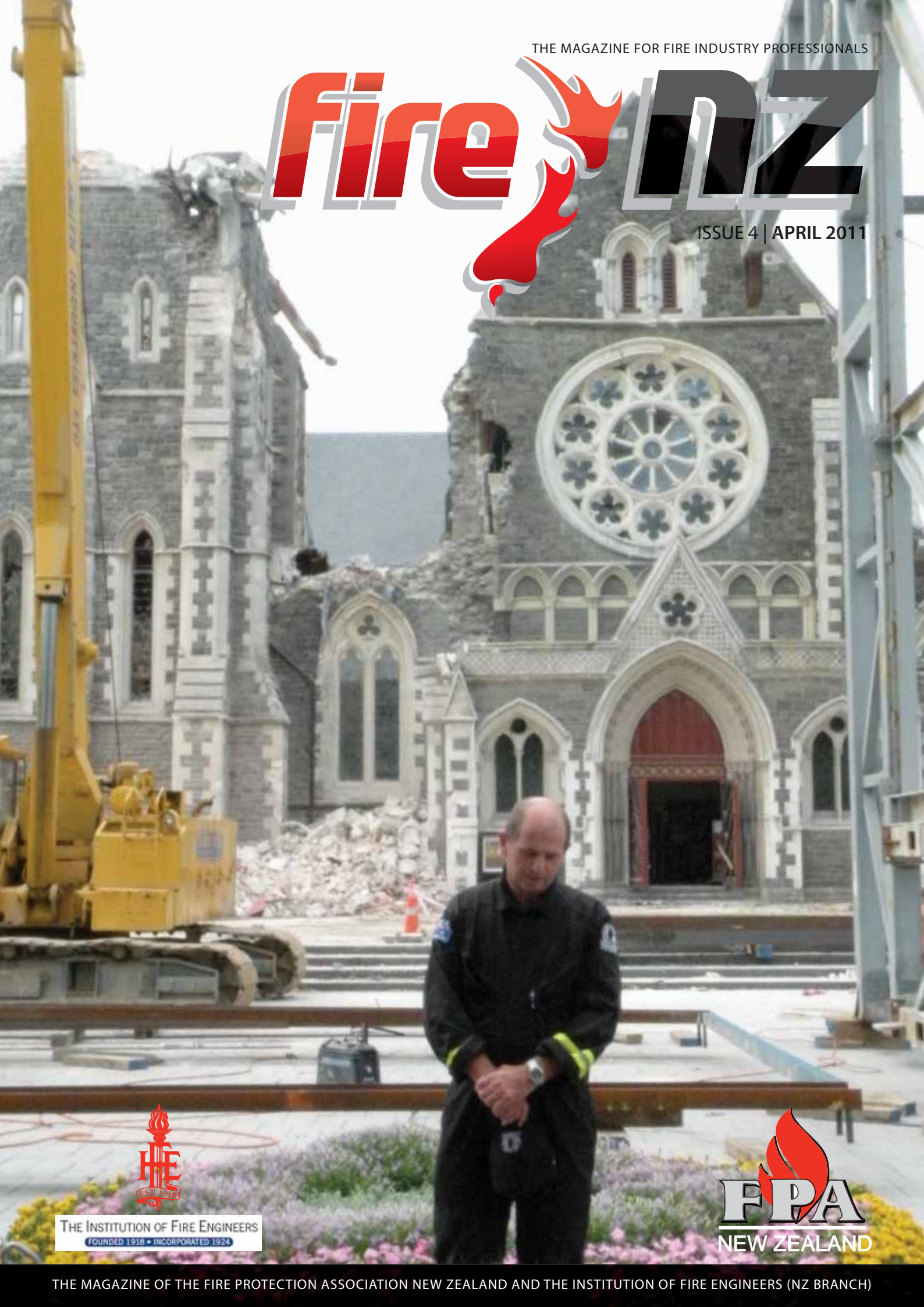


THE MAGAZINE FOR FIRE INDUSTRY PROFESSIONALS

fire NZ

ISSUE 4 | APRIL 2011



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Front cover: NZ Fire Service Urban Search & Rescue Task Force 2 (Christchurch) Task Force Leader Paul Burns in front of the Christchurch Cathedral during the 2 minute silence held at 12.51pm Tuesday 1 March 2011, 1 week after the devastating 6.3 magnitude earthquake *Photo: Mitchell Brown*

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Editorial

Welcome to this edition of **fire NZ**, New Zealand's premier magazine and forum for Fire Protection, Fire Safety and Fire Engineering professionals.

Our last magazine was sent to you as members of the Fire Protection Association NZ and the Institution of Fire Engineers NZ Branch prior to our annual FIRE-NZ 2010 conference held in early November in Christchurch.

It was important to continue with our planned FIRE-NZ 2010 conference and exhibition at the Christchurch Convention Centre which had robustly withstood the effects of the September 4, 2010 Canterbury Earthquake.

This was the first time that the conference had been held outside of Auckland and was a resounding success for exhibitors, sponsors, delegates and the event organisers - Fire Protection Association NZ and Institution of Fire Engineers NZ Branch.

With our FIRE-NZ 2010 Conference and Exhibition in Christchurch ensuring that economic and tangible support had been achieved for the earthquake damaged City our thoughts and planning shifted to the coming year and our return to Auckland and the Ellerslie Event Centre.

Inconceivably the Boxing Day rattler stunned the Christchurch CBD but was truly a precursor to the tragic 6.3 magnitude devastating earthquake at 12.51 pm on February 22nd, 2011.

With the final death toll nearing 200, this calamity will go down as the most significant natural disaster of our lifetime. With the upheaval from the September earthquake still being recovered from for the wider Canterbury region, the February shake dealt the community of the Christchurch eastern suburbs and businesses of the central business district a knockout punch.

With many families and businesses relocating outside of Christchurch in the interim, those remaining are dealing with the harsh reality of a city facing a 5 year recovery plan. This planning and delivery of the recovery will come under the responsibility of the newly government appointed Canterbury Earthquake Recovery Authority (CERA).

The responsibility for our fire industry is to provide the necessary support and leadership to meet the CERA responsibilities under their overall mandate for building repatriation and includes the elements of fire protection, fire safety and fire engineering. As Canterbury and New Zealand establish the necessary requirements to meet the expectations of the Christchurch community in rebuilding a NEW 21st Century designed and constructed city, the fire industry at large must play its role.

The fire industry must be prepared to review how the necessary standards and regulatory compliance can meet the expedited requirement of CERA. We must formally engage with the building and repatriation needs to ensure new buildings, and buildings that are repaired, will meet the fire protection, fire safety and fire engineering requirements and expectations to achieve completeness and appropriately designed, engineered and applied fire protection and fire safety requirement.

It may well be that the fire industry as a whole looks to collectively shift its knowledge and business horsepower to meet the phased and delivered fire protection needs for the new suite of buildings that begin to come on line over the coming months and years.

Maintenance and compliance management of fire evacuation schemes, fire alarm and fire protection systems for the existing building stock in the central business district of Christchurch has markedly altered. This will impact on local fire industry businesses in the short to medium term.

Work will flow back to the fire industry as buildings are repaired for reoccupation and new building stock is built with the current requirement for building codes met with modern fire engineering, design, fire protection and fire safety.

This is now the time to ensure your business offers a helping hand to the enormity of this national project to rebuild the heart of Christchurch. Not just the CBD heart of the city, but the heart of the people and the city which has stood the test of time for over 150 years.

Christchurch city will be a different city as it rebuilds for the next 150 years, but there is no doubt that the second biggest city in New Zealand will come back from this national disaster stronger and even more significant as an economic, historic, cultural and New Zealand iconic city.

In this edition of FIRE-NZ we have several articles relevant to the Christchurch Earthquake tragedy as well as a great range of world class fire protection, fire safety and fire engineering information.

These articles are a precursor to this year's FIRE-NZ 2011 conference and exhibition. The theme for the conference is Champions of Fire. This will ensure the conference exhibitors and speakers papers are promoted as the best of the best from their respective fields of the fire industry. The next edition of FIRE-NZ will be the conference magazine with full coverage of speakers, the conference program and the exhibition.

FIRE-NZ 2011 Conference and Exhibition, Ellerslie Event Centre, Greenland, Auckland, 14th-15th September 2011 – New Zealand's premier fire industry conference not to be missed, see you there!



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How do you communicate with fire alarm systems in remote locations?

CASE STUDY: SCOTT BASE, ANTARCTICA

There aren't many more remote locations on planet earth than Scott Base, New Zealand's permanent site in Antarctica since 1959. Located on Ross Island in the Ross Sea region of Antarctica, Scott Base is 3832 km from Christchurch and 1353 km from the South Pole. Acting as a support base for events as diverse as the expeditions of Sir Edmund Hillary to the search and recovery operation following the Mt. Erebus disaster, Scott Base provides services and accommodation for research parties and groups in the summer months and holds a special place in the minds of many New Zealanders.

As with any remote location, the risk of fire is a constant concern, highlighted when fire destroyed an A-frame hut five kilometres from Scott Base in 2009, and prompting a full fire protection review. Around 105,000 litres of water is held at all times for the sprinkler systems, and the link ways between the buildings can be closed off or demolished to prevent the spread of fire.

