

# straight up

THE MAGAZINE OF THE BUILDING OFFICIALS' INSTITUTE OF NEW ZEALAND

MARCH 2008

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As this journal reaches you, final preparations will be taking place for the Institute's Annual Conference and Exhibition to be held in Auckland between 20 and 23 April 2008. I sincerely hope that you have registered to attend this pre-eminent event as; once again; we are providing the very best technical programme on this year's event calendar for you.

Katharine Wheeler and her team have once again done a marvellous job with the technical programme and you can be assured of absolute satisfaction with the content. The majority of the conference will feature three streams of technical presentations and there are also a lot of opportunities to mix and mingle with your sector colleagues. The programme also features many firsts for the Institute, so please register early to avoid any disappointment.

As we are all getting into the swing of being back at work the Board and the office have been busy evaluating the future and how the Institute can service the needs of its members and customers. By now you will have noted the new look (and feel) programme of the




**The first trainees in the jointly managed Building Officials Institute/Ministry of Social Development programme "straight to work" with Principal Trainer, Rosemary Hazlewood.**

training academy as it grows in stature and reputation. The Institute is so confident in the products being delivered by the Academy that we are offering a money back guarantee if you are not satisfied and all details on this are available on the website.

On the subject of training, resources and capacity building for the sector, the Institute is again taking the lead with another new initiative. The Straight to Work programme instigated by the Ministry of Social Development is currently being trialled in the Wellington region in conjunction with the Institute and its Academy. This has the potential to provide a pre-evaluated resource provision service for an under-resourced building control sector. We believe that piloting this programme in Wellington is only the beginning of what will become a nationwide initiative. Students, trainers and Institute staff are pictured at this inaugural programme which commenced in February 2008.

We also wish to advise that the Diploma in Building Surveying, the first and only nationally approved qualification on the market has now been registered with NZQA. A lot of hard work from a number of Institute members, Mark Williams of Williams Unlimited and the Institute's office has been rewarded with this new qualification and our congratulations to everyone concerned.

We have been fielding many phone calls from the sector asking about who is going to deliver the nationally approved qualification. We will continue to bring that information to you. I must express, however, that if you are looking at courses or any form of training for you or your staff, you should be extra vigilant in your evaluation of the contents of such training and be sure that it meets your needs first and foremost. The Institute, with its wide range of subject matter specialists, is providing a valuable service to its members and potential members, and we are only too happy to work with you to ensure you get the very, very best.

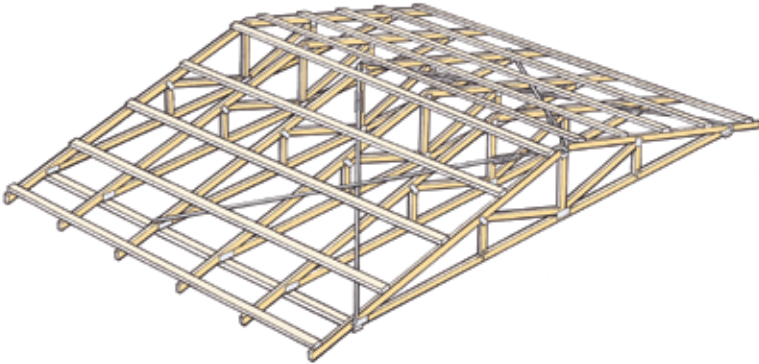


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### Profile, Stu Geddes

#### Senior Building Controls Officer

#### Central Otago District Council

Looking back, with both my father and grandfather being carpenters, I was destined to be involved in the building industry. I have a photo taken when I was 8 with my own hammer and nail bag helping my father box up a foundation. Who would have thought, 40 years later, I am still involved with building.

After leaving school I started a plumbing and drainage apprenticeship. As my father said "get a trade behind you then you can do something else but you will always be able to fall back onto it". Bob Bain (my employer) was a stickler for doing things right. He said "It is easier to do things once and do it right than try to explain why you didn't do it right".

These are good values that I have learned that can be taken right through life. After finishing my apprenticeship I worked as a plumber/drain layer for a further 10 years.

Noticing an ad in the Otago Daily Times for a Plumbing and Drainage Inspector at the Dunedin City Council I thought "this could be a chance to increase my knowledge". After what felt like an interrogation in an interview process with the Chief Plumbing and Drainage Inspector at the



Stu Geddes

time, Peter Simpson, I was offered the position. Peter led a very experienced and knowledgeable team of inspectors and, as I was the youngest and greenest, I felt very apprehensive. I needn't have worried. They were more than happy to pass on their vast knowledge and experience and point me in the right direction when required. As mentors they were brilliant and there are inspectors all round New Zealand like this. I believe we need to tap into their knowledge before they leave the industry.

After 7 years at Dunedin City Council I moved into a smaller Territorial Authority when I joined the Central Otago District Council and have been for 7 years. In my current position as a Senior Building Control Officer the ever-increasing level of paperwork is becoming increasingly frustrating. Although a necessary evil, we are constantly harassed by the public as to why they have to supply all this extra information in order to obtain a building consent. We have now developed user guides containing all sorts of helpful information to lead the public through the maze of a building consent. Once they have filled in the user guide, that lists the minimum documentation required for a building consent, we then meet for a pre application consultation (PAC) where we go through the application and user guides with the applicant. By undertaking this process, if all the information is not provided, the applicant is sent away with the consent documents and told to re-submit when they have the additional information. This is proving very successful. It is amazing how much quicker

they can find the additional information when they still have the building consent paperwork as opposed to when it has already been entered into your system for processing.

From a Building Officials Institute point of view I have been involved at branch level for many years and have served 2 years as branch chairman. I was privileged to be nominated as Southern Branch Board member a year ago and am thriving on the challenge this has created for me. With half the Board being in their first year it has been a healthy learning curve, while existing board members and the National Office have given good help and guidance.

The Southern Branch meets every 6-8 weeks with some members having to travel up to 3 hours to attend. The lower half of the mainland (South Island) is experiencing huge growth at the moment with all Territorial Authorities struggling to keep up. And if you throw in BCA accreditation there is no spare time.

My future aspirations?

To continue to learn and upskill. This is something that will be required in an ever-changing building environment. It's a bad day when you don't learn something new.

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**Stewart Geddes**  
**Southern Branch Board member**



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# Quality Control for Building Consents



**Bob Tidd**

Quality Control for Building Consents, for Lodging, Processing, Administration, Storage and Inspections. "How far do we go?" there is always a tug of war between the numbers game of getting consents out within the statutory time and providing a good quality approval free of risks and liabilities for failures caused by our omissions.

Both components are a requirement under the Building Act 2004.

This is the first thing that really needs to be considered by the building management, when addressing quality control for Building Consents or other systems that require quality.

Consider a see-saw diagram, that has quality at one end and numbers at the other end, with the pivot point being the resources available to do the work. If the resources, stay the same, then an increase in quality often means a decrease in numbers. It is almost impossible to achieve both with a status quo for the resources.

An exception to this would be to consider smarter ways to perform the work, so that both quality can be improved along with achieving numbers with the resources retained as they are.

Either way there will be costs, but perhaps these costs could be compared to the settlement and legal fees for claims against the council.

Having set up from scratch and administered a quality control audit process for just over 12 months to date, I write this article in an attempt to assist others, that are operating or considering starting a 'QA process'. I don't advocate as being the expert on this subject by any means, but perhaps some of the issues we discovered along the way to achieving a pretty good QA system, may help others to short circuit to a good final process.

However, one thing that should always be considered, is that the search for the best way to do something is never complete. A good quality process, means we are always on the look out for a better way to do something.

The first step in achieving good quality is ensuring the staff and managers have the right attitude towards accepting a need to improve. If everyone thinks that what they have been doing for the last umpteen years has worked so why change it, then you will unlikely achieve a quality process.

It may work in their eyes for now, but will it adapt to changes we have no control over, forever.

In addition, will new staff understand your process fully to the point that you can be 100% confident that they will follow what you expect to the letter.

Ultimately, there needs to be some open mindedness, to be able to achieve good quality.

A QA process may well start from performing audits, but that is not the end of it.

If issues of technical or operative lacking are discovered during audits, then there needs to be a process to record and report on them, then to follow through what recommended actions are required for that consent and for future consents, to ensure the same mistakes are not repeated.

Consideration needs to be given to how many people are going to be required to form the new QA team and what will be the scope of their operation.

For example we discovered, that the accreditation system we have now been through, required us to address staff competencies and training. We must ensure all staff retain that competency or obtain greater competencies, so this is often best done by an audit process.

This then means there will be a certain number of audits that will be required for each person, every 6 or 12 months. Certainly a minimum of 1 per 6 months would be a reasonable confirmation of their competencies, without just assuming they are doing everything correctly.

This applies to each team member in the process of the building consent, although at this stage we only need to be concerned with BCA functions, so the staff that should be assessed for their technical abilities would be processing and inspecting staff (ie Building Officers).

However, in performing an audit, other functions should also be considered, such as other teams involvements, for example 'Planning', 'Admin' etc, although they perhaps only need consideration for them following the documented process's rather than their technical abilities.

Something to consider for your own organisation.

You will need to establish how many audits are to be performed, but don't forget to consider also the extra audits that may be required due to requests for upgrading a competency level, suspected problem consents and requests for specific audits, for staff or a project, for various reasons.

These all add up to the total number of audits that need to be performed.

Then consider what that team will do with the information, such as the need for training for a specific item or staff member, both for technical and process issues. Will the QA team perform that training or will they pass on to a separate team?, although they would likely have to be involved in some way with the training details no matter who performs the training.

