a verbal presentation. The hearing follows an informal format so that all those attending feel comfortable enough to contribute to the discussion. Legal representation is not required, although sometimes a party may elect to take a lawyer or technical expert. The format of the hearing is that each party makes their verbal submission and then DBH representatives consider what has been said in light of the written information provided. Where necessary, clarification may be sought.

Sometimes, parties are unhappy with the final determination, and when this happens, their recourse is to appeal the determination to the District Court.

Parties to a determination

Determinations are essentially a dispute resolution tool involving parties with differing views.

Organisations or individuals with a direct interest in the outcome of a determination are called 'parties'. Most determinations only have two parties – the local Territorial Authority or regional council and the owner(s) of the building.

Sometimes, there are more than two parties where a direct interest is demonstrated. In the past, these have included previous owners, builders and architects. In the future, it is likely that LBP's will frequently be parties to a determination.

Someone who is a party to a determination has a responsibility to engage in the process and to provide all relevant information. Cooperation is important to ensure that the process is effective. For instance, a request for information is expected to be met within 2 weeks.

Beginning the determination process

The determination process (see Figure 1) has been designed so that it is as efficient, cost-effective and user-friendly as possible. While the process has a legal basis, the documents are written in plain English, and the hearings are convened as informally as possible.

The starting point of the determination is to clearly identify the matter to be determined. One of the roles of the Department of Building and Housing (DBH) is to clarify the matter to be determined, but if all parties can agree on the articulation of the dispute, this helps avoid unrealistic expectations.

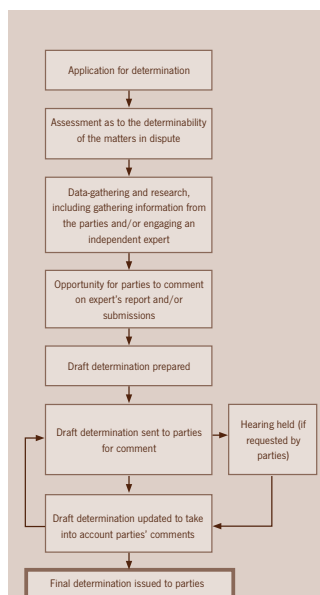


Figure 1: The determination process under the Building Act is managed by the Department of Building and Housing (DBH).

Key points

- The determination is a dispute resolution process.
- It is an informal process with a focus on reaching a decision that is accepted by all parties.
- Parties need to work cooperatively to ensure the matter is resolved as quickly as possible.
- The DBH expects that parties should provide all necessary information within 2 weeks of a request being made.
- Parties need to provide all relevant information to inform the DBH's decision.
- The DBH will engage an expert if it needs additional, independent information.
- Hearings are an opportunity for parties to verbally present their information.

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fire extinguishers and fixed firefighting systems

Geoff Mayes

Geoff Mayes is Compliance Approvals Manager for the Environmental Protection Authority's Hazardous Substances Group.

This article follows on from one in the April 2011 edition of Fire NZ, and is the first in a series explaining the safety requirements of the Hazardous Substances and New Organisms (HSNO) Act.

It provides details on the rules applying to fire extinguishers and fixed firefighting systems. We recommend you consult the legislation and other guidance material published by the Environmental Protection Authority for further information. A list of useful links is provided at the end of this article.

WHERE ARE FIRE EXTINGUISHERS REQUIRED?

A fire extinguisher is required when certain amounts of flammable and/or oxidising substances are stored or used. The amount varies depending on how hazardous the substance is. For example, the lowest minimum is 1 litre/kg and the highest 500 litre/kg, with a typical minimum being 50 litre/kg. Details can be found in regulations 21 to 23, and Schedule 3, of the Hazardous Substances (Emergency Management) Regulations 2001.

When larger amounts of hazardous substances are involved, a second extinguisher is required.

Fire extinguishers must be kept no more than 30 metres from the substances concerned.

Motor vehicles transporting flammable hazardous substances must also have extinguishers. The number of extinguishers is the same as for a static location, but the extinguishers must be in or on the vehicle.

All fire extinguishers must be able to extinguish a pool fire of n-heptane or equivalent (6 m² area, 50 mm deep) when used by one person. This is generally taken as equivalent to a 30B rating in AS/NZS 1850.

It is illegal to operate a site storing or using flammable/oxidising substances above the specified amounts without fire extinguishers. The penalty can be a fine up to \$500,000 or imprisonment.

WHEN ARE FIXED FIREFIGHTING FACILITIES REQUIRED?

A tank containing a flammable gas or liquid, and greater than a certain size, must have a fixed water spray system. This requirement is specified in clauses 41 and 42 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended).

For LPG and other flammable gases, a fixed water spray system is required when the tank has a water capacity greater than 12,000 litres.