A major upgrade of the fire detection system was completed recently, with a Pertronic F120 fire control panel located in the main administration area supporting analogue addressable smoke detection through most buildings. Conventional detection in outlying buildings and Vesda detectors in the workshops are interfaced back to the F120 panel. Most of the installation was carried out by electrical staff at Scott Base, with overall project supervision, system programming and on-site final commissioning provided by Fire Fighting Pacific Canterbury Ltd.

A key ingredient in the installation process was the inclusion of an internet interface module in the F120 control panel to provide remote access from Christchurch for panel programming changes and ongoing technical support and diagnostics. Reports can be remotely downloaded from the F120 panel to check on detector contamination levels and to review the historical events log – a level of support critical for such a remote location.



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From the Presidents

The death and destruction that occurred in Christchurch during the earthquake on 22nd February was on a scale that has not been witnessed in New Zealand for several generations. The technology used by modern media organisations meant that the scenes of devastation were being transmitted around New Zealand, and indeed the world, within minutes of the earthquake occurring. The global nature of the IFE was evident as messages of support came in from around the world including the U.K, Malaysia and Australia. Messages were received from the IFE International President John Woodcock and other international delegates, who only three months earlier had been in Christchurch attending the FIRE-NZ Conference.

The response to the earthquake was unparalleled with many IFE members being part of the New Zealand Fire Service response or with Urban Search and Rescue Teams or the myriad of organisations that were mobilised to the city. The Canterbury Group of IFE New Zealand is one of the most active groups in the country and many of the members were affected with damage to homes, property and work places, yet still they worked tirelessly to help others. Our thoughts, prayers and best wishes go out to our members, their families and the wider Christchurch community as they begin the daunting task of rebuilding their lives, their homes and their city.

There have been some significant developments for the IFE New Zealand Branch during the first quarter of the year. In a bid to maintain and further enhance the service we provide to members we have engaged the services of an administrator on a part-time contract basis. Welcome to Melanie Bunn who is based in Feilding in the Manawatu and can be contacted using the admin@ife.org.nz e-mail address for all administration and membership matters.

The other major announcement, following two years of the FIRE-NZ conference is a tri-partite agreement between the Institution of Fire Engineers, the Fire Protection Association and the Society of Fire Protection Engineers to provide the annual FIRE-NZ conference. This exciting development will see the best possible conference laid on for members of all three organisations with the theme of this year's conference appropriately being "Champions of Fire". The conference is on 14th and 15th September and this year returns to the Ellerslie Convention Centre in Auckland. I look forward to welcoming as many of you as possible to what is sure to be a fascinating conference focusing on the best in the fire industry.

Gary Ward M.I. Fire E
President, NZ Branch
Institution of Fire Engineers NZ Branch



The Fire Protection Association has had the most significant change in its history with the retirement prior to Christmas of President Kevin Kennedy and Executive Director Bob Taylor. Both held their positions for over a decade and have served our Association with distinction. I was elected to the position of President at the annual general meeting during FIRE-NZ 2010 in Christchurch. In filling the shoes of Kevin Kennedy, and picking up on the work that had been begun, my first significant task was to ensure the role of Executive Director was filled as quickly as possible.

Mike Connolly has been appointed to the role of Fire Protection Association NZ Executive Director. He brings with him an amazing background and former career in senior positions with associations and government agencies both here and overseas. With a particularly strong knowledge of training, Mike is well versed to ensure our Association has a strong strategy applied in this key area of industry development.

One of the key tasks the National Executive signed off on at our meeting in Auckland in early February was the update of a 100-day plan. The score card for the Association in transitioning through the first three and half months of the new office holders was good with 9 out of 14 key tasks completed.

With our new Executive Director coming up to speed with the complexity and depth of information that the FPANZ represents and promotes on behalf of its membership, it is fair to say we are some way from business as usual - although it has been managed through with amazing support and dedication by Irma and Geraldine. Mike has been to a myriad of meetings and established a new currency with our key partners and stakeholders. All of this during February and March, when the country was watching the unbelievable devastation unfolding in Christchurch.

My support for Mike and the team in the office took a backward step with my deployment to the Beehive Civil Defence bunker on February 22nd to assist in the management of the Urban Search and Rescue (USAR) national and international response to Christchurch. On Friday 25th February I flew to Christchurch to join the team at the USAR Base of Operations in Latimer Square. I stayed there fulfilling my role till the NZ Government request to respond a USAR team to assist with the huge 8.8 magnitude earthquake and subsequent massive tsunami coming ashore in north east Japan.

Now happily back in Godzone and back at work with some normality, one of my foci is back with the FPANZ. Ensuring we get our bi-annual fire-NZ magazine out to the membership, our annual FIRE-NZ conference and exhibition readied for and the business of the FPANZ maintained and planned for over the coming months. All of this with a renewed vigour, that we as an industry ensure we play our part in the Canterbury Earthquake recovery.

Many of our members have been affected personally and through the impacts on their businesses and workplaces. I want us all to be mindful of our industry members in Canterbury who need immediate personal and professional support. The business that our members will ultimately be charged with delivery of, over the coming months and years, will be a key requirement for leadership, direction and support from our Association at the central, regional and local government levels.

All the best to you all for the coming months and please continue to support your FPA and our members during this time.

Mitchell Brown
President, Fire Protection Association NZ





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THE PERFORMANCE OF Passive Fire Protection in Earthquakes



Greg Baker
Chair of FPANZ Passive
Fire Protection Group

The tragic and catastrophic events of the recent Christchurch earthquakes will leave a lasting and indelible mark on both the Canterbury community but also the nation as a whole. As the response to such natural disasters moves from the “response” to “recovery” phase and beyond, it is vitally important that the technical lessons are learnt so that building performance and safety of people can be improved in case of future events.

While there has been considerable attention paid to technical areas such as structural performance of buildings and geotechnical issues in relation to liquefaction and the like, one very important aspect of building performance and life safety that has by-and-large “slipped under the radar” is that relating to passive fire protection. 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 services penetrations. The other very important component of overall fire safety features in buildings are the “active” fire protection features, such as sprinklers, detectors, alarms and smoke management systems.

There are a number of aspects to the performance of passive fire protection features that are relevant in earthquakes.

The relevance of passive fire protection in relation to earthquakes is that the likelihood of a fire occurring after an earthquake is much higher than would be the case normally. In the recent Canterbury events, the occurrence of post-earthquake fires was uncommon, but one only needs to look at international earthquakes in recent decades to appreciate the frequency of post-earthquake fires. The recent events in Japan show just how critical passive fire protection can be in large-scale power generation facilities.

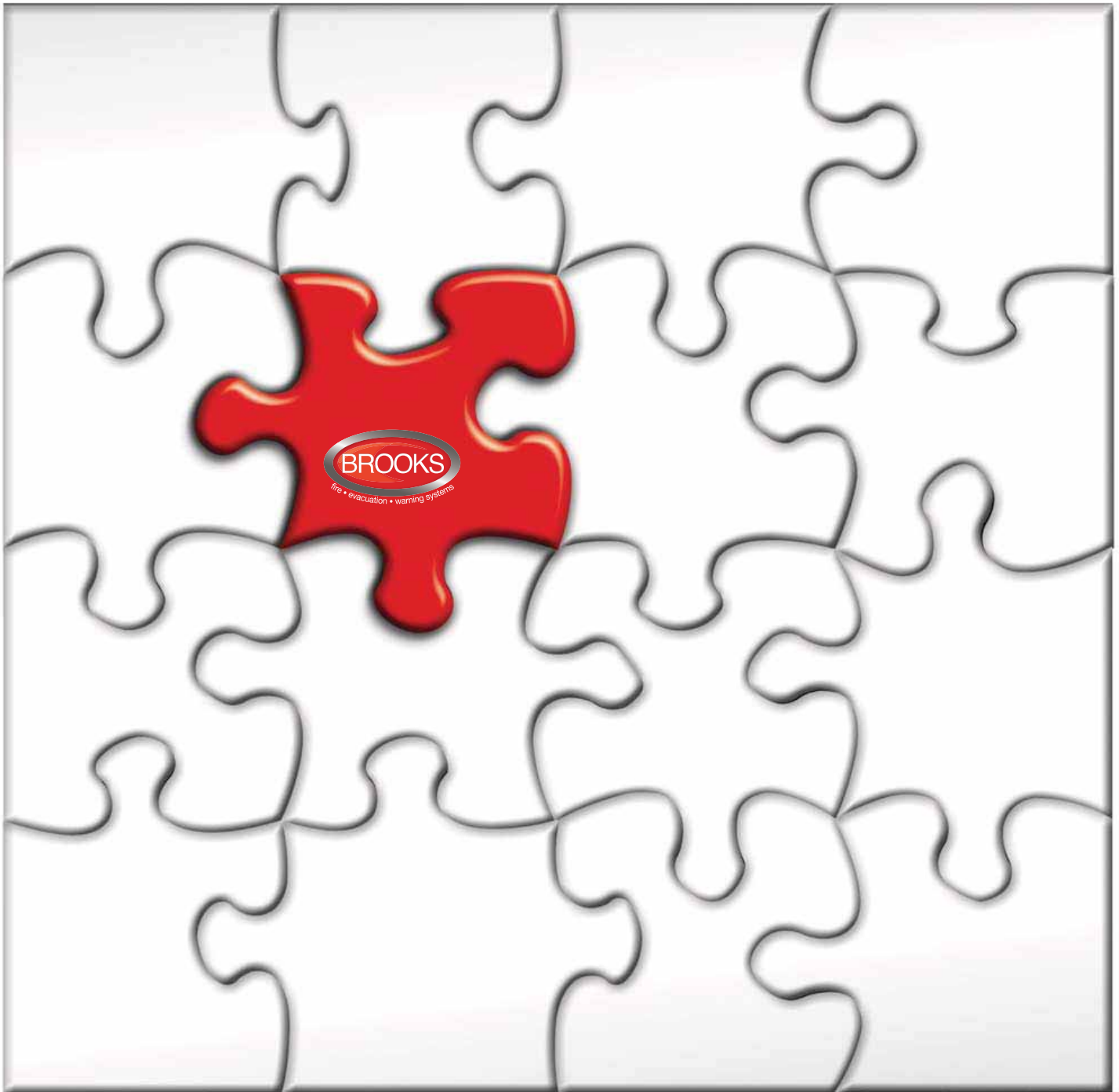
It is almost certain that the passive fire protection features will have been damaged during the earthquake and will not perform to the level that they would in an “undamaged” state. The reality is with passive fire protection that only minor damage or imperfections can totally compromise safety, whereas with other parts of a building there is significant redundancy incorporated into the construction.