It is often found that issues relating to a consent not having an acceptable quality, may highlight the need to create a new process, that was never documented and was confusing to staff, or it may require considering the details and wording etc of an existing process. Be prepared to change something if it is causing problems and don't just rely on verbal discussions, with the staff that are present at the time. If the staff don't do it correctly, then always consider is that because your process is not clear or have you given sufficient training, assume nothing.

When you know how many audits are required and how many staff are to be in the QA team, you need to consider what depth an audit will be carried out. Consider the time necessary to perform it and the many other tasks that will be a result of the audit.

We now have 3 different processing audits and 2 different inspection audits; they are as follows;

Mini audit (aka QA check): Which is performed for every consent prior to granting (with a few exceptions [although those exceptions still require

random checks from time to time]). These are only a very quick 15 – 20 minute review of documentation, they really just consider things that jump out at the reviewer, as they quickly scroll through the pages. We find these pick up about 6 or 7 % of consents that require corrective actions taken. The results are recorded on a spreadsheet, which also has a prompt list of main issues to be considered during the review process. Although as the prompt sheet is updated based on information from higher level audits, the average time taken to perform these quick reviews will increase in the time taken to review.

Short audit: Which is performed on random or targeted officers (to achieve the minimum per 6 monthly review for competency checking) or for other reasons.

These take from 1 to 3 hours and are a more thorough review of consent documents and the computer records. This is recorded on a combined check-sheet and report for that consent. These normally show that about 70% of consents require some corrective action.

Full audit: Which is a process that takes 4 to 6 hours and addressed in a similar way to processing the consent completely, with more accuracy consideration to sizes and calculation results etc than the lower level audits. This has a separate check-sheet similar to the full processing check-sheet used by the processing officer and a separate report.

These also show that about 70% of consents require corrective action.

As this type of audit is much more labour intensive with minimal improved accuracy, we are performing less of these to allow more short audits to be performed.

There are 2 Inspection types of audits that we perform;

Site audit: This involves visiting the site with the officer at the same time they are performing the inspection. The auditing officer is reviewing the process and the technical ability of the officer to work with the trades people on site and to ensure that they follow all the required processes such as checking the plans and other documents, past records and also considering that all elements that should be looked at in that inspection, are done so correctly.

The auditor considers if the inspection was full and complete and that the correct decision was made about it passing or failing.

These audits will take the equivalent time it takes to perform the inspection, so may vary from 20 or 30 minutes to 1 or 2 hours, depends on how long your organisation gives for that inspection type to be performed in. Often we will do these audits for that officer for the day or part day. A further reality however, is that if the auditor provides any mentoring on site (being the best time to do so), the inspection will naturally take a little longer, so allow for that in considering how many inspections are to be performed by the inspector or the auditor.

Computer checks: These are performed on the post inspection details stored within the computer programs or other storage systems, including the correctness etc of the inspection checksheets.

These checks are a fairly quick thing and could





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mean several are likely to be performed during a day or part day. The better your storage system the more you can perform.

Most companies would be well aware of the importance of records being stored correctly and the inspection results recorded very clearly and accurately, to avoid complications when or if something goes wrong at a later date.

Overall they all have a function and a part to play, however you can see that there is a reasonable amount of time taken to perform them. You may also find that as you improve your checksheets etc for various sized audits, you may need to review how many and what types of audits you perform. They are very likely to increase in the time necessary to complete, as you will pick up more and more items to consider as time goes by.

You may also find you need to review how many staff you engage to perform these audits.

It is not very likely you will achieve any sort of useful auditing process, if you try to use existing staff to perform these functions as well as their present functions.

The next step after the audits have been performed, is to notify the team leader or manager of that officer to update them on the findings, it needs to be noted what items should be dealt with further and prior to the consent being approved.

This is something that the QA team only recommends and the final decision is for the team leader or manager.

However it is important that any consents that have had a recommended corrective action, be considered

and addressed suitably, for this to occur the team leader or manager should provide written feedback about their final decisions and actions taken.

Those feedback forms are stored, for future reference.

Each month we have a quality control meeting where the QA officers present a summarised report on their audits and various training or system recommendations, to the various building team managers.

These items are discussed and various people are given the task of investigating further or arranging suitable action, be it for training or creating new process's or changes to existing process's.

Those decisions and allocations are recorded on a master spreadsheet and progress is discussed each meeting to ensure no items get forgotten about.

In considering the number of staff required to make up a QA team, remember to allow for the large amounts of time taken to record results and report on them, this takes surprisingly more time than the people that don't do it, will realise.

You may also have audits performed by other teams, perhaps by team leaders etc. Those results should be documented into a single location for overall quality control.

These combined results all then become part of the total quality assurance plan.

It is critical that all recommendations that come out of audits are thoroughly and seriously considered, obviously there is a reality and they all need to be prioritised into items that are quite serious if they continue unaltered. Likewise there may be items that are only something that would be nice or you

can live with for a little while.

The important thing is documenting and administering all recommendations so that they are not just something that is recognised and everyone nods their heads, but nothing actually happens and no improvements are made.

Remember the later stages of accreditation will involve external audits to ensure we are operating a quality system and following our documented process's.

A final point to consider is that 'two wrongs do not make a right', so if any items were not picked up by previous processing, inspections or audits, that does not limit any later reviews from re-considering or considering in the first place those items.

Do not allow you or your team to use this as an excuse to not take action to remedy, Legal people and others will only consider all parties more negligent, if you had two goes at considering something that you are paid to review and missed it twice.

Raise your hand and say "we missed before, but it still needs to be fixed".

Also remember quality systems are never complete, Quality means always trying to improve.

Please note that I write this article as an individual and not on behalf of my employer.

**Bob Tidd**  
**Member BOINZ**

*Employed as; Quality Control Officer  
Building Control, Auckland City Council  
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# Large fines for illegal building work

MEDIA RELEASE - 5 February 2007

Fines and costs of more than \$31,000 for illegal building work on a Papatoetoe house are a serious reminder that owners and builders must get council consent, says Manukau City Council.

The fines follow T P Field Developments Limited, Taito Phillip Field and Afano Tosoni pleading guilty yesterday at Manukau District Court to offences under the Building Act. There were two charges against each party for carrying out building work without consent.

The building work involved converting a garage into a family room and converting a carport into a double garage at Alexander Avenue in Papatoetoe. The property is owned by TP Field Developments of which Mr Field is a director. Afano Tosoni carried out the building work.

The fines are as follows: TP Field Developments Limited (\$10,000 fine, \$1017 legal costs, \$130 court costs), Taito Phillip Field (\$10,000 fine, \$1017 legal costs, \$130 court costs), Afano Tosoni (\$8500 fine, \$1017 legal costs, \$130 court costs).

In sentencing Judge Harvey said the penalties should send a message to homeowners that they must comply with the law. The building work was permanent and substantial, he said. "It can't be escaped it was a rental property used by Mr Field."

The judge said Mr Field knew a building consent was required for the work after receiving council advice and an information pack.

The judge also said that as a builder Mr Tosoni should have been

aware of his obligations and received confirmation that a building consent had been obtained.

Manukau City Council Compliance and Enforcement Manager Kevin Jackson welcomed the court's backing of the council's tough stance on illegal building work.

"This is a reminder that Manukau City Council takes breaches of the Building Act very seriously and will prosecute in serious cases. We have to ensure building works meet a minimum standard of safety and design for the public.

"The fines are a reminder that homeowners and builders should come to the council for advice before building then follow that advice. Not having the right consents can cause a lot of problems and be expensive.

"Property owners should remember they are ultimately responsible for any development work on their property, so it's important to get it right," Mr Jackson says.

He says Manukau City Council investigates any cases that come to its attention, through a complaint from the public or in another way.

"The same process is followed in all cases, it doesn't matter who the complaint is about."

Anyone considering building should contact the council's call centre on 262 5104 or check out the website [www.manukau.govt.nz](http://www.manukau.govt.nz).

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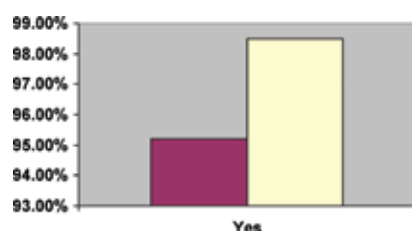


# Building Officials Institute Of New Zealand Membership Questionnaire 2005, 2006, 2007

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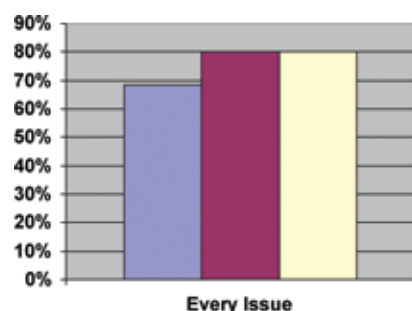
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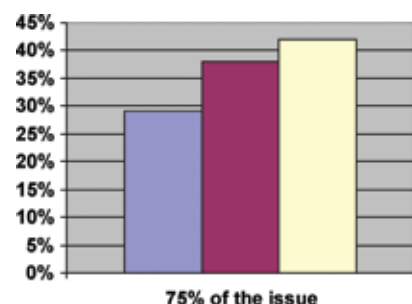
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How often do you read "Straight-Up" Journal?



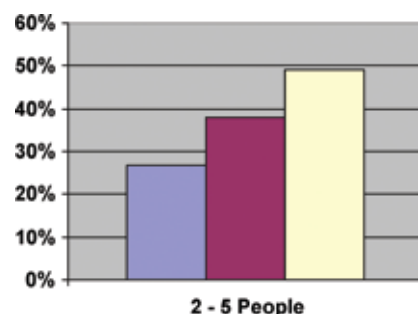
### Question 3

How much of each issue of the "Straight-Up" Journal do you read?