For flammable liquids, a fixed water spray system is required when the tank has a water capacity greater than 60,000 litres.

If there is more than one tank, the total capacity of the tanks must be considered unless they are separated by distances specified in clause 41 of the Transfer Notice.

HOW TO GET HELP

The Environmental Protection Authority is responsible for the functions formerly carried out by ERMA New Zealand, which became part of the new EPA on 1 July 2011. If you have any queries, please call our helpline on 0800 376 234.

Useful Links

- Environmental Protection Authority (www.epa.govt.nz)
- Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (<http://www.epa.govt.nz/Publications/Transfer-Notice-35-2004.pdf>)
- Hazardous Substances (Emergency Management) Regulations 2001 (<http://legislation.govt.nz/regulation/public/2001/0123/latest/DLM43173.html>)
- Hazardous Substances (Compressed Gases) Regulations 2004 (<http://legislation.govt.nz/regulation/public/2004/0043/latest/DLM244063.html>)
- Importing Gas Cylinders and Fire Extinguishers (<http://www.epa.govt.nz/Publications/Information-Sheet-136-gas-cylinders2011.pdf>)
- Guide to gas cylinders – May 2011 (<http://www.epa.govt.nz/Publications/Guide%20to%20Gas%20Cylinders%202011.pdf>)
- Test certifier search (<http://www.epa.govt.nz/search-databases/Pages/testcertifiers-search.aspx>)

For flammable gases, the water spray system must be capable of discharging a minimum of 600 litres of water per square metre an hour. The system must be automatic, and must also have a manual method of activation which is controlled from a safe location.

For flammable liquids the fire fighting facilities must comply with sections 11.3, 11.12, 11.13, 11.15, 11.16, and Appendix J of AS 1940.

FIRE EXTINGUISHER REQUIREMENTS

Design of Hand-Held Extinguishers

The Hazardous Substances (Compressed Gases) Regulations 2004 specify the design requirements for both low pressure extinguishers (hand-held), and high pressure extinguishers (such as carbon dioxide).

Low pressure extinguishers must comply with the design standard AS/NZS 1841.1 to AS/NZS 1841.8, and are less than 23kg gross weight.

Importers or manufacturers seeking to import/sell extinguishers to another design standard must make an application to the EPA for approval of the new standard.

The extinguisher must be made under a product certification scheme for it to be able to be imported into New Zealand. The product certification scheme will confirm that the extinguisher is manufactured to AS/NZS 1841 and will allocate a registration number to the extinguisher design. This number, known as the fire extinguisher registration number, must be provided on all documentation relating to the extinguishers. The requirement can be found in regulation 19(2)(b) of the Hazardous Substances (Compressed Gases) Regulations 2004.

Companies providing product certification must be accredited to ISO/IEC Guide 65 by a national accreditation agency operating to ISO/IEC Guide 61. Currently two companies are issuing registration numbers in accordance with the New Zealand legislation.

Large (greater than 23kg) extinguishers do not come under the product certification schemes and must follow the same approval process for the high-pressure fire extinguishers (below).

Design of High-Pressure Extinguishers

Extinguishers using carbon dioxide, or other high-pressure gases such as nitrogen, must meet all the requirements for a normal high-pressure gas cylinder. This is covered in detail in the Guide to Gas Cylinders which can be found on the EPA website.

The following steps are required for the import and use of a high-pressure cylinder:

- Design standard approved by the EPA.
- Design verified by a test certifier.
- Pre-commissioning (type testing) certificate issued by a test certifier for the first imported batch of cylinders.
- Import clearance certificate issued by a test certifier for every batch of cylinders imported.

Cylinders are subject to periodic testing every five years.

The EPA maintains registers of approved design standards and designs on our website. Overseas approvals of cylinders cannot be accepted in New Zealand.

AGENT TANKS

These are tanks that contain an extinguishing medium which is not stored under pressure.

When the fire extinguisher system is activated, the agent tank may be briefly pressurised to expel the extinguishing medium.

Such tanks do not come under the HSNO legislation as they are not normally pressurised.

However, owners and users of such tanks have a duty of care under the Health and Safety in Employment legislation to ensure they are safe.

Therefore it is recommended that such tanks are tested every five years, to check for corrosion and other defects, and to ensure they maintain their ability to withstand the required pressure.

IMPORTATION OF FIRE EXTINGUISHERS

All extinguishers imported into New Zealand, both low and high-pressure, must obtain an import certificate.

This certificate is issued by a test certifier, an independent person approved by the EPA. A list of the test certifiers approved for cylinder importation can be found on the EPA website.

Further information on importing gas cylinders into New Zealand can be found in the EPA Information Sheet 136/02 "Importing Gas Cylinders and Fire Extinguishers" which is available on the EPA website.