Another issue of relevance to passive fire protection after earthquakes is that from a design/compliance perspective, earthquakes and fires are not treated as a concurrent or sequential phenomenon, and there is no obligation to consider the two jointly. One example of this is in the design process, where reductions in the passive fire protection endurance are generally permitted if sprinklers are present in the building. In the context of fires by themselves, that is a very logical and appropriate design practise, but it is problematic in the event of earthquake and fire together, because there is a significantly increased risk that the town mains water supply that many sprinklers rely on will be out of action following the earthquake. In this context “out of action” may be as a result of subterranean damage, but it could also be the automatic reservoir shutoff functionality that many water supply authorities have to ensure water supplies are not lost in the event of serious damage to the distribution network.

In addition, any laboratory testing that is done to obtain fire resistance ratings for passive fire protection systems is done under “perfect” laboratory conditions. To investigate the issue of performance post-earthquake, research was undertaken in 2004/05 where a number of fire rated walls assemblies were subjected to simulated earthquake racking, and then the “damaged” specimens were tested in standard fire resistance conditions. In some cases the fire resistance ratings of the wall assemblies was reduced by up to 50%. Such a situation could potentially have serious consequences in the event of a fire breaking out in a building following an earthquake. If the building was also sprinkler protected, with corresponding reductions in the fire resistance rating of the element, the actual fire resistance may only be a quarter of what is required in a post-earthquake fire. More information about this research project is available at: http://www.branz.co.nz/cms_show_download.php?id=53e63c0a6cf126f9b9b373ae6d928c31db82fb66

Another scenario linked to the likelihood of fires actually starting after an earthquake is whether or not the region has a reticulated gas supply. Based on overseas evidence, it is generally accepted that gas reticulation will result in a greater prevalence of fires after earthquakes.

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.



BROOKS... Brings it all together

BUSINESS CONTINUITY

following an earthquake

MARSH



Grant Milne
Country Head
Marsh

On a regular basis we remind our clients of the importance of business continuity plans. It is not however until there is a major disaster that the importance of these really hits home.

I'm pleased to say that Marsh does practice what we preach to our clients. In June last year we did a test run of our business continuity plan (BCP), little knowing that it would be required in September. Following the first earthquake we undertook a review of the plan and looked at what we could do to enhance it / be better prepared for future events. Once again, we did not think that we would need to reinstate the plan so soon.

So, what did we do in September, what did lessons were learnt and how did we subsequently manage following the second earthquake?

SEPTEMBER 4TH

As soon as we were notified of the September earthquake our BCP kicked into gear. Within a couple of hours, the BCP team had met at our head office in Auckland and put plans in action. This included ensuring that all of our staff were accounted for, assessing what help was needed and putting processes in place so that our clients were assisted as quickly and efficiently as possible.

For example, as our Christchurch office had sustained damage and would be un-operable for the short-term, we moved quickly to divert phone lines and bring in staff on the Saturday and Sunday to answer calls from our Wellington office. On the Monday, we arranged for client executives in Auckland to provide further back-up and help alleviate pressure from our Christchurch staff - many of whom were dealing with damage to their own properties. We then organised for colleagues from Australia with specialist claims experience to come over and assist our clients with the claims process on the ground.

Most importantly, we moved quickly to communicate with staff and provided regular updates throughout each day. Firstly, it was important for all staff to know that their colleagues were safe. Those in client facing roles also needed to be clear about how client enquiries were going to be handled and the processes in place to manage insurance claims. This of course

also meant liaising with our business partners – the insurers and loss adjusters.

In addition, staff in Christchurch were given information on how to deal with stress and reminded of the access that they had to our counselling service.

We also put information on our website as soon as we were able to provide information to clients on how they could make a claim. To support this, an advertisement was placed in the Christchurch Press with all of the relevant contact information.

LESSONS LEARNT

As with any major incident, we did of course learn some lessons along the way. We conducted a review a couple of months after the earthquake and a list of action points covering all areas of our operation was developed as a result.

One key area that we focused on was ensuring that staff contact details were up to date. It is very easy when staff move house or change phone numbers to forget to update them. Moving forward, we recognise that regular reminders to staff are required throughout the year - so that we have this information if it is needed.

We established a database of staff personal / home email addresses - especially for those that do not have remote access to their work email account. The idea was that we could continue to communicate with staff via email if their work email account was inaccessible.

In addition, we created communications templates so that we could quickly communicate to all of our stakeholders in the case of a crisis. We also looked at training we could offer our colleagues and how our claims systems could be enhanced.

Other businesses also learnt some lessons from 4 September, as we discovered when we ran our Marsh bi-ennial Survey of Risk in December.

In the survey, the majority of businesses told us that they were prepared should a major disaster happen. 16.7% of respondents though still did not have a plan in place to manage business disruption from a natural disaster. On the other hand, 95.4% tell us that their assets are protected should something occur.

This would suggest that some organisations believe that as long as their assets are insured that they are in good stead if something happens. However, if we have learnt anything from the Canterbury earthquake, it is not so much the damage to the assets of a business that can cause it to topple but more the ongoing impact to revenue and income as a flow on from the physical damage.

To help support the point above, of the 20.8% of respondents who had suffered a high impact financial loss in the last three years, only 46.7% had insurance policies that covered the losses. This demonstrates the importance of not only having the right insurance policy in place, but also having good risk management strategies to support them. 93.3% of the companies who suffered losses had put plans in place to help reduce the future impact of losses in these areas.

FEBRUARY 22ND

On 22 February our BCP plan was of course tested again. This time however the situation was a lot more serious.

Our Christchurch office was located in the Pyne Gould Corporation Building, which collapsed during the quake. Our first priority of course was to our people. The list of staff phone numbers that we had created following the first quake was invaluable. Members of our BCP team were given a copy of the list and each given a group of colleagues to contact to check on their safety.

Having had one "real life" run through in September we were quick to put our back up plans in place for taking phone calls and dispatching staff and client communications.

Nothing however could have prepared us for the loss of life that would unfortunately ensue and impact that this would have, not just for our colleagues in Christchurch but, right around the country.

Having sadly lost three of our colleagues, and with staff members who had lost their homes, there were many more challenges to deal with this time. Our plan extended to purchasing and taking chemical toilets to Christchurch, hiring rental cars for our people that were left without transport and providing accommodation in motels for those left without homes.

Our communications plan extended to setting up a web to text system so that we could quickly stay in contact with our colleagues when calling wasn't possible. In addition, we had a daily conference call with our Christchurch team to give them the opportunity to share information and see if assistance was needed.

We also of course had to secure alternative premises to work out of and provide a meeting place for colleagues to gather to support each other.