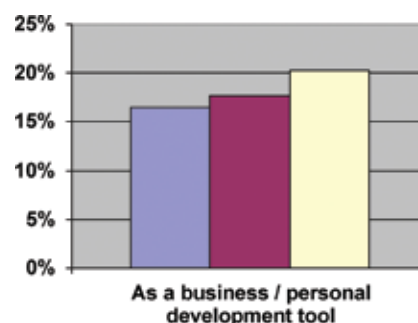
### Question 4

Approximately how many people, including yourself read your copy of the "Straight-Up" Journal?



### Question 5

What is the main reason for you reading the "Straight-Up" Journal?

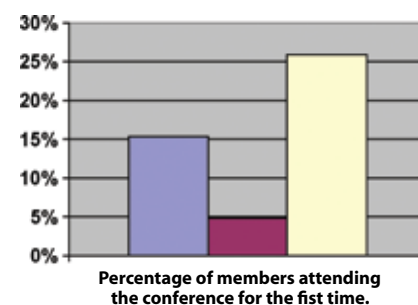


## EVENTS

### INDIVIDUAL MEMBERS ONLY

#### Question 6

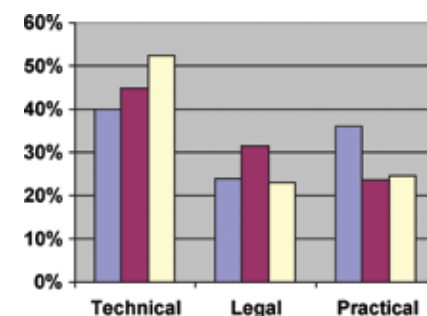
When did you last attend a BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND Annual Conference?



### ALL MEMBERS

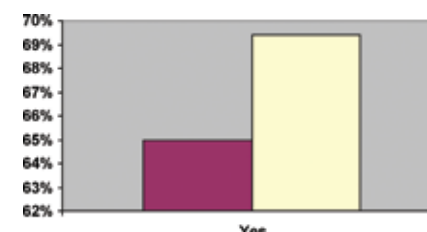
#### Question 7

Do you have a preference for technical, legal or practical papers at Annual Conference?



#### Question 8

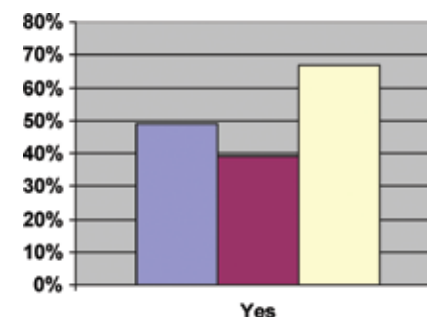
In 2005, members gave a mandate for the development of Guidelines. Is this still a major priority for you?



## INFORMATION TECHNOLOGY

#### Question 9

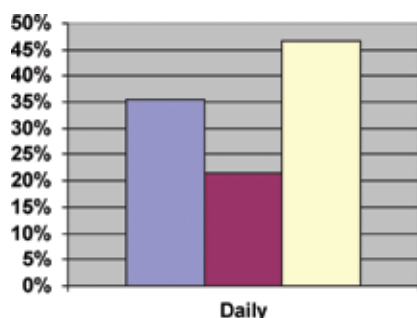
Are you a member of the BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND Chatterbox?



KEY 2005 2006 2007

### Question 10

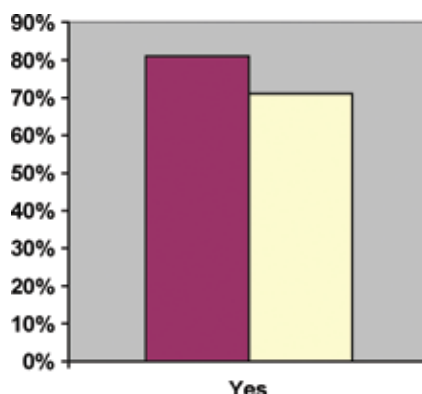
If so, how often do you use the Chatterbox?



### TRAINING

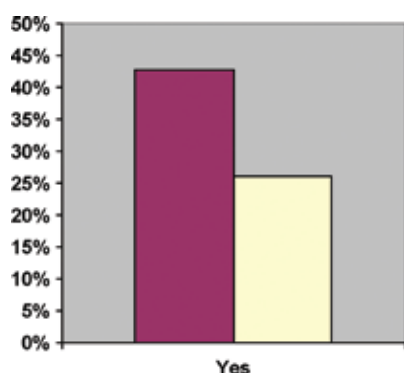
### Question 11

Will you put yourself forward to be licensed?



### Question 12

Have you participated in any events run by the Training Academy?



### Question 13

### TOP TEN TRAINING ISSUES

2007	2006	Topic	2006	2005		2005	
1	3	Fire	1	New	Legal	1	Building Act
2	6	Plumbing & Drainage	2	New	Inspection Skills	2	Fire
3	New	Weathertightness	3	2	Fire	3	BWOF
4	1	Legal	4	New	Compliance Enforcement	4	Alternative Solutions
5	New	Cladding	5	New	Disability Access	5	
6	New	National Qualifications	6	New	Plumbing & Drainage	6	
7	New	Building Code	7	New	Structural Skeletons	7	
8	New	Building Act	8	New	Technical Subjects	8	
9	New	Management Skills	9	New	Ventilation	9	
10	5	Disability Access	10	New	Energy Efficiency	10	

KEY 2005 2006 2007

# Dampness in Buildings

## PROTIMETER SURVEYMASTER SM

- identify the extent of the dampness
- diagnose the cause of the problem
- monitor change in moisture level
- measure timber moisture content
- two operation modes — search and measure

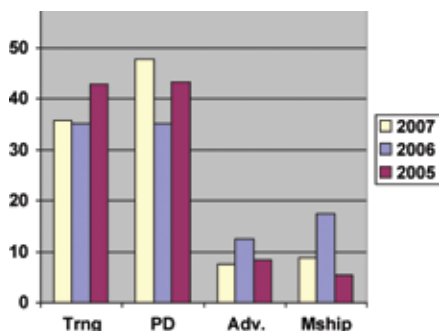
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[www.moisturemeters.co.nz](http://www.moisturemeters.co.nz)



## CURRENT ISSUES

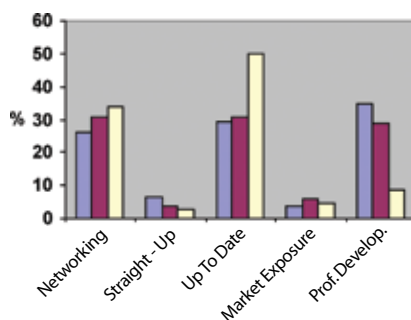
### Question 14

What in your opinion is the top priority for BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND in 2006/2007?



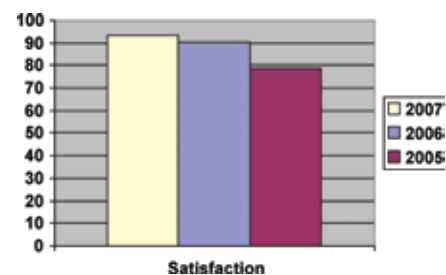
### Question 17

What is your main reason for joining and remaining a member of BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND?



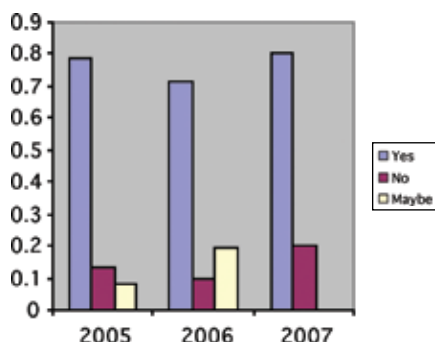
### Question 19

Are you satisfied with the products and services offered by the Institute?



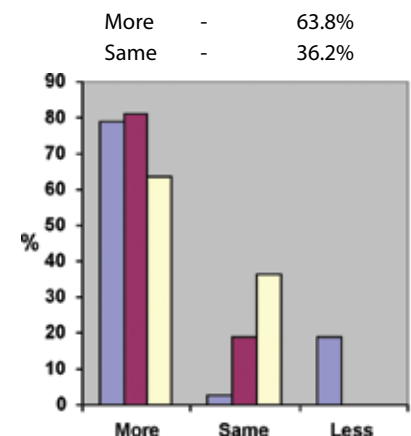
### Question 15

Will you still be in the building controls industry in the next 3 years?



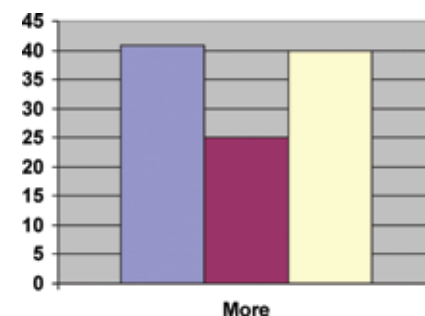
### Question 18

Should the Institute be involved in national policy or political issues in our areas of interest?



### Question 20

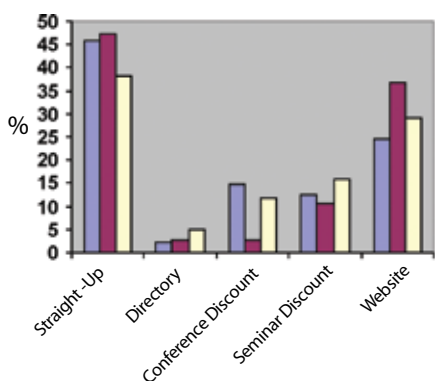
Should BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND be involved in Outreach Programmes involving the community at large?