PERIODIC TESTING OF FIRE EXTINGUISHERS

Fire extinguishers, both low and high-pressure, are also subject to periodic testing to ensure they can continue to safely withstand the pressure of the extinguishing medium. This requirement can be found in regulation 52 of the Hazardous Substances (Compressed Gases) Regulations 2004.

Extinguishers must be tested every five years, but low pressure-extinguishers need only be tested when they need to be refilled and five years has elapsed since the last periodic test.



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Operational Assurance

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Gordon Gilmour

*MBA MRes DMS
MIFireE FCMI*

Introduction

What is the link between Uncertainty, Risk and Safety? Is there a gap in our knowledge? Given the inherent dangers of fire operations, what will an effective Commander equipped with the skills to manage give us? Will a measure of performance give us those answers or is it simply satisfying an organisational target by using a rational model. From the highest ranked Commander to watch personnel who resource the tactical activities, we are in a new era of accountability:

- Where the public expect a measure of quality and efficiency.
- A reduction in property fires and greater visibility of how good you are.

To us it's a vocation. We know why we are here, but for the public and politicians we need to show our competence on a daily basis - yet there could be something else to being competent. It could be that it improves our safety, develops our skills and maintains a confidence in each one of us. Maybe there is more to Operational Assurance than just demonstrating effective performance. Let me explain further....

The Guardian Angel

Management see effective Command as the ultimate expertise. It is the difference between skilled and unskilled....or is it? Where does a Fire Commander learn his skills? How much does experience play in the process? If a system fails at a critical moment, who takes responsibility? When things go pear shaped, and firefighters are in danger of becoming a statistic themselves, responsibility falls on the Fire Commander, but, there are others who hold key positions in the chain. Command is about a team effort with each player forming a unique cog in a large wheel, each impacting on the process. Any uncertainty in one has an affect on the whole. Previous knowledge and experience will equally play a part. For those with little experience to call on, the way forward is strewn with uncertainty and risk. The routine becomes the unexpected. It is why there needs to be specialist training and a situational approach, using a set of principles, and someone directing the action. A guardian angel, if you like, equipped with a level of confidence, expertise and proven operational assurance. This will reduce uncertainty and support the management of dynamic risk experienced by the Command team; instilling in each member of that team a sense of safety that is at the forefront of their mindset. This then flowing through each



firefighter, so when they step over that line, the daily judgments that can potentially affect their lives and the lives of others are within the safe limits of calculated risk. Yet, even after such responsibility this guardian angel who Commands the situation, is still an organisational resource. One that must meet certain criteria of performance in order that the organisational competencies are demonstrated. Who will assess that competence? How will it be achieved?

Understanding Assessment

In this situational approach, competence does not coincide only with acquired knowledge, capability of solving problems and personal traits, it is rather a complex concept including a number of crucial dimensions: activities, resources, objectives and organisational counterparts. To engage with, and conduct a competence audit process, we must try to understand the part played by these counterparts. The organisation for one plays a key role, with some seeing it as a repository of knowledge made up by a whole set of routines and procedures, selected through an evolutionary life-long learning process. Introducing this notion of competence as one formulated by situational approach, it is possible to integrate the concepts of knowledge, capability and resource and use this integration to outline a methodology that will help us identify the Fire Command competencies we need to work with. However, it comes with a health warning. With the political will of an organisation driving an imperative for change, cultures will be challenged. Operational Assurance may therefore come at a cost. It is not an overnight transition. It needs the support of all stakeholders to embrace the process. Operational Assurance needs to be seen from the viewpoint of the Fire Commander and the feelings of the watch personnel, and not solely focusing on the organisational benefits of an operational audit regime. It needs the segmentation of the whole set of the typical activities carried out by the individuals performing the roles investigated within work situations. In line with this situational approach, some will wish to define competencies as the individual's ability to activate not only his/her own resources, but also multi-agency resources to cope with specific work situations successfully. As such, competencies can become the conduit for reasoning and justification with many seeing them as strictly linked to the way in which individuals interpret and attach importance to their work, rather than to the disconnected meanings and interpretations of hurried observations. It is not enough then to observe "what we see" and use it as the rational model for decision making. Surely by doing that, we rely solely on our senses, our limited perspective, and our ability to have un-bias information as a primary source to achieve its objective.

Distorted Perceptions

The nature and definition of the Fire Service is that it deals in complex phenomena, when the impossible becomes a regrettable reality. We need to question this idea of a rational model as an accepted tool for audit when operating in such an environment which is compounded with complexity, and influenced by power and cultural relationship. What is clear is that nothing is ever clear, and assessment of competence must go hand in hand with the balance of understanding we seek to achieve amid the diversity of work activities, work situations and human flaws in judgement. Limit your observations to the tangible elements that are evidenced. Sometimes you cannot explain why, so live with it.



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www.fire.org.nz