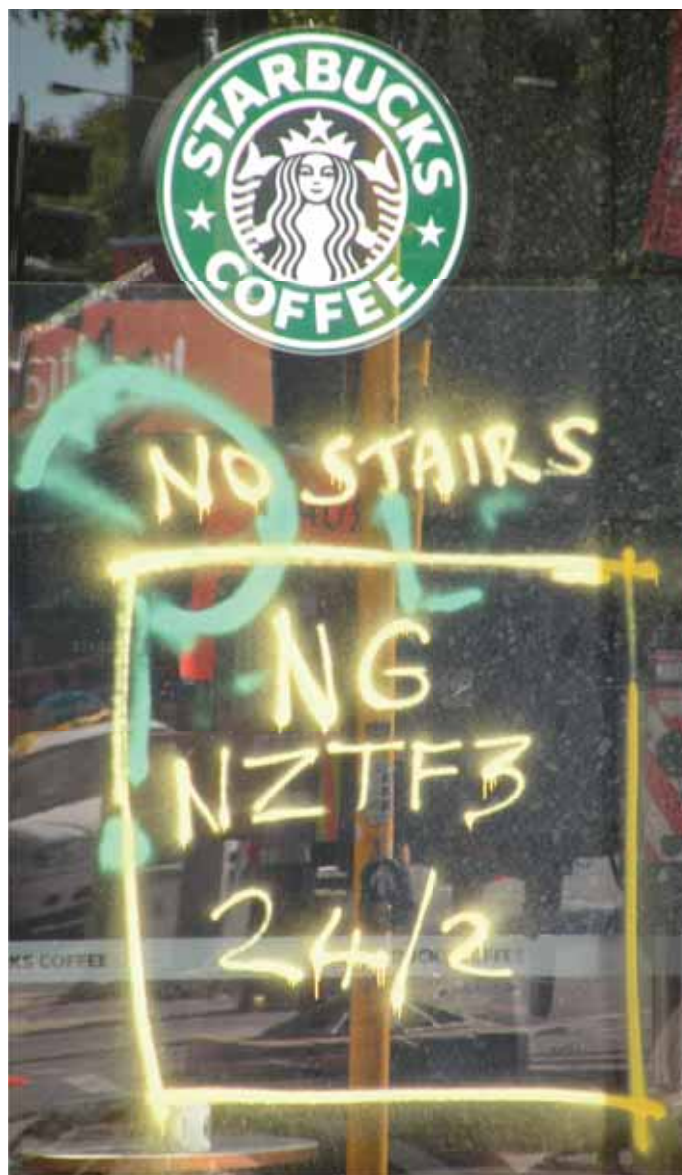
Whilst this was uncharted territory for many of us, the systems we had in place and the plans we had previously prepared went a long way to helping us focus our attention on our people and the more difficult and emotional side of the situation.

In the coming weeks we will again review our plan and look at the lessons learnt from this much more devastating event.

IT'S NOT TOO LATE

Whilst we have just had another major disaster, it is not too late to create or even update your business continuity plan. In fact, now is the best time as the impacts are more fresh in your memory.

Remember that the ability to restore operations as quickly as possible after a disaster can make the difference between business survival and failure, and a business continuity plan will play a big part in helping in that success. I most certainly support this theory.



One Minute | 24 Hours

12:51PM | 22 FEBRUARY 2011



Brian Davey
National Manager
Operational Standards
NZ Fire Service

The day that the New Zealand Fire Service matured.

We can all recall where we were and what we were doing when one of those momentous, world shattering events occurred. The day President Kennedy was shot, the day the Wahine sank, when man first walked on the moon.

At 12:51, lunch time on Tuesday 22 February, at fire stations around the country and at Fire Service National Headquarters (NHQ), people were busy doing what they normally do. As I walked past people on the 11th floor, two of them said, "Did you feel that earthquake"? I hadn't, but I was soon to become aware of its consequences.

The Communications Centres received over 90 calls in the first minute. Fire crews in Christchurch were responding to and coming across, a wide range of earthquake related incidents, rock falls, building collapse, injured people.

Then my pager went "Large earthquake in Christchurch, major building damage". No mention of the significant damage at the Southern Communications Centre and the conditions under which the operators continued to take calls and despatch what appliances they could.

The senior officers in Christchurch were putting into place the command structure that would support their operations until additional resources could be bought into play.

At Fire Service NHQ, senior officers had held an initial "hallway" meeting and implemented an action plan, a plan that had its genesis during the September earthquake. There was discussion and decision on the activation of the three Urban Search and Rescue (USAR) teams, the establishment of a NHQ Support office, resourced with telephones, laptop computers whiteboards and large post-it pads. Consideration was being given to logistics

requirements for appliances and crews, an Incident Management Team and the USAR teams, to assist our people in Christchurch.

Down at the National Crisis Management Centre (NCMC), the Ministry of Civil Defence machinery was swinging into place with Coordinated Incident Management System (CIMS) positions getting to grips with the tasks they were required to do, including the use of Defence assets for transporting USAR teams, with their cache, medical teams, Police and all the other requests that were now starting to come through.

A senior officer was allocated to the liaison desk at NCMC in the Beehive to provide the link between Fire Service NHQ and our people on the ground in Christchurch.

In Christchurch, with the declaration of a Civil Defence emergency, liaison posts were being filled at the City Council and Regional Council Emergency Operations Centre's, and communication lines established.

The Northern and Central communications Centres were preparing to support the Southern Centre to ensure that any emergency call to the Fire Service was handled and appliances responded as seamlessly as possible.

Senior Officers from the Fire Service, Police and St John who were in Wellington presenting at a conference on emergency management hired a helicopter and returned to Christchurch to provide leadership and support to their local people.

By 1500 hours, the Defence team were building up air tasking operations that would pick up USAR teams at Auckland Airport, Ohakea Air Force Base and Wellington for transport to Christchurch. The NHQ Support team were also working on arrangements for Cook Strait Ferry's to transport appliances and staff across to Picton and rosters were being prepared of available senior managers.

1700 hours saw USAR Teams being assembled at the Air Force Bases for air transport or preparing to drive to Wellington, cross on the ferry and then on to Christchurch, complete with relief drivers.

By 2100 hours North Island resources were starting to arrive in Christchurch and to drive down from Picton, this build up continued over night and into Wednesday. Offers of assistance from International USAR Teams had been accepted and plans were in place to observe all the protocols required to land them in New Zealand.

At 1000 hours on Wednesday morning, 15 senior Fire Service officers, including the National Commander, were on board the RNZAF Boeing heading for Christchurch. The first major contingent to support and relieve officers from Timaru and Dunedin who provided the initial relief shift for those that had assembled shortly after 1300 hours the day before.

The amount of damage to the Region offices and fire stations in and around Christchurch meant that operations were managed and run out of temporary premises with make shift facilities for all staff, whether they were operational crews, incident management teams or members of support staff. The spirit of "making things work" given the situation was evident.

The first 24 hours saw a national support structure in place with people mobilised from throughout New Zealand. Longer term rotations of staff were being prepared to ensure continuity of support. Resources were en-route to Christchurch from as far away as Whangarei, and many places in between.

While there will be lessons to be learned, the speed and scale of response was unprecedented in the history of the New Zealand Fire Service.



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SOME PERSONAL REFLECTIONS ON THE 22 FEBRUARY EARTHQUAKE

David Prosser

Tyco Fire Protection Products

I was sitting at my desk in the Tyco's R&D centre in Hillsborough, about 2km from the epicentre on 22nd Feb – I gather now it's shifted several centimetres further away. It started off just like another aftershock, but within seconds became ferocious. Pictures leapt off the walls, and the contents of shelves and cupboards and virtually anything else that wasn't secured ended up on the floor, including me, though I headed there by choice!

Our traumatised and dazed team assembled outside for roll-call amid strong aftershocks, the sounds of rock falls in the hills, and sporadic crashing and alarms in nearby industrial buildings. We soon made for home, many fearing what we might find having seen the shattered bricks, collapsed walls, and scattered roofing tiles of homes on the way. Mercifully, all our families were safe.

My journey home took over 4 hours through variously shattered, flooded, silt-covered, and gridlocked streets - avoiding roadblocks, emergency response vehicles, newly impassable roads, collapsed bridge approaches, and the debris from fallen buildings.

And everyone either knows one of the victims, or someone from their family.

We needed several days to come to terms with the initial shock and awfulness of it all, and to address personal damage.

Tyco's single-level building itself, part tilt slab, part steel-framed, on the other hand, stood up remarkably well. Water was restored within a couple of days, and if it hadn't taken 10 days to get power (damaged street transformer), most staff would have been back on-premises and pretty much up to full speed less than a week after the 'quake.

Instead, after organising EH&S and structural green lights, we made a brief hard-hat foray in on Monday 28th amid ongoing aftershocks to collect essential equipment and computers. Then, in a less damaged part of town, we set everyone up for remote working with the offsite hot backup data and email servers,

and most worked that week from home or other convenient locations. Miraculously, telecommunications infrastructure recovered well, and almost everyone had power at home by then.

The resilience of the people from the manufacturing and industrial sectors in Christchurch has amazed me. The "can do" and "make do" attitude is well and truly alive in Christchurch – ranging from fulfilment of a critical export order with the extrusion machine hastily relocated into a suburban garage to our own factory (located right next door) clearing up a cracked floor covered with silt and littered with "work in progress", organising repairs or replacements for damaged items, and being back into (almost) full production 7 working days later. As they are saying, the best way to help Christchurch recover is to get back into production as soon as possible.

Our air conditioning is out of action, but we get by by opening good old-fashioned windows; the fancy moveable shelving is busted, but, hey, we can live with a few stacks of files cluttering the place up for a month or two?

We were saying "shaken, not stirred" after September 4th... I'd say that Feb 22nd has us shaken, and stirred... but by no means overcome.



National
Consultants Ltd

National Consultants Ltd provides a wide range of fire and fire engineering services, offering:

- Unique Fire Engineered Solutions
- Compliant Solutions
- Regulatory Compliance Reviews
- Training in the area of fire and compliance to the Building Act and Regulations
- Product support and appraisals

Our client base includes over 20 Building Consent Authorities, Governmental Departments, architectural practices, design teams and private developers to assist them to provide safe environments.

To find out how we can help you, or simply to find out more please contact us.



Alan Moule

BEng (Hons), CMS, MIPENZ, CPEng, MIFireE, Principal and Founder of National Consultants Ltd is well recognised as a technical expert in fire and compliance in New Zealand.