## OTHER

### Question 16

What BUILDING OFFICIALS INSTITUTE OF NEW ZEALAND membership benefits/services do you use the most?



## KEY

2005

2006

2007





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# National Party member speaks at August 2007 SBO conference

Until now this magazine has without prejudice carried articles about the policies delivered to the construction sector under a Labour Government that has been in office since 1999, but, being election year, it is timely to review in this issue Hon Nick Smith's presentation at the Senior Building Officials conference in August last year.

Hon Nick Smith, National Party spokesperson on the construction sector, told the conference that

- home ownership Census data shows a 5% decline in home ownership from 2001 to 2006
- home ownership at 62.7% in 2006 is lowest for over 50 years
- home affordability (ratio of income to house price) now worst in developed world

Leaving aside the unquantifiable global demographic and financial influences that have a bearing on our housing market in these respects, and assuming you believe that governments should intervene, we outline below Hon Nick Smith's comments about what National would do about these trends if elected to govern.

Hon Nick Smith said that National would:

1. Improve take home incomes
2. Reduce interest rates
3. Free up supply of land
4. Reduce building compliance costs
5. Allow state tenants to buy house

The present government, according to Hon Nick Smith, has intervened on 3 occasions in response to problems with the WHRS and 3 occasions to tighten up on interpretations of the Building Act. Interestingly, he also pointed out that 6 different Ministers have been responsible for the sector in 7 years and that 3 government departments have administered the WHRS.

This raises two issues. The first being, as Hon Nick Smith stated, "that the Government should accept some responsibility to resolving leaky homes". Why should the government (the taxpayer) fund these repairs? Because of a problem with the way territorial authorities have administered the Building Act? Fingers were pointed and scapegoats targeted. The second issue is leadership. The sector has experienced many changes of leadership. There have been so many Ministers that no one has developed enough knowledge of the industry to think about it or the people working in it very deeply or perhaps they have just not listened. This can be advantageous to the government of the day and the Minister. Both parties can deflect criticism by replacing the candidate, which is generally followed by the usual knee jerk reactions to events in response to what is politically expedient rather than listening to the sector. The result: a sector that has at the top parliamentarians that look for solutions to minimise political impact rather than leading from the front.

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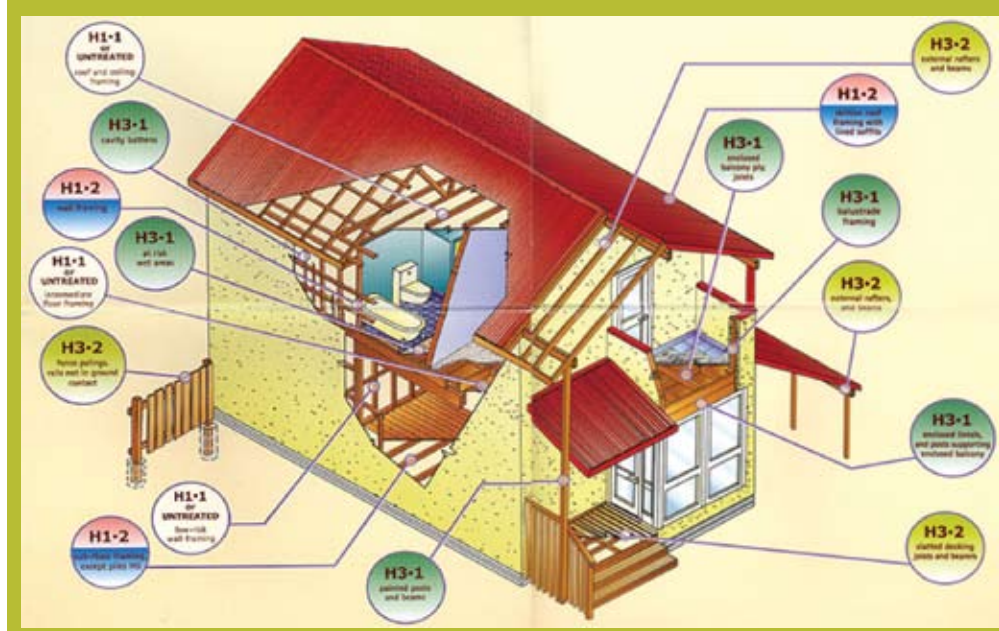
- New Generation Azole Wood Preservative for use in structural (framing) and non-structural application
- Approved in NZ for H3.1 and in Australia for H3.
- 25 year Durability Warranty





In Hon Nick Smith's answer to his question "What is the least cost way in which to drive quality?" he stated "government regulation" and "commercial accountability". The sector has certainly had enough of the former and one hopes he meant that National would rather amend legislation to give effect to its proposals in 1 to 5 above than create more legislation. It is difficult to see how, in a financial climate driven by a free market approach since 1984, the economic pundits would agree that more take home pay and lower interest rates should be achieved through more legislation. Certainly, as stated by Hon Nick Smith, the issue of compliance costs under the Resource Management Act is one area that National considers is over-regulated. As for commercial accountability we have seen little financial culpability or otherwise from the groups representing builders over the leaky homes issue, and because no one group has been directly held to account, how realistic is it to believe that commercial accountability will ever be possible given that the leaky homes crisis has created a precedent for government intervention?

As Hon Nick Smith said "Council's role is to protect public health and safety **NOT** to be the de facto guarantor of building work".



Timber Treatment: Framing Guide (BRANZ)

When will we get a Minister and a government department that focuses on these fundamental issues? Building is not just about the type of timber and the way it is used in construction, though this has been the main failure behind the so called "leaky building syndrome". If it was just that then a simple diagram such as this one by BRANZ, showing a framing guide, would have shown the correct use of timber to avoid leaky buildings. What will the next big issue be - skills shortages as more old hands retire? How will we respond and who will be accountable

for not future proofing that?

National is exploring the following measures:

1. Proportionate Liability Regime
2. Compulsory Guarantee/Bonding System for Residential Building Work
3. Professional Self Regulation of Building Occupations (e.g., Engineers Act 2002)

What price will be paid and by whom for the extra administrative functions associated with more attempts to regulate the building industry?



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**BRANZ**  
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# Update on the National Diplomas in Building Control Surveying from your Institute

## For Small Buildings

What has happened since our update in November 2007?

The components (unit standards) of the National Diploma in Building Control Surveying (Small Buildings) have been registered by NZQA;

The list of unit standards is as follows:

Id	Title	Level	Credit
24176	Assess building consent applications for small buildings	5	25
24175	Complete building inspections for small building	5	25
22698	Demonstrate knowledge of building control legislation and requirements	5	20
24177	Describe the processes of consenting and inspecting small buildings	4	15
24160	Peer review building control authority quality management system process for compliance with quality standards	5	10
24161	Demonstrate knowledge of the processes for issuing certificates and notices under the Building Act 2004	5	10
24162	Explain the effect and impact of loads, forces and physical effects on structural components and materials	5	10
24163	Demonstrate knowledge of small building construction methods, materials and systems	5	25
24164	Demonstrate knowledge of structural stability and durability in the Building Code	5	10
24165	Demonstrate knowledge of fire safety requirements in the Building Code	5	10
25166	Demonstrate knowledge of Clause D1 – access routes in the Building Code	5	5
24167	Demonstrate knowledge of surface water, and external and internal moisture control in the Building Code	5	5
24168	Demonstrate knowledge of hazard management and the safety of users in the Building Code	5	7

24169	Demonstrate knowledge of the requirements for services and facilities in the Building Code	5	7
24170	Demonstrate knowledge of the requirements for piped services and waste in the Building Code	5	5
24171	Demonstrate knowledge of Clause H1 – energy efficiency in the Building Code	5	3
24172	Complete service inspections for small buildings	5	20
24173	Assess building consent applications for the service elements of small buildings	5	20
24519	Demonstrate knowledge of ethics and personal responsibility applicable to building consent processing	5	10

The review report document explaining the process and changes to registered unit standards can be found at <http://www.nzqa.govt.nz/nqfdocs/summaries/2008/jan08/revsumjan08-06.doc>

What will happen next?

1. We will get final sign off of cross crediting arrangements from BRANZ and WelTec for the transition arrangements from their courses to the unit standards within the National Diploma in Building Control Surveying (Small Buildings).

2. We will then forward the National Diploma in Building Control Surveying (Small Buildings) to NZQA for evaluation and registration.

**Very important:** What this means is that while the unit standards are registered the qualification is not registered on the National Qualifications Framework. Training providers can start to prepare for delivery of the unit standards but until the qualification is registered they won't be able to it as a package.

## For the Diploma for Medium and Large Buildings

The Local Government Industry Training Organisation (LGITO) has been allocated funds by the Tertiary Education Commission (TEC) to develop the National Diploma in Building Control Surveying (Medium and Large Buildings) from:

We have been working with the Local Government Industry Training Organisation (LGITO) and other organisations to establish a governance group to drive and oversee its development.

Very important: Watch this space! We will tell you the progress as we know you will know.

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# Taking stock

***"I found the best way to give advice to your children is to first find out what they want then advise them to do it."***

**Harry S. Truman, 33<sup>rd</sup> US President (1884-1972)**

Accreditation, licensed building practitioners, product certification, and weathertightness are building terms we are all familiar with.

A 49 page copy of the Licensed Building Practitioners Rules 2007 on the DBH website contains many more and on 1 November a new term "occupational licensing" (voluntary until 2010) came into effect.