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Ross Aitken

Chair, FPANZ National Contractors Group

I missed the first earthquake late last year by one hour as I flew back into Christchurch on a Saturday morning. It was an anxious time being away from family and friends, as we were diverted to Auckland until flights were arranged and via Dunedin I was able to get back home later that day.

On my return, I reflected on the events and the damage to buildings and streets around Christchurch and thought how lucky we were with the timing and that no one had lost their life. Most of us all had received some damage in our homes or contents but materials can always be fixed or replaced and we settled down to the repair process that we expected could take a year or three.

Later after the September earthquake event, and now with regrettable hindsight, I even commented to some, that in a way I regretted missing the earthquake. After all, I came from Christchurch and in my travels many expected me to recount what the actual event was like. It seemed strange I could not share that with others what it was like when asked during my travels, or even with my family, friends and colleagues who were in Christchurch at the time. I can now say I fully regret those thoughts and comments and wish that they never entered my head.

The February earthquake was indeed a terrible event. With our work premises situated on the far eastern side of Christchurch, and, with the scale of damage both to our building and to the contents in our building (compared to no building or content damage in the September earthquake), I could hardly credit what might have happened to the rest of Christchurch, my family, my friends, work colleagues and all our homes.

Until the worst of the earthquake aftershocks were over, we stood outside trying to contact family on cell phones that did not work. Within minutes, our street was crowded with traffic trying to get home but quickly grinding to a stop as we later learned that most of the bridges across the east side of Christchurch had been damaged and the traffic had nowhere to go but, to bottleneck and stop. As I stood outside I watched the full effect of liquefaction, with our business driveway and street start to lift in places and water and silt pour out for minutes and hours. Soon our complete street was under 30 - 40 cm of water and holes were forming under this water with cars falling into them unable to be moved, and further abandoned by anxious people still trying to get home. A woman walked up to us, dried blood on her forehead and face. She was trying to walk along the street to reach family, and not easily being able to get past our driveway now under water. We enquired of her injury and asked if she was all right, but to her it formed no concern at all. She only wanted to get to her partner and ensure he was safe and set off across the water to complete her walk home.

Not long after, we returned inside to find that our PABX was still functioning on standby power and we started the process of trying to track down staff and account for everyone's safety. As most cell phones were not working our initial work proved almost fruitless. After a time, we realised that some text messages were getting through and although you could ring that same number with no

luck, the alternative text worked at times and so we started down this alternative. I cursed myself for not having charged my phone for 4 days and could see I was now on the last 25% of battery life with no power to charge. By this time, we had started getting intermittent reports of buildings down including the Christchurch Cathedral. All this new information aided further to our anxiety and quest to establish the safety of all we knew. The very last consideration from anyone was that of property, the focus was people safety. Over the course of the afternoon we were slowly able to determine the safety of our staff. Some from our efforts, some from staff ringing in themselves, work mates who had been with staff or had seen them since the earthquake or from family who rang into work and advised us their family member was home and safe.

For me personally, I can say I was in part in shock that afternoon. In the effort to track down family and staff I first heard back from my daughter that she was safe (one hour after the earthquake), then soon after from my wife. I knew my son was working in a building that had suffered badly in the first earthquake and was greatly afraid. Many text messages had gone unanswered and then three hours later I received the text that lifted my day when I knew he was safe. His building had been badly damaged and he was not able to get to his phone and had now borrowed another.

By 5.00 pm that day we had accounted for almost all our staff and the ones we could not contact, our Head Office took over as our cell phones batteries and back up power supplies ran out. I am pleased to report that by early the following day we had accounted for all staff and subcontractors including those on holiday. It was a great relief.

By the time the last of us left our work place, my wife had been able to pick up her mother, get home and advise me we had some new character features and lost some contents, but, the house was generally sound. My friends had been able to text and advise that although in some cases they had serious damage they were like our family, all safe. I was very grateful.

I left for home driving through water up to and above the bottom of the car doors in places, looking at vehicles down holes, many people walking because they could not otherwise make progress and looking at the shattered buildings and roading around me. In the past it would take me 12 - 15 minutes to drive home, now it took half an hour to go 100 meters. The radio played in the car telling us all of the events unfolding, the loss of life and property and much more, all a result of 20 seconds of unbelievable shaking and ground movement. It took 2 and a half hours to get home that evening and a similar time to move around Christchurch for the next few days. As the preceding days unfolded everyone in New Zealand witnessed the terrible loss of life and destruction of property in Christchurch.

As for myself, family, workmates and friends we were very lucky. Many have badly damaged property but that's nothing compared to the loss of a life.

CLOSER TRAINING RELATIONSHIP FOR Competenz and the fire protection industry

Who supports me at each stage of the training cycle?

- All learners will be signed into training agreements by Competenz.
- Learners' progress through their qualifications will be supported by Competenz Account Managers.
- All off-job unit standards will be delivered via correspondence and assessed by FireTech Limited.
- All Electrical/Electrical Fitting/Electronics unit standards will be assessed by FireTech.
- All other workplace unit standards will be assessed by Competenz using the verification method.

In the recent past some significant changes were made to the industry training landscape – and for the fire protection industry this has prompted some improvements to the way training will be arranged, delivered and assessed for our learners and apprentices.

Competenz will now play a more significant role in facilitating and supporting the upskilling of employees in the fire protection industry, while continuing to work closely with FireTech, the Fire Protection Association of New Zealand, and employers to ensure all aspects of the training meets industry's needs.

Who is Competenz?

Competenz is the industry training organisation (ITO) for this industry. They are funded by government and industry to perform a number of key functions on your behalf, including:

- Develop national qualifications for this industry, assessment (unit) standards, and provide learning and assessment resources
- Assure the consistency of national standards for those qualifications
- Arrange training for learners (but not funded to deliver the training)
- Assist employers to progress learners through their qualifications within the expected timeframes.

Qualifications for fire protection industry learners/apprentices

All of the following qualifications are registered on NZQA's national qualifications framework, and are due to be reviewed in 2012 in consultation with industry.

Level 3

- National Certification in Fire Detection And Alarm Systems (Testing) (Level 3)
- National Certification in Fixed Fire Protection Systems (Testing) (Level 3)
- National Certification in Fire Protection Systems Technology (Level 3)
- National Certification in Hand Operated Fire Fighting Equipment (Level 3)
- National Certification in Passive Fire Protection (Routine Maintenance) (Level 3)

Level 4

- National Certification in Fire Detection And Alarm Systems (Level 4)
- National Certification in Fixed Fire Protection Systems (Level 4)
- National Certification in Fixed Fire Protection Systems (Installation) (Level 4)
- National Certification in Passive Fire Protection (Building Consents) (Level 4)

Level 5

The new National Certificate in Mechanical Engineering (Level 5) – Fire Protection qualification is intended to prepare trainees in this industry sector for roles at an advanced technical level, or in people/business unit management roles

The core compulsory section of the qualification cover skills considered critical to all mechanical engineering staff working at an advanced trade level.

The core elective section allows a choice of applied studies in the areas of mechanical engineering, business and management.

The strand elective section is where the learner, with help from their employer and Competenz, can choose from a range of unit standards relevant to the fire protection industry, to match the work they need to perform in their particular role for their employer.

Apprentice training - ATNZ and ELEV8 schemes

There are two training schemes managed and supported by Competenz for employers to choose from – ATNZ and Elev8.

Both options offer you and the learner the best possible support, training and qualifications, right through to the timely completion of their qualification.

Competenz provides a structured programme that combines practical skills with technical training, and is linked to the achievement of qualification that's relevant to your industry.

ATNZ apprenticeship scheme

The Apprenticeship Training New Zealand (ATNZ) scheme is ideal for companies seeking an apprentice, but who may not have the time or ability to recruit a suitable candidate and manage their formal employment / training arrangements throughout the apprenticeship.



The ATNZ apprentice programme is managed by Competenz and, within the cost of the hourly rate, charged out to your company, Competenz will:

- Recruit a candidate, perform a pre-employment medical and drugs test, as well as ongoing medicals
- Employ and pay the learner
- Handle all Human Resource matters including sick pay, holiday pay, Kiwi Saver, and ACC contributions
- Manage their workplace assessments
- Mentor the apprentice
- Provide the apprentice's tools and protective equipment
- Pay for any block courses, night classes or, correspondence study they require.

ATNZ is New Zealand's largest employer of mechanical engineering apprentices, with the full mentoring and assessment support of Competenz account managers to ensure the learner gets trade-qualified on time, while working for your business.

ELEV8

If you already employ an ideal candidate and you prefer to be more hands-on throughout their training and development, then this is the option for you.



A Competenz account manager will make four visits per year (per learner you have under this scheme), and perform the following tasks:

- **Strength test** - to ensure the candidate has the right attitude and aptitude, and your company has the right equipment to help them achieve the required units
- Create an individual training plan with you for the learner
- Set quarterly targets
- Ensure all their required units are completed per year
- Assessments
- Mentor and manage of the apprentice's training progress
- Keep you informed and up to date with progress, industry news, etc.

Fire Security Services take the lead in ATNZ uptake

Fire Security Services (FSS) has established the industry's first dedicated in-house technical training school facility, and has just taken on their first ATNZ-employed apprentice as part of a nationwide plan to bring new blood into their business and the fire protection industry.

FSS recognises there is a limited supply of fully qualified personnel in the fire protection industry, resulting in a need to recruit and train new human resource to address this over the long term.

The company's founder, David Nathan, recently shared his vision to have at least one ATNZ-managed apprentice in every branch of their business by the end of this year.

The ATNZ initiative is being driven and supported by David and his dedicated training team based at their new head office facility in Hamilton.

"We're piloting the ATNZ scheme as an additional way to secure suitable candidates and a high level of training support through to completion of their training, and continuing careers thereafter," says Robin.

The team has been working closely with local Competenz account manager Allen Bryce, as they looked for ways to effectively boost their capabilities with more trade-qualified employees across the board.

Their first ATNZ apprentice, Jack Norwood, is a promising recruit. Jack happens to also be a world-class clay bird shooter, and has represented New Zealand in international competition in the recent past.

"We were really impressed with Jack, and we have no doubt that he'll do well in his training and become be a real asset to us and industry," says Robin.

One misconception the team is working through is the idea that apprenticeships are 'just for youngsters' with little to no previous work experience, but Competenz account manager Allen Bryce knows this is not the case.

"An apprenticeship is simply a structured and fully supported training approach to any employee's learning, over a set period of time."

"We've worked with several experienced employees with no formal qualifications, too - it's about having your experience recognised with a national qualification that's beneficial to you and your industry," he explains.

Training is an integral part of working for FSS - all employees commit to training when they join the team.

Employees usually enrol and are supported to complete any of the current range of Level 3 or Level 4 National Certificates which cover the fire industry. This will also be extended to include the new Level 5 strand National Certificate.

"When you become a member of our team, training becomes an essential part of your professional and personal development with us," says Robin Morrison, Engineering Manager at FSS.

Currently FSS has a number of employees placed in industry training across the country, and they get ongoing support from the National Training Department to ensure their people complete the qualifications - support that will be boosted for those under the ATNZ scheme.

FSS look forward to continue being an industry leader through ongoing training and development of all staff, and ensuring a continued high quality of workmanship that FSS provides to its clients.

If you are interested in any of these option or would like to discuss the qualifications available to our industry, call Competenz on 0800 526 1800 to speak with an account managers.

Or visit www.competenz.org.nz for more information.

It's a big investment ... for everyone

It's a big investment training an apprentice, but before you even sign someone on, a lot of work has gone into figuring out what an apprentice needs to learn and how they'll get the skills.

It is not well known that Competenz:

- Talks to groups of your peers to decide what skills should be in the unit standards that make up a qualification
- Designs the qualifications to make sure the skills an apprentice has to learn are fit for the industry
- Writes and produces the manuals and resources
- Contracts training providers for correspondence study.

And during the apprenticeship, Competenz Moderators make sure that passing a qualification actually means the apprentice is able to do the tasks required on the job.

Contact us

For more details call 0800 526 1800 and ask to speak to your local Competenz Account Manager.

ELEV8 Competenz
SKILLS FOR INDUSTRY

ELEV8
LIFTING SKILLS

Fire Protection Apprenticeship

The Road to a Post Graduate Diploma IN FIRE SAFETY AND RISK ENGINEERING

by Graeme Quensell, *NZ Fire Service*

The Victoria University in Melbourne, offers a Fire Safety and Risk Engineering Graduate Diploma as part of its programme. This course is managed by the Centre for Environmental Safety and Risk Engineering (CESARE) and is part of the faculty of Health, Engineering and Science.

The first year of studies offers a Graduate Certificate in Performance Based Building and Fire Codes. This course enables building surveyors and other allied professionals to make use of performance-based building codes. It introduces the concepts and alternative acceptable frameworks for codes and provides assessment and application of performance-based and fire codes.

You will develop a professional approach to performance-based codes and an appreciation of the legal, statutory and design integrity requirements and the need for design compliance.

Units and Electives

Risk Assessment and Human Behaviour	[VQB5611]
Fire Growth, Detection and Extinguishment	[VQB5621]
Smoke and Fire Spread, Fire Safety System Design	[VQB5632]
Performance Codes Methodology and Structure	[VQB5642]

First Year Assessment

Assessment is by a combination of assignments and examination. Distribution of marks among each aspect of assessment is determined individually for each subject. Graduates of the course may be offered advanced standing in the Graduate Diploma in Building Fire Safety and Risk Engineering.

The second year you will gain your Graduate Diploma in Building Fire Safety and Risk Engineering. This course produces professionals who are familiar with fire science and technology fundamentals. You will learn to apply rational engineering principles and techniques to identify cost-effective fire safety system designs for building. Graduates will be familiar with the content and application of fire-engineering design codes.

Units and electives

Fire Technology Modelling	[VQB5751]
Fire Safety Systems Modelling	[VQB5761]
Fire Safety System Design	[VQB5772]
Fire Spread and Fire Safety System Design Project	[VQB5782]

Second Year Assessment

Assessment is by a combination of written projects, assignments, submissions, laboratory work and oral presentation. Distribution of marks among each aspect of assessment is determined individually for each subject.

Graeme Quensell is currently employed as an operational station officer with the NZFS Auckland City Station and also the Secretary/Treasurer of the Institution of Fire Engineers NZ Branch. Graeme has completed this course and offers his insight and recommendation to those looking to increase their knowledge through part-time study.

"For many years I had been interested in furthering my knowledge in the fire engineering field. When the Masters programme was launched at Canterbury University, I fell short of the necessary pre-course requirements to be accepted, so I put my aspirations on hold. Coming from an electronic communications background, I did not hold a degree, but I did however, have my IFE Members grades.

Three years ago I became aware of a post graduate course being held at Victoria University, Melbourne, Werribee Campus. This course was managed by the Centre for Environmental Safety and Risk Engineering (CESARE) part of the faculty of Health, Engineering and Science. A two year course of study would lead me to a post graduate diploma having successfully past the first year post grad certificate with a 75% average minimum requirement. A thesis is then required to gain a Masters.

I'm sure that having the Institution of Fire Engineers Members qualification coupled with my thirty years of relevant industrial experience helped in getting admission to the course.

The course is very challenging but success is not out of reach if you apply strict study techniques. As a mature student (turning 50 during second year) I did find some parts harder than some of the younger students fresh from their engineering degree studies.

It is a huge time commitment having to complete the five assignments between each block course that comes around every two and a half months. A good student e-mail network is highly recommended to help each other.

Parts of the course require the use of fast computers to run fire modeling programs such as FDS. Some of the runs take days to complete and tie up that computer during this time so it would help to have a dedicated computer for this purpose.

I found the course rewarding and challenging. It has provided me with the knowledge to be able to design building fire safety systems and also use the existing systems that modern building designs provide to make fire fighting and rescue more effective. The course was made up of mainly engineers and had a few fire fighters that was beneficial to the overall course dynamics. Both groups learnt from each others' experiences, especially when it came to evacuation modeling.

The course being Australian is based around the Building Code of Australia (BCA) however there are many similarities with the New Zealand equivalent and the principals learnt can be applied around the world with minimal conversion. The engineering calculations for smoke management, fire development, suppression and evacuation are universal and can be applied to buildings in any part of the world.

The knowledge gained from this course will future proof my career prospects and has improved the way I approach fire fighting and fire risk management. I now appreciate how sprinkler operation and smoke management systems can conflict with each other and how the arrival of firefighters like myself can also upset the equilibrium of the building safety systems in the course of our fire brigade intervention.

For more information on this course, go to www.vu.edu.au and enter ETQB and EGQB in the course search.



Sustainable fire protection is not just about environmentally friendly products. It is also about the speed of detection and suppression to prevent damage to your facility and ensuring business continuity and long term survival. Our range of special hazard protection systems include environmentally friendly gaseous extinguishing agents, water mist, foam concentrates, video smoke and flame detection, intelligent linear heat detection, explosion detection and suppression technology and many more. So when you need to protect your critical assets and also safeguard your people and the environment, Fire Protection Technologies have the solution for you.

Fire Protection Technologies are recognized throughout New Zealand and Australia as the leading independent supplier of special hazard products, technical support and engineering services. Every day equipment and systems supplied by Fire Protection Technologies are actively protecting people, property and critical assets from the hazards of fire and explosion. We pride ourselves on supplying the highest quality products in every situation. When this is combined with our in house design, engineering and technical support capability we are able to provide the right solution for all your special hazard problems.



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DEFINING GREEN FIRE PROTECTION

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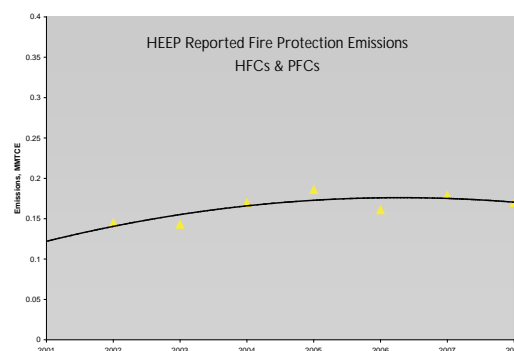
With a global push underway towards sustainability, product stewardship, and achieving long-term environmental goals, many companies are now looking at ways to improve their facilities and processes to make them more eco-friendly. At DuPont, our vision is to be the world's most dynamic science company, creating sustainable solutions essential to a better, safer, healthier life for people everywhere. Our FE business is actively pursuing these goals by developing sustainable fire products that protect lives and valuable assets from the threat and damage of fire.