Building and Construction Minister Clayton Cosgrove provided a definition of this new term in a press release on 30 July: "Licensing will promote and recognise professional skills and behaviour in the building industry. The writing is now on the wall for the cowboy operators".

We have indeed introduced some sophisticated terminology and potential checks and balances in the building industry scene, and occupational licensing is one such, but how can we measure its benefits and shortcomings to say with any certainty that the money invested in its development has been well spent? Will it meet our expectations and indeed what role it will play in our vision for the future of the building industry?

The experience in Australia with occupational licensing was revealed by Julie Yeend (Department of Prime Minister and Cabinet) on the Council of Australian Governments' decisions in relation to national licensing, which she presented at the inaugural Construction and Property Services Industry Skills Council Conference, titled "Skills Solutions" held in

Sydney on 10-11 April 2006. Julie Yeend had this to say about the Australian experience with regards to occupational licensing "mobility is hindered by inconsistent requirements, differing classifications and partial regulation" [and] "duplication of skills requirements between licensing and national qualifications" should make way for "reduced complexity" and "recognition and equivalency of overseas qualifications".

Are there lessons for us here too? Is our system any different? Have the policy makers looked at the comparisons and weighed up the differences, notwithstanding that Australia still has a very protected economy?

What can we do to purpose fit occupational licensing to achieve our expectations of it?

Tim Reardon of the Housing Industry Association, another presenter at the conference, gave an indication of the constraints that might pose obstacles to the realisation of these expectations. He stated that "The severe skills shortage in the building industry is now driving fundamental changes to the way homes are being constructed with more pre-fabricated homes built with materials that do not require the traditional broad set of skills. As a result, the training of new entrants into the industry needs to evolve even faster than it has in the past." He said that "between 1986 and 2001, the share of carpenters and joiners in trades employment in the industry fell from 25 to 20%." In New Zealand, perhaps because unlike Australia we build with wood rather than bricks, our 2006 census data shows that 16,929 listed their occupation as a carpenter and joiner and 26,409 as a builder compared with 12,792 and 17,757 respectively at the 1996 census.

Here in New Zealand, joiners now make good money just installing custom made kitchens. So it is not so much a case of policing the industry as it is now or 5 years from now and getting people

licensed and keeping them honest but rather more important is recognising that technology has made the industry more sophisticated so that new technology and the no-fuss slap on application of new materials (such as silicones to fill almost any kind of gap or join imaginable) is changing the skills demand in the industry. Every user or evaluator of building products needs to know how they should be applied correctly.

This involves being able to comprehend and synthesise information, which is how Mark Treadwell, consultant on the Curriculum Project Reference Group described the new competency based curriculum to be launched later this year in New Zealand schools. He says the focus on the new curriculum is on "developing core competencies, effective dispositions (behaviours?) and understanding how to solve problems through inquiry and research" and that "we must build that capability through our schools, as well as attracting foreign talent". He says "to be creative and innovative we have to know stuff, but we also have to understand and know how to apply it". The Dominion Post, 19 October 2007.

Both presenters at the skills conference advocated similar initiatives to address skills shortages in construction, Tim Reardon suggesting that "industry and schools work together, there be more vocational training, shorter training modules and highly skilled migrants". He says "The Dream Factory" is education and industry working together, use of community partners beyond a financial perspective and careers advice for students". That and "reducing complexity", as referred to by Julie Yeend (which if applied in the New Zealand scene would involve rationalising the dissemination of learning through our tertiary education providers), is pretty visionary.

<https://www.cpsisc.com.au/CPSISC%20Conference/Day%201/>



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# Building consents for solar water heating

Building consents for solar water heating will continue to grow as the Government's solar water heating programme gathers momentum.

The Energy Efficiency and Conservation Authority (EECA) wants to get solar water heating systems into more homes around New Zealand. Solar water heating can help many households lower their power bills while also reducing the impact on the environment.

For building consent officers this means that compliance for solar water heating systems needs to be well-spelled out so that they can proceed to building consent with minimum hold-ups. Marie Brown from EECA is working with all parties to drive consents through, so consumers don't experience unnecessary delays.

"If councils haven't been given information for assessing an application for the installation of a solar water heating system, then it's frustrating for them, because they need to

make further enquiries in order to progress their work. This can cause unnecessary hold-ups that ultimately have an impact on everyone," says Marie.

## CURRENT COMPLIANCE

The Solar Industries Association (SIA) accreditation of AS/NZS 2712, a compliance method for the design and construction of solar and heat pump water heaters, underpins the EECA run solar water heating programme and councils may find it useful to use these methods when considering consent applications for solar water heating.

## UPCOMING CHANGES TO COMPLIANCE

A new Acceptable Solution (G12/AS2) issued by the Department of Building and Housing and effective from 1 December 2007, sets out the requirements and standards for most solar water heating installations that, if followed, will facilitate the consent process. This applies to

installations where the tank is not on the roof.

In addition to the above, guidelines are being prepared that will support the Acceptable Solution G12/AS2 and provide more detailed information on solar water heating installation best practice. These two documents will provide more information for building inspectors to assess applications.

For more information about the building consent process for solar water heating including the AS/NZS 2712 compliance method go to [www.solarsmarter.org.nz/building-industry/regulations](http://www.solarsmarter.org.nz/building-industry/regulations), call Marie Brown on (04) 470 2248 or email [marie.brown@eeeca.govt.nz](mailto:marie.brown@eeeca.govt.nz)



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# Senior Building Officials Forum 2007 – Day Two



Ewan Higham

Over seventy Senior Building officials attended the Forum held in Wellington on 9 and 10 August 2007. It was a good turn out and most Territorial Authorities were represented. In the December issue Straight Up reported on Day 1; this issue covers the proceedings of Day 2.

Many complements were made regarding the work of Beryl Oldham and Rose McLaughlan who presented an overview of the Learning and Development and training Matrix for Building Consent Processing and Technical Building Officers that they had developed for the North shore City Council Building Consent Authority. A lot of interest was shown in the way the matrix divides learning and development into five sections based on three building work type categories. It was suggested that the Matrix would be available to anyone through the BOINZ website.

There was a good discussion held about the merits of the recently published Building Code Handbook with the specified systems that compliance schedules contain. It had been a

long time coming but now it was here it was a welcome resource. It was noted that specified systems with their new specifications will need time to bed in and people in Building Consent Authorities generating compliance schedules will need to be aware of this. IQP associations are trying to align themselves with the provisions of new handbook.

Following on from this, the subject of a national register of IQPs was raised. This had been talked about for a long time and the Department of Building and Housing had recently collected feedback on their four option discussion paper for an IQP register. Based on that feedback a report from the Department was being produced.

The status of the Standard NZS500 relating to the fencing of swimming pools raised some interest. Many saw this as a means of compliance and will possibly be called up at some future time as an acceptable solution to Clause F4 of the building Code now that the Department of Building and Housing has been charged with administering the old Fencing of Swimming Pools Act 1987. But until that happens and Parliament either revokes or makes changes to the Fencing of Swimming Pools Act, many of the provisions in the Standard NZS500 should only be used through the exemption provisions of that Act.

It was apparent that throughout the many Territorial Authorities represented at the Forum

there were varying levels of timber moisture levels being used for compliance at pre-lining stage. Timber moisture levels of 18%, 20% and 24% were being accepted. The lower 18% because of the lining manufacturer's requirement, the upper 24% because it is quoted in the NZ Standard. The acceptable solution to Clause E2 of the Building Code states 20%.

As always, David Heaney and Helen Rice gave a very informative overview on the Weathertight Homes Resolution Service and the recent alterations that had been introduced. The service had been running for four and a half years. There had been 454 adjudications and 3000 active claims. The new Tribunal had started working on 1 April 2007. Two or three actual situations of leaky homes cases were discussed and attendees were questioned on possible outcomes. This was a session that gained particular interest as an outcome that seemed obvious at first was not necessarily the correct one.

It was considered that it is prudent when issuing a Notice to Fix to serve it not only on the owner of the property and the person doing the work but also on the person who applied for the building consent. And, because Territorial Authorities are the ones left standing when other defendants fall away in leaky homes cases, Territorial Authorities should push for the Government to adopt a proportional liability regime.

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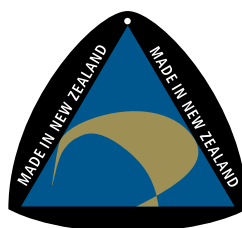
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## Non-residential buildings go solar

The Department of Corrections, Landcare Research, Auckland City Council and Wairiki Institute of Technology, Rotorua are among the first public sector recipients of the Energy Efficiency and Conservation Authority's (EECA) "Grants for Public Buildings," which provides funding towards solar water heating feasibility studies and/or installations for publicly owned buildings.

Since its launch in March 2007, the scheme has granted funds for ten feasibility studies and five installations to a variety of public sector organisations and projects. However, EECA is keen to encourage more organisations to apply, given the numerous possibilities to utilise the Fund.

Solar is most cost effective for organisations which have a high rate of use of hot water and where water is currently heated by electricity. However, eligible projects can be as diverse as recreational sports facilities or school swimming pool heating; large-scale residential accommodation or office block amenities; or kitchen and laundry facilities.

"Solar water heating is uncommon in most non-residential buildings in New Zealand. So an important part of EECA's solar water heating programme is to provide information and demonstrate the advantages of the technology," explains Mike Underhill, EECA Chief Executive.

"Alongside the benefits of energy efficiency and power savings, shared learning from the feasibility studies and via installation monitoring goes a long way towards assisting organisations with their future decision-making."

The Fund provides two options; up to 50% off the cost of a feasibility study for installing solar water heating; or up to 25% off the cost of installing a domestic-sized system, or up to 50% off the cost of installing commercial-sized systems.

Feasibility study grants support organisations to independently evaluate and make informed decisions about solar water heating. While it is most cost effective to install solar into new buildings during the construction stage, retrofits can be viable.

Public sector organisations who have been granted feasibility study grants include; Gisborne City Council for a shower, ablution and laundry block at the Waikanae Beach Holiday Camp; Wairiki Institute of Technology for hospitality training kitchens and restaurant at its Rotorua campus; South Waikato District Council for shower facilities at the South Waikato Indoor Heated Pools in Tokoroa; and Auckland City Council for its 18-storey Civic Administration Building.

Installation grants contribute to reducing the up-front costs of installing a solar water heating system once a feasibility study has been completed or there is sufficient information to satisfy EECA's eligibility for funding. To qualify for funding for solar water heating installations in public buildings, a project is expected to have a less than 10-year payback period. This criteria aims to install systems into situations which make the most efficient use of the technology and can benefit directly through reduced power bills.

The Department of Corrections took advantage of the Grants for a feasibility study and a subsequent installation at Christchurch Men's Prison. Keen to reduce its use of fossil-fuels for environmental and financial reasons, the Department installed a hybrid system consisting of 21 solar panels and a high efficiency



gas boiler to replace the diesel operated system that previously heated the hot water used in the Prison's laundry.

"We use around 7000 litres of hot water daily at Christchurch Men's Prison laundry," explains Cees Ebskamp, Energy manager, Department of Corrections.

"Installing solar was a carefully planned move that should help save the Department – one of New Zealand's largest users of domestic commercial hot water – considerable money in the long-term. Utilizing EECA's grants to firstly evaluate and then assist with solar installation, has given us the ability to consider it for other Corrections buildings and facilities – including off-prison sites."

By contrast, Landcare Research has installed several domestic-sized solar systems into its Lincoln office and laboratory facilities and is now introducing it to its other sites around the country. As a Crown Research Institute focussed on sustainability from native flora and fauna to sustainable business and society, it made sense for Landcare Research to minimize its own environment footprint and set an example by sourcing as much of its energy from renewable resources – including solar water heating.

"We are keen to walk the talk," says Graeme

Rogers, Senior Technician at Landcare Research overseeing the solar installation projects.

"Solar water heating is one of an array of energy efficient initiatives we have adopted. At Lincoln we started out installing a domestic-sized system to cover some of our office and laboratory facilities, and have recently increased this to cover all our buildings there. It has been a gradual process as we have monitored progress and learned over time how to optimize the solar panel output, because our hot water demand can be very variable. The system at Lincoln is performing well enough that we're now installing systems in Dunedin, as well as plans for our Hamilton and Palmerston North premises."

EECA Chief Executive Mike Underhill says it is important that the Government and public sector lead the way in increasing the use of renewable energy, reducing greenhouse gas emissions, improving energy efficiency and inspiring New Zealanders to take personal responsibility for their energy use.




"It is fundamental that the public sector gets its own house in order when we are encouraging individuals and business to take actions for sustainability. That's why the Government has committed to moving the public sector towards carbon neutrality as a core policy."

EECA receives and evaluates applications for the Grants for Public Buildings Fund throughout the financial year. Government departments, local authorities, Crown entities, state-owned enterprises, district health boards, schools and universities are eligible to apply.

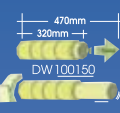
For further information and criteria for funding visit: [www.energywise.govt.nz/solar](http://www.energywise.govt.nz/solar), email [solarfinance@eeeca.govt.nz](mailto:solarfinance@eeeca.govt.nz) or call Frances Hudson, Grants for Public Buildings Advisor on (04) 470 2200.

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## TRAINING ACADEMY

# Training Academy

Have you registered to attend the Institute's Annual Conference and Exhibition from 20-23 April 2008 in Auckland yet?

This year the conference is going to be the best yet! The Training Academy will have a presence with a stand so please feel free to come and have a chat to us about your training needs.

#### New Faces

First of all we would like to welcome Lou Townsend to the Training Academy team as Training Academy Co-ordinator. Lou's primary role is to look after training resources, administration of the CPD programme, assist with marketing, and answering enquiries.

We also have new trainers joining us. They are:

- Kevin Brunton, New Zealand Building Inspection & Training Limited
- Marcia Guest, and Associates
- Rose McLaughlan, New Zealand Building Inspection & Training Limited
- Geoff Mills, ICENZ Limited
- Gretta Mills, ICENZ Limited
- John Tait, Spect8 Limited

We are also pleased to have retained the services of our very experienced trainers:

- Rosemary Hazlewood, Building Networks
- Maurice Hinton, Compass Building Consultants
- Bill Wright, Wright Contracting
- Robert Wright, Timaru District Council

#### Training for 2008

If you haven't already done so, please download a copy of the 2008 Prospectus. It outlines just about everything you need to do and know for training this year. You will notice that we have included some pre-requisites are there to ensure that people are at the right level to undertake the training and to get the best out of it, ie get an understanding of the basics before they move onto the next subject or area of interest.

Also, this year we are offering How to Become a Better Communicator, Conflict Resolution and Mediation and Surviving in the Ever Changing Workplace for everyone, ie those at the front-line, including building consent enquiry counters through to building inspectors.

#### Straight 2 Work Building Controls Traineeship Pilot

Over 18 months ago the Institute in conjunction with the Ministry of Social Development entered into discussions about developing a traineeship pilot programme as part of the Straight 2 Work scheme. We are pleased to report that on Monday 11 February 12 participants started the four week training course. The course covers the basics for any person entering into the work force and will provide trainees with the skills and knowledge required to start employment in a local authority and more specifically in building controls. The initial presentation was delivered to 50 interested persons and then they went through a rigorous selection process through an interview process where it was narrowed down to 10. We will report in the next Straight Up as to the outcome of this pilot programme.

The Training Academy will be having regular E-Updates to advise you of forthcoming training and other areas of interest. If you would like to register to receive these emails please email [training@boinz.org.nz](mailto:training@boinz.org.nz).

Please remember that the Training Academy will continue to work towards developing new training courses so please keep an eye out for them.

If you require any further information, please contact:  
Fiona Street, Training Academy Manager at [training@boinz.org.nz](mailto:training@boinz.org.nz), or call 04 473 6003

Louise Townsend, Training Academy Co-ordinator at [louiset@boinz.org.nz](mailto:louiset@boinz.org.nz), or call 04 473 6003



## ANNUAL CONFERENCE PROGRAMME

### SUNDAY 20 APRIL

12.00 noon onwards	Golf or Fishing
12.00 noon	Registration opens
6.00-7.30pm	<b>Networking in expo area</b>

### MONDAY 21 APRIL

9.00-9.15am	Opening and Welcome
9.15-10.15am	Keynote Speaker - <i>David Hay (Deputy Mayor of Auckland City)</i>
10.15-10.45am	<b>Morning tea</b>
10.45-11.00am	Video Interviews with spokespeople for each political party (2.5 mins each)
11.00-11.30am	Legislative changes and the Weathertight Homes Resolution Service - <i>Neil Eade, Dept of Building and Housing</i>
11.30-12.00noon	Remedial Design - What's New? - <i>Steve Alexander, Alexander &amp; Co.</i>
12.00-1.30pm	<b>Lunch</b>
1.30-2.00pm	Impact of the Weathertight Homes Resolution Service: Changes, recent case studies etc - <i>Helen Rice, Heaney &amp; Co.</i>
2.00-2.30pm	
2.30-3.00pm	Building Code Review - <i>Peter Thorby, Dept of Building and Housing</i>
3.00-3.30pm	<b>Afternoon tea</b>
3.30-4.00pm	Licensed Building Practitioners from the Builder's Viewpoint - <i>Pieter Burghout, Master Builders Federation</i>
4.00-4.30pm	Health hazards for inspectors and taking samples safely - <i>Liz Ebbett, Biodet</i>
4.30-5.00pm	Human behaviour - <i>Ross McKay, NZ Police</i>
5.00-6.30pm	<b>Networking</b>

### TUESDAY 22 APRIL

9.00-10.00am	Keynote Speaker: Working Collaboratively - <i>Peter Neven, Fletcher Challenge Construction</i>
10.00-10.30am	<b>Morning tea</b>
10.30-11.00am	Building controls in Australia - <i>Geoff Mitchell, Mitchell &amp; Associates</i>
11.00-11.30am	Relationships, design - <i>Richard Harris, NZ Institute of Architects</i>
11.30-12.00 noon	Roofing guidelines - <i>Graham Moor, Roofing Associates of NZ</i>
12.00-1.30pm	<b>Lunch</b>
1.30-2.30pm	The International Code Council - similarities and differences - <i>Rick Okawa, International Code Council</i>
2.30-3.00pm	Relationships, building - <i>Speaker TBC</i>
	Plumbing guidelines - presented by Master Plumbers, Drainlayers and Gasfitters - <i>Speaker TBC</i>
	Working with building controls across boundaries - <i>Speaker TBC</i>
	Relationships, supply - <i>Jane Cumming, Placemakers</i>
	Sub-contractors - where they fit - <i>Bob Taylor, NZ Building Sub-Contractors Federation</i>
	How it works - the International Code Council Evaluation Service - <i>John Nosse, International Code Council</i>
	Building Conversations - take part in conversation tables with specialist topic speakers including Quality of documentation (including specific rather than generic), compliance schedules, peer review of fire engineering, appraisals etc.
	Plumbing Conversations - take part in conversation tables with specialist topic speakers including Plumbo solvency (tapware), HWC pipework lagging and run distances, backflow, domestic sprinklers, water quality standards, building code issue etc, on site sewage treatment, pipework.