More than fifty years ago, DuPont helped introduced and promote waterless, clean agent fire extinguishing technology to the world. At the time very few applications existed for this amazing technology, but with the rapid introduction, growth and reliance on information technologies over the past several decades, DuPont waterless fire protection systems are now commonplace in many industries, markets and regions around the world. Since the earliest introduction of clean agent technology and during the critical transition period from halons to next-generation extinguishing agents, DuPont and the fire suppression industry have been at the forefront of responsible environmental use of these critical life and property saving materials. Recently however, low GWP agents have been positioned as a more "environmentally preferred" option for fire suppression systems. This approach overly simplifies complex decisions about good fire protection and unnecessarily narrows the range of options one should consider when protecting critical facilities and assets. It's important to consider all key decision criteria when choosing a safe, effective and environmentally responsible fire extinguishing system. Focusing only on the GWP of a compound fails to consider both the opportunity cost associated with low GWP and the reality that a compound's GWP contributes to climate change only if the agent is released to atmosphere. Years of industry experience and hard data strongly show that minimal amounts of extinguishing agents are ever released to the atmosphere.

After the Montreal Protocol regulations ended new production of halons the fire industry implemented many responsible use practices that are now, twenty years later, considered standard practice. A Voluntary Code of Practice, supported by the major industry associations, established best practices for installing, maintaining, and servicing fire suppression systems and these measures have proven highly effective in controlling and reducing unwanted emissions. Industry codes, such as NFPA 2001 and ISO 14520 have likewise adopted practices that improve suppression

system performance along with environmental considerations. In fact, worldwide emissions from fire protection, including fire events, are estimated to represent less than 0.02% of total greenhouse gas emissions on a CO₂ equivalent basis and less than 1% of emissions from the basket of gases manufactured for use. Fire system emissions represent a minor fraction of global greenhouse gas emission – and the industry has shown a commitment to continuous improvement through reduction of false discharges, reduced losses when filling and handling systems, as well as improved training programs for technicians and users who service and maintain these important fire systems.

The industry has been working closely with the U.S. Environmental Protection Agency (EPA) to develop a reporting program to track and measure fire system emissions in the US market, the HFC Emissions Estimating Program (HEEP).¹ By working closely with the US EPA on the HEEP program we can now document the progress being made in one of the world's largest clean agent markets, the U.S. The results are clearly evident; GWP-weighted emissions from fire systems are leveling off – the latest 2008 value is 0.170 MMTCE – even while the installed base of clean agent systems continues to grow significantly and consistently every year. Fewer actual emissions, from a larger installed base, protecting an ever wider range of critical applications and facilities; proves the case that fire system emissions are not directly tied to the number of fire system installations. To put these emission volumes into perspective, the average fire system contains about 155 kgs of FM-200® extinguishing agent, or about 4.5mt CO₂ Equivalent. According to the U.S. EPA, this release rate equates to the same GWP impact of 9/10ths of a passenger car or 4/10ths, less than half, of your home's annual energy usage.



¹ Report of the HFC Emissions Estimating Program, March 2010.



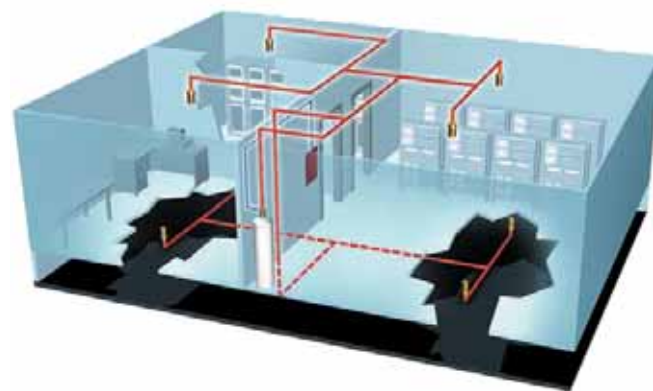
What about the future environmental risk from an ever growing base of protected facilities? The HEEP data over a six year period consistently shows that, contrary to popular conception, the number of system installations is not connected with the volume of extinguishing agent emissions. The number of installed systems steadily increases year over year and yet the volume of emissions over the period of the HEEP data remains the same. One possible explanation is that the number of fires and system releases is fixed, regardless of how many sites are protected. It is well understood in the industry that fire events, while disastrous when they occur, fortunately happen very infrequently. Further the industry currently has a well-established maintenance, recovery and reclamation infrastructure that provides a strong global market for recovering and reusing clean agents in new fire extinguishing systems. Over the years, these programs have become more refined and efficient; proving that with proper care and market incentives emissions can be reduced, fire system sustainability assured, and environmental responsibility realized.

If clean agent fire systems have such a low environmental emissions impact, how should a user evaluate and choose the best fire technology to protect critical facilities and installations? Fortunately, many of the key decision criteria are already well established in the design and specifying community. Fire suppression systems should be considered as an integral complex system, including, but not limited to, the choice of agent. Just as the science and politics of climate change are complex and interrelated, so too, the choice of the right fire suppression technology for any given application is more than a single component or even sum of components, and requires careful evaluation of many factors before making a sound decision.

First, it is critical to ensure that the performance of the suppression system properly matches the application. Life safety must be the top priority, followed by protection of property and the environment. All effort should be made to reduce and eliminate personnel exposure to both fire events and fire extinguishing media, however, choosing an extinguishing agent with a very thorough and comprehensive toxicity screening provides the confidence that if people are exposed during a discharge there will be little consequence to their health. Few extinguishing agents offer both the comprehensive toxicology assessments and practical use experience of DuPont FM-200®. In addition to the standard fire protection toxicity reviews cited by most clean agents, FM-200® has had an extensive health and safety review under the PAFIT assessments for use in pharmaceutical applications. From the first installations in 1992 through thousands of projects installed around the world today, no other clean agent technology offers the depth of experience, familiarity, and practice when protecting critical assets.

Selecting a fire suppression system with the main focus on achieving an arbitrary agent GWP target can not only wastes resources, but may ultimately prove to be a worse choice environmentally as well. In evaluating the environmental impact of a fire suppression system, it is important to consider the quantity of equipment required, including system storage space, as well as installation and servicing costs. Achieving the same hazard protection goals with physically larger, more complex fire systems requires more manufacturing resources and can increase the overall environmental impact that goes into the development and installation of a fire system. Efficient, high performance extinguishing agents such as DuPont™ FM-200® reduce resource requirements, going back through the hardware manufacturing process; they also have lower environmental impact when transporting, installing, and servicing on site.

According to a Data Center News article² the operational cost of a data center ranges from \$80-\$112/ft² and a large part of that cost goes to power and climate controls. The IT sector is estimated to account for between two to three percent of the world's total CO₂ equivalent emissions, and a large portion of that is data center operational energy consumption. DEFRA, the UK government Department for the Environment, Food and Rural Affairs, says data center energy consumption in the UK in 2007 was



almost three per cent of the total national grid - and that power is often used inefficiently.³

Environmentally responsible IT development is a highly discussed topic throughout the technology industry and it is certain that "sustainability" will continue to be a growing concern for critical facilities. Improving the environmental footprint of data centers relies on reducing operational energy consumption through improved power efficiency and cooling infrastructure. Most of these technologies require an increase in initial capital expenditure to recover the decrease in operational cost over time. Facility managers, building owners, architects, and design engineers continue to review and examine options for improving a site's environmental profile and fire systems are not exempt from that process. By combining a safe, effective fire suppression system that offers the highest performance with an efficient use of space, energy and capital, owners can focus their resources on making a real difference in reducing a site's environmental footprint.

When considering the overall environmental performance, consider LEED® (Leadership in Energy and Environmental Design) standards. The U.S. Green Building Council (USGBC), a non-profit coalition of building industry leaders, developed LEED® to establish a common standard of measurement for environmentally sustainable building practices. Several clean agent fire extinguishant options, including FM-200®, contribute toward LEED® credits in the Energy & Atmosphere category, contributing toward USGBC Certification.

Money saved by choosing a high performance, cost-effective fire suppression system can be used to upgrade building materials or for other energy performance enhancements. Improvements in these other operational areas are weighted five to ten times more heavily in the LEED® certification process than improvements related to fire systems. Focusing limited resources on areas that provide the greatest return is both fiscally prudent and environmentally responsible.

For nearly two decades, HFC clean agents have clearly demonstrated they offer the best balance between performance, economic value, and environmental responsibility for the special hazards fire protection industry. To choose a fire suppression system based solely on the GWP of the agent used in the system is to fail to properly appreciate the true impact and importance of fire extinguishing system in the overall protection and operation of a critical facility.

From our beginning as an explosives manufacturer more than 200 years ago, DuPont has a long history of safely providing critical products to markets and industries. For more than 50 years we have been proud to support the fire industry with the most advanced waterless clean agent technologies available. DuPont™ FE clean agent fire extinguishants have demonstrated time and again why they are the world's most trusted choice for waterless fire protection. Leading businesses and institutions around the globe have chosen fire suppression systems containing DuPont™ FE clean agent fire extinguishants to protect their most valuable property from the damage of fire. From our first installations through the hundreds of thousands of systems now in place, our products have proven to be the safest, most effective, and responsible choice for waterless fire suppression.