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3.00-3.30pm	<b>Afternoon tea</b>		
3.30-4.00pm	Tips and hints for successfully management staff performance - <i>Beryl Oldham, North Shore City Council</i>	On-Site Building Site Visit	On-Site Plumbing Site Visit
4.00-4.30pm		On-Site Building Site Visit	On-Site Plumbing Site Visit
4.30-5.00pm	TBC	On-Site Building Site Visit	On-Site Plumbing Site Visit
7.00pm onwards	<b>Conference dinner</b>		

## WEDNESDAY 23 APRIL

9.00-10.00am	Keynote Speaker: The Building Controls Industry and Professionalism – <i>Mike McCullogh, Washoe County, Nevada</i>		
10.00-10.30am	<b>Morning tea</b>		
10.30-11.00am	New National Qualification for Building Officials - <i>Mark Williams, Williams Unlimited</i>	New Technology – Remote Operations - <i>Speaker TBC</i>	TA Functions: Change of Use - <i>Katharine Wheeler, Wellington City Council</i>
11.00-11.30am	Recognition of Prior Learning: The Path to a Diploma - <i>Len Clapham, Building Officials Institute of NZ</i>	New Technology – Receiving Applications in Different Formats <i>Geoff Mitchell, Mitchell &amp; Associates</i>	TA Functions: As Near as Reasonably Practicable - <i>Bob de Leur, Auckland City Council</i>
11.30-12.00noon	Training in 2008 - <i>Fiona Street and Institute trainers of the Training Academy</i>	New Technology – Thermal Imaging and NDT Moisture Detection – <i>Paul Probett</i>	TA Functions: Post Disaster Responsibilities - <i>Ian Petty, Gisborne District Council</i>
12.00-1.00pm	<b>Lunch</b>		
1.00-1.30pm	Rating tools – who's who and what do they deliver - <i>Linda Amitrano, BRANZ</i>	Solar Water Heating: Meeting the Requirements of the Building Code – <i>Brian Cox, Solar Industries Assn</i>	Future Horizons - <i>Kevin Golding, Winstone Wallboards</i>
1.30-2.00pm	Case study on how sustainability issues affect our decision-making - <i>Speaker TBC</i>	The Sustainability Credentials of Concrete in NZ – <i>Pat McGuire, Cement and Concrete Association</i>	A comparison of insulation methods and materials - <i>Wren Bracegirdle, Bondor</i>
2.00-2.30pm	H1: practical advice - <i>John Patterson, Insultech Group Ltd</i>	TBC	Improving knowledge and installation of passive fire protection systems in NZ buildings - <i>Hans Gerlich, Winstone Wallboards</i>
2.00-2.30pm	AGM		
3.00pm	Close of conference		

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# All about appraisals of building products

by Colin Prouse, Building Scientist, Building Element Assessment Laboratory Ltd (BEAL)

An "Appraisal Document" is a report that gives the reader the assurance that the item being appraised, has met a particular requirement. For appraisals of building products, this means that the item has met a recognised standard. Items will be either a single product or "element", or a combination of elements that make up a "building system".

Standards are the means by which a specific performance, such as compression strength, or a group of performances are described such as density plus hardness plus compression strength. That is, a standard may cover one specific performance requirement of a building element or a building system, or may cover a collection of performance requirements. In either case standards are used as a benchmark or criteria to determine whether or not the performance of the item in question meets the prescribed performance requirements. Deciding what the prescribed performance requirement ought to be is the role of expert technical committees consulting with the relevant building industry sector. The use of standards in this way becomes the basis for carrying out an appraisal of a building element or system.

The principle reason for having appraisals is not to merely confirm compliance with a performance requirement, but rather to demonstrate that the risks associated with the use of the particular building element or system have been properly assessed and are able to be managed. Proper risk assessment leading to risk management is the underlying purpose for having an appraisal carried out. It therefore follows that the process for assessing risks is fundamental to determining what performance requirements need to be confirmed or verified for the particular item. Before one can apply the risk assessment processes, one must first understand a little of the theory and principles upon which risk assessment and risk management are based.

Risk management is essentially about understanding and managing potential future hazards or undesirable outcomes. There are two classes of hazards or undesirable outcomes; one class is described as "strategic risk", while the other class is described as "task based risk".

Strategic risk is best understood by considering an undesirable outcome resulting from known risks that cannot be predicted in a reliable way, such as the weather. For example, a roofer takes into account the likelihood of

undesirable weather when installing a new roof. Since the roofer cannot control the weather or the process of producing weather, the assessment of the likelihood of adverse weather for a particular day or week is called strategic risk assessment.

Consider by way of comparison, a process that involves task based risks. When a builder is constructing a cantilevered deck, for example, it is essential that the builder uses proper designs and drawings based on engineer's calculations, as well as the correct grades and treatments of timber, if this is used, together with the application by properly trained installers of a decking system. In this example of the construction of a cantilevered deck, there are a series of issues that each has a degree of risk if the tasks or practical process of construction are not carried out correctly. The assessment by the owner or builder of each of the steps and processes required to construct the deck, is called task based risk assessment.

The appraisal of a building element or system requires the use of both strategic and task based risk assessment to understand what performances must be verified. From this one can determine which standards must be complied with.

Having now understood the role of strategic and task based risk assessment in the appraisal process, it is now necessary to look at sub-classes of risks applicable to the range of processes that can take place in the design and construction of a building.

Essentially sub-classes of risks fall into one of four main categories;

- (a) The first sub-class is called design risk.
- (b) The second sub-class is called manufacturing (or assembly) risk
- (c) The third sub-class is called installation risk.
- (d) The fourth sub-class is called on-site performance risk.

Design risk applies equally to the design of a product or the building. Design risk occurs where the information provided by the designer is insufficient, incorrect, or misleading. This may appear to be a strategic risk but is in fact a task based risk, since with the proper training, a designer ought not produce insufficient, incorrect or misleading design information. It can apply to both text as well as drawings. A common example of a design risk issue is where a set of drawings

and or specifications provides insufficient or incorrect or misleading information about the method for dealing with penetrations through different types of cladding systems. Fortunately, this risk has found in practice to be only of limited occurrence and the damage of limited severity. Nevertheless, for those who are faced with the remediation costs of rectifying consequences of this, they may have a different value associated with this design risk.

A manufacturing (or assembly) risk is where the manufacturer or an importer has insufficient control over the quality and consistency of the manufacturing or assembly process. The inconsistency of quality of a product can and does lead to adverse consequences. While the standard and consistency of most New Zealand made building products has shown to be satisfactory, the same can not be said for some imported products, especially from developing countries. For this reason both local manufacturers and agents of imported products need to have quality assurance programmes in place that manage this task based risk to ensure safe and reliable products are delivered to the New Zealand building industry.

An installation risk occurs where the installation or assembly or construction of a building product is not what the manufacturer or agent requires for the proper performance of the product. This is usually the result of improper or inadequate training of the persons involved with the installation. This task based risk is more commonplace in certain sectors of the building industry and it is to be hoped that over time, only qualified or "certified" tradespeople will be employed for such installations.

The on-site performance risk of a building product is the sum of the risks associated with the design of the product, design of the building, quality of manufacturing or assembly and installation on site. This sum of the risks is what an appraiser needs to assess when evaluating the risks and performance requirements associated with each building product, be it an element or building system.

In Part 2 of this article, to be printed in a subsequent issue of Straight Up, we look at how performance criteria are developed and Standards chosen as part of the appraisal process.

# Brace with care

To resist Wind and Earthquake forces, buildings constructed to NZS 3604 must incorporate bracing elements tested to BRANZ Technical Paper (P21). This article explores the history behind the NZS 3604 bracing approach and Bracing Unit (BU) limits.

## The P21 test and analysis procedure

In the P21 test a panel is fixed to a foundation beam and pushed and pulled at top plate level. Three nominally identical specimens are tested. The average failure load determines the system's BU rating. This means that at least one, possibly two out of three specimens fail below the published rating. For example, the average of the following 6 results is 134 BU and two out of the three panels (67%) failed to achieve this.

Test	Push (+ kN)		Pull (- kN)	Bracing Unit
Panel 1	6.0	6.4	124	
Panel 2	6.3	6.5	128	
Panel 3	7.2	7.8	150	
Mean Ultimate	6.5	6.9	134	

The concept of designing with "mean ultimate" is foreign to engineers who work with "characteristic" strength values determined from a group of test results, factored to determine reliable stresses. Where specific engineering design is required, the use of BU ratings is questionable and further reduction factors should be considered.

## P21 and NZS 3604

P21 was introduced in 1979 for use with NZS 3604 only. The use of "mean ultimate" values was considered acceptable based on "redundancies" in light timber framed buildings, such as; walls and claddings not counted as part of the bracing system, load sharing, etc.

Modern house plans have larger internal spaces and more glass. Houses built for a view are also inevitably placed on exposed sites. Many have cladding systems that provide little contribution to bracing (EIFS systems and drained cavities). Often most available wall area is used for bracing. Assumed "redundancies" are eroding.

Published BU ratings have also increased. In 1984 the maximum available was 80 BU/m. Ratings up to 150 BU/m are now common place. Some suppliers even promote ratings closer to 200 BU/m!

## What do high ratings mean for NZS3604 construction?

To resist 150 BU/m, a 2400 mm high panel must be held down to stop it from "tipping" with a force equivalent to 18 kN. The surrounding structure provides a degree of restraint due to gravity, connecting walls, etc. This inherent restraint is arguably 6 kN which leaves 12 kN (or 12 All Blacks) to be resisted by straps and bolts pulling on the NZS3604 structure.