² Data Center Locations Ranked by Operating Cost, Data Center News, 25 Jul 2006. SearchData.com

³ Green IT Supplement: Keeping your eye on the prize; Duncan Jefferies. Financial Sector Technology, Oct 22, 2009.



NZ 2011 Business Club DOMESTIC FOCUS

2011 is New Zealand's year. No matter where you live in the country, you'll experience the excitement of what it means to be host of Rugby World Cup 2011. Hosting is more than putting on a great event and making sure our visitors have a fabulous time, it's about taking the opportunity to show the rest of the world what we're made of, and how unique we are. As New Zealanders, we can play a huge part in showing our international visitors a great time while they're here for the Tournament.

There are many ways New Zealanders can get involved in Rugby World Cup 2011, from volunteering at matches, to creating events to showcase New Zealand, to business hosting.

The NZ 2011 Office has been set up by the Government to help New Zealanders to get involved in RWC 2011, and to create lasting benefits for our industries, businesses and communities. The office has a range of programmes designed to do just that, including a nationwide festival, sector showcase and business initiatives.

The NZ 2011 Business Club is one such programme, and has been set up to encourage New Zealand businesses to make the most of the Tournament and ensure our visitors have a personalised experience of our country.

The NZ 2011 Business Club connects local business hosts with international business people while they're in New Zealand for Rugby World Cup 2011. International visitor recruitment comes through our international government and business connections, overseas events and ambassador presentations, relationship marketing and our online Business Club tool. Hosting Business Club members creates a great environment for making new and enduring relationships, and means they get a personalised and unique experience of New Zealand. Hosting comes in many forms, from a BBQ on the beach to attending a REAL New Zealand Showcase or REAL New Zealand Festival event together.

The REAL New Zealand Showcase will present the best of New Zealand business and industry to the world during Rugby World Cup 2011. The hub of the Showcase is based at The Cloud on Auckland's Queens Wharf, and the programme comprises over 200 events nationwide, demonstrating New Zealand's key industry sectors and the people who work within them.

The REAL New Zealand Festival runs alongside the Rugby World Cup from 9 September to 24

October 2011. The Festival is the biggest celebration of our country ever staged, and has a rich and varied programme. Our international guests may be coming to New Zealand to see some great rugby, but they're also interested in experiencing more of New Zealand – and the REAL New Zealand Festival proudly celebrates all the things that make New Zealand – and New Zealanders – tick.

We're expecting over 85,000 visitors to New Zealand during the Tournament, and that's set to grow. Nearly half of these people arrive before opening match, and for many it's their first visit to New Zealand. With so many first-time visitors coming to the region, there are plenty of opportunities for local businesses to show off their talents and develop some long-term relationships with like-minded business people.

The NZ 2011 Business Club represents great value for local business people – it's free, it only takes a few minutes to sign up, and members receive updates and information each month to help them with their planning.

As RWC 2011 gets closer, members will need to plan their hosting. They can create their own events or attend one of thousand REAL New Zealand Showcase and REAL New Zealand Festival events around New Zealand. Once hosts have decided on an event, they submit it to the Business Club, which sends an invitation to business contacts on their International Business Club member database.

Business Club members can also get extra help with hosting: the NZ 2011 Business Club works closely with regional economic development agencies (EDAs) who can help members to design and deliver tailored events to match the interests of the international visitors.

For more information please contact:

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Sally Woodfield
REAL New Zealand Festival Publicist
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or visit these sites:

nz2011.govt.nz
realnzfestival.com
youtube.com/nz2011office



HSNO

storing and using hazardous substances in buildings

Geoff Mayes

**Geoff Mayes is
Compliance Approvals
Manager for ERMA New
Zealand's Hazardous
Substances Group.**

Last year we highlighted that the Hazardous Substances and New Organisms (HSNO) Act requires controls on buildings where hazardous substances are stored and used. These requirements are in addition to those under the Building Act. This article provides an introduction about which part of the HSNO Act applies to each area and where you can obtain more information.

There will be future articles to examine each of these areas in depth and explain how the legislation functions.

The Institute of Architects and Institution of Professional Engineers have issued practice notes regarding compliance with the HSNO Act for the design of buildings.



BUILDING CONSTRUCTION REQUIREMENTS

The HSNO Act sets out the construction requirements of a building in which flammable or oxidising substances are stored or used. Compliance with the HSNO Act is a verification method of Clause F3 of the Building Code. Hence compliance with the HSNO Act is also compliance with the Building Act.

The following HSNO legislation refers to building construction:

CLASS OF SUBSTANCE STORED/USED	REGULATION
Class 2 – flammable gas	Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)
Class 3 – flammable liquid	
Class 4 – flammable solid	78-80 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
Class 5.1 – oxidising agent	90, 95-97 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
Class 5.2 – oxidising agent	108, 117-119 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
Flammable liquid burners	Parts 13 and 14 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended). <i>Note: burners approved under HSNO are also accepted under the Building legislation.</i>

These requirements are additional to those in other parts of the Building Code.

FIRE EXTINGUISHERS AND FIXED FIRE FIGHTING

Fire extinguishers are covered by various parts of the legislation depending on the situation:

SITUATION	REGULATION
Manufacture	11, 15 of the Hazardous Substances (Compressed Gases) Regulations 2004
Importation	18-23 of the Hazardous Substances (Compressed Gases) Regulations 2004
Labelling and marking	39-42 of the Hazardous Substances (Compressed Gases) Regulations 2004
Periodic testing	51-54 of the Hazardous Substances (Compressed Gases) Regulations 2004
Filling	56, 59-61 of the Hazardous Substances (Compressed Gases) Regulations 2004
Type of extinguishant, size and location of extinguisher	17, 21-23 and 30 of the Hazardous Substances (Emergency Management) Regulations 2001
Requirements for flammable gases and liquids	81 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
Fixed fire fighting for tanks	Part 9 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)

EMERGENCY PLANNING

A place where hazardous substances are used or stored must have an emergency response plan if the quantities exceed certain thresholds. This applies to all hazardous substances, whether or not they are flammable.

These requirements are in regulations 25 -34 of the Hazardous Substances (Emergency Management) Regulations 2001.

TANKS INSIDE AND OUTSIDE BUILDINGS

Tanks must be built to meet certain design standards; have secondary containment and fixed fire fighting facilities (for flammables); and must be separated from other tanks, buildings and public areas.

These requirements are in Schedules 8 and 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended).

FLAMMABLE LIQUID BURNERS

A burner designed to deliberately burn a Class 3 flammable liquid must comply with an approved design standard and be approved under the HSNO legislation. This is covered in Part 14 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended).

SECONDARY CONTAINMENT

A place, including buildings, holding liquid hazardous substances, including flammable and non flammable substances, must have secondary containment to enable spills to be recovered and cleaned up. This is covered in several areas of the legislation:

SITUATION	REGULATION
Hazardous substances stored in a place, including buildings and tanks	35-41 of the Hazardous Substances (Emergency Management) Regulations 2001
Large tanks	Part 9 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)
Underground tanks	Part 6 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)

GROUP STANDARDS

Many hazardous substances are regulated under HSNO by Group Standards rather than directly by the regulations quoted in the tables above. However, the requirements for all hazardous substances are the same whether or not they come under a Group Standard. Therefore the requirements of these regulations also apply to substances under Group Standards.

USE OF STANDARDS AND CODES OF PRACTICE

There are codes of practice approved under the HSNO Act that provide a means to comply with the legislation. These can be found on the ERMA New Zealand web site and will state which section of the legislation they relate to.

There are also many Standards available that relate to these situations. However, these Standards are not applicable to situations covered by the HSNO Act unless the legislation specifically references them, or they are approved as a code of practice.

More detail on these standards and codes will be provided in the detailed articles that will follow.

HOW TO GET HELP

Codes of practice can be found on the ERMA New Zealand web site at:

<http://www.ermanz.govt.nz/publications-resources/publications/codes-of-practice/Pages/default.aspx>

Regulations can be found on the government web site:
www.legislation.govt.nz

The Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended) can be found at:

<http://www.ermanz.govt.nz/Publications/Transfer-Notice-35-2004.pdf>

If you would like more information on any of the HSNO requirements you can call the ERMA New Zealand Helpline 0800 376 234.

Alternatively you can contact a test certifier, an independent person approved under the HSNO Act to certify locations and people where flammables and oxidisers are used.

A list of test certifiers can be found on the ERMA New Zealand website:

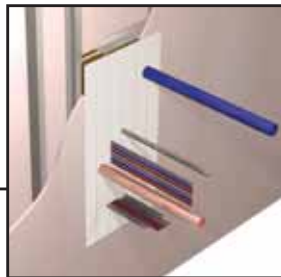
<http://www.ermanz.govt.nz/search-databases/Pages/testcertifiers-search.aspx>

The ERMA New Zealand website also provides information on many specific situations www.ermanz.govt.nz.

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* "Fire hazards in industry" - By Norman Thomson (2002)