For 200 BU/m, the net uplift force is 18 kN and the entire All Black team (including the bench) must now hang off the end of a bracing panel to stop it from tipping over!

High BU ratings can be generated in the laboratory, but can NZS 3604 floors resist the uplift forces? Based on recent industry funded research the answer is an emphatic "no!" The next revision of NZS 3604 is likely to impose limits on BU ratings for timber and concrete floors.

The NZS3604 bracing philosophy is based on even distribution of moderately rated panels. Using fewer highly rated panels is likely to result in excessive load concentrations beyond the capacity of NZS 3604 construction. Higher is not necessarily better and beware that high BU ratings often come with strings attached such as a requirement for heavier and stronger foundations and specifically designed bolts.

Conservatively we have rounded the BU ratings published in "GIB® Bracing Systems, 2006" down and we have capped them at 150 BU/m to be compatible with NZS 3604 construction.

In a subsequent edition we will explore 6 and 12 kN hold-down fixings and the NZS 3604 bracing distribution rules,

## Hans Gerlich

Technical Manager – Building Systems  
Winstone Wallboards

For further information refer to the GIB® Bracing Systems literature or call GIB® Technical Support on 0800 100 442

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# New Zealand Heritage Conference 2008

Hear from leading edge NZ professionals on the good, the bad, and the ugly of earthquake strengthening heritage buildings. Find out what we can learn from the Peruvian (August 2007) and Gisborne (December 2007) earthquakes about planning, management and design of buildings to withstand earthquakes as well as how to work through the issues in the critical post earthquake period. Learn from extensive case studies of current redevelopment projects presented by project teams involved in their day-to-day management. Find out how these experts dealt with the tensions of code compliance and heritage conservation techniques. Learn about seismic assessment methodologies for a range of heritage building styles and materials. Get tips for successful adaptive re-use from those who have already progressed their redevelopment plans through Councils to meet the new building code.

Hear how some practitioners have solved problems of optimal economic value and minimal intrusion into heritage fabric. Ask questions from experts in the field of seismic strengthening and heritage. Visit sites in Wanganui that are steeped in heritage for practical examples of issues, challenges and solutions. Meet a wide range of other professionals including architects, engineers, planners, building officers, developers, owners and local authorities and make useful contacts for future work. Discuss practical issues around fire risk and insurance in project management for seismic strengthening work, during and post strengthening work. Understand how to deliver on your clients need for a cost effective project while working within the District Plan, compliance with the building code and consultation with other agencies such as NZHPT.

## Insulation, condensation and climate

Insulating a house, under the floor, in walls and in ceilings is considered highly desirable especially when compared to the economic and environmental costs of heating up room temperatures to the recommended 16°C for indoor comfort using electric heaters, wood and coal for open fires, and gas, most of which we know are not renewable resources and in some cases pollute the atmosphere inside and outside.

Some experts believe people's health is at risk (with a high likelihood of asthma, and respiratory complaints recorded) in poorly insulated houses. However, raising the temperature inside relative to low outdoor temperatures by trapping heat in creates an imbalanced living environment, an obvious sign being condensation, contributing to illhealth, damage to timber windows and mould growth around windows.

Currently, our best answer for managing the indoor/outdoor temperature interface is to use dehumidifiers to remove condensation and heat pumps to regulate air flow. Closing curtains to retain heat is recommended, but is counterproductive if the curtains are kept shut most if not all of the time to cover up the unsightly effects of mould growth or just to maintain privacy. I've seen more glass used now than ever before in new construction which then tends to be covered up by blinds for privacy. We bring out the dehumidifiers (or home dryers as they are also called), etc and so the cycle goes on. What if the thermal properties of glass could be enhanced by new technology, to create a product even better than double glazing?

Double glazing with a low-emissivity (low-e) coating has an extra, invisible layer that reflects heat but cost is a factor in uptake of this product and double glazing has never really taken on here, possibly because of cost but perhaps also due to our complacency and the benevolence of our

usually temperate climate, notwithstanding those unpredictable weather events that we experience from time to time. Insulation is regarded as a more affordable preventive measure, and in new houses it is mandatory to install it in walls and ceilings, but not floors. Are we less conscious of the risks to our health and damage to structural work from dampness and poor insulation because our climate is more temperate than that of other countries? And are those countries more cognisant of the risks than we are because their winters are harsher so that they therefore build accordingly, with double glazing a feature?

### More blankets?

Wrapping hot water cylinders in thermal blankets continues to be advocated as an effective way to save home heating costs and demand. And why not consider a simple, very low cost comfort measure of an extra blanket on the bed, especially for children? A bonus is that they stay in their beds and do not wake up on cold nights. Might this also reduce the susceptibility to developing asthma and respiratory complications? Research has shown a high prevalence of these complaints in New Zealand compared with other countries, though as we know the causes of these have not solely been attributed to dampness and poor insulation, exposure to pollen and carbon dioxide emissions have also been suggested as contributing factors.

But are we less conscious of the risks to our health and damage to structural work from dampness and poorly clad walls (linings and insulation) because our climate is more temperate than that of other countries? And are those countries more cognisant of the risks than we are because their winters are harsher so that they therefore build accordingly, with double glazing a feature?

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## EVENT CALENDAR - 2008

## MARCH 2008

10-12 March	Getting Started in Building Controls – Building Controls, Dunedin
11 March	Skeleton of the House, Wellington
13-14 March	Getting Started in Building Controls – Building Inspection, Dunedin
17 March	Surviving Change in the Workplace, Hamilton
18 March	Building Consent Vetting, Alexandra
31 March – 2 April	Getting Started in Building Controls – Building Controls, Hamilton

## APRIL 2008

3-4 April	Getting Started in Building Controls – Plan Processing, Hamilton
7 April	Plan Vetting, Christchurch
8 April	E2 Weathertightness, Christchurch
10 April	Communication Skills, Palmerston North
11 April	Conflict Resolution & Mediation, Palmerston North
17 April	NZS3604, New Plymouth
18 April	Alternative Solutions, New Plymouth
20-23 April	Annual Conference and Expo, Auckland
29 April	Building Consent Vetting, Hamilton

## MAY 2008

5-7 May	Getting Started in Building Controls – Building Controls, Wellington
8-9 May	Getting Started in Building Controls – Building Inspection, Wellington
5 May	Communication Skills, Christchurch

6 May	Conflict Resolution & Mediation Skills, Christchurch
12 May	Surviving Change in the Workplace, Christchurch
13 May	Building Consent Vetting, New Plymouth
14 May	Alternative Solutions, Auckland
15 May	NZS3604, Auckland
19-23 May	Getting Started in Plumbing Inspection – Water Supply & Sanitary Plumbing (Up to Category 3), Christchurch
22 May	Skeleton of the House, Auckland

## JUNE 2008

3-5 June	Getting Started in Plumbing Inspection – Complex Water Supply/Sanitary Plumbing (Category 3 and above), Christchurch
6 June	Pool Compliance workshop, Auckland
9-11 June	Getting Started in Building Controls – Building Controls, Rotorua
12-13 June	Getting Started in Building Controls – Plan Processing, Rotorua
13 June	Pool Compliance workshop, Wellington
16-17 June	Getting Started in Building Controls – Plan Processing, Wellington
18-19 June	Getting Started in Building Controls – Site Inspection, Rotorua
20 June	Pool Compliance workshop, Christchurch
23-24 June	Getting Started in Building Controls, New Plymouth
26 June	Alternative Solutions, Dunedin
26 June	Skeleton of the House, Christchurch
27 June	NZS3604, Dunedin

*For programme flyers and further information please contact the Institute's office on 04 473 6002 or visit the website - [www.boinz.org.nz](http://www.boinz.org.nz)*

## BARRIER FREE SEMINARS 2008

## Two-Day Seminar Dates - Modules 1-4

Napier	8-9 April 2008
Manukau	27-28 May 2008
Wellington	1-2 July 2008
Hamilton	9-10 September 2008
Christchurch	14-15 October 2008
Manukau	18-19 November 2008

## Refresher Dates

Wellington	3 July 2008
Manukau	20 November 2008

## Module 5 (providing there are the numbers)

Auckland/Wellington	8 August 2008
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## Train the Trainers

Wellington	27-28 August 2008
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## Seminar Costs

Module 1 \$150 + GST	Module 2 \$100 + GST
Module 3 \$150 + GST	Module 4 \$210 + GST
Module 5 \$250 + GST	Refresher \$250 + GST

Modules 1 and 2 are compulsory Modules for the Barrier Free courses. You must have completed Modules 1 and 2 before registering in the remaining Modules.

Requests for further information should be directed to:

The Administrator  
Barrier Free NZ Trust  
PO Box 25064  
Panama Street  
WELLINGTON

Tel: 04-915-5848; Email: [seminar@barrierfreenz.org.nz](mailto:seminar@barrierfreenz.org.nz)

Web: [www.barrierfreenz.org.nz](http://www.barrierfreenz.org.nz)

## FIRE SAFETY ADVISORY SERVICES LTD

Fire Safety C/AS1 Training Courses. These 2-day seminars will be held again in 2008 at the following locations:

- April – Dunedin
- May – Hawkes Bay
- June – Wellington
- July – Auckland

If you would like to register your interest or require any further information relating to these training courses please email: [fsas@xtra.co.nz](mailto:fsas@xtra.co.nz) or call 03 327 0365 and talk with John Sinclair.

Note: Both these seminars do not qualify for "Money Back" guarantee.



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\*Environmental Choice labelling applies to all GIB® plasterboard 13mm and greater in thickness.





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