STRAIGHT UP

BUILDING OFFICIALS INSTITIUTE OF NEW ZEALAND

BRANZ

H1 Energy Efficiency Changes **Part 2**

Spotlight on a Member

Quentin Dagger

Wellbeing During a Natural Disaster

Peter Sparrow

AUTUMN 2023

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Are Events Defining our Future?

The unfortunate reality going forward is that, for not only New Zealand but across the globe, weather events are changing the lives of millions

What a start to the year and what a tumultuous one it has been.

Recent weather events have resulted in significant damage to buildings and land across the upper northern part of the country. While some of us have had more than our fair share of sunshine the north has been tragically hit and, in many cases, hit hard multiple times.

I would like to acknowledge those affected by the devastation caused by Cyclone Gabrielle in particular. The resultant challenges ahead will test the resolve of many, as we work to bring a level of normality back to the communities impacted. To our members involved, a big thank you.

The West Cost floods of 2021 and 2022, the January 2023 Auckland floods and Cyclone Gabrielle one month later and the heavy rain events in after that, saw many members actively deployed as Rapid Building Assessors to assist communities in designated areas. In terms of size and impact, Gabrielle's swath of destruction across the upper North Island resulted in the triggering of multiple designations and a National Emergency; an effort not seen since the Christchurch and Kaikoura earthquakes.

As a continuum of events, it would seem our professional lives may be destined to be defined by "events assistance". The role of Building Surveyor is likely to be importantly linked to resourcing building management in emergencies.

A positive upside, if one can call it that, is the skills value of building surveyors being increasingly recognised by the public. No longer will people wonder what we do, they will see us for the worth and benefits we bring to communities. That can not only be good but a well-deserved recognition.

At the core of any significant emergency event is MBIE, who as an organisation have the responsibility to co-ordinate train and maintain the national capability of Rapid Building Assessors. Having a system that is consistent, well understood, and capable of being responsive in terms of capacity is vital to New Zealand. The unfortunate reality going forward is that, for not only New Zealand but across the globe, weather events are changing the lives of millions often negatively and with tragic outcomes. In recent decades earthquakes may have been top of mind but Climate Change now appears to be driving the new future and our future involvement.

The impacts of Climate Change dominate many conversations and will continue to do so for years ahead. Globally every sector of a country's economy is or will be under scrutiny in respect of a mitigation focus on reduction in embedded carbon and emissions targets. New Zealand as a country is taking a strong leadership position

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and called for all countries to step up and take urgent action at COP27.

An important aspect of how we move forward as a sector, and as building professionals, is our commitment and training to the support and role of Rapid Building Assessment. At the time of the Canterbury earthquakes, having been very active in the deployment and support of the response via Operation Suburb, I was very comfortable we did an exemplary job as Rapid Building Assessors. But that is not to say improvement is not needed.

MBIE have been working with BOINZ and other organisations to strengthen Building Management in Emergency processes and systems. This ensures preparedness and most importantly a well-resourced team of appropriately trained individuals across three levels of involvement. A regular discussion topic at meetings is what is the ideal number of individuals to be trained to resource each of the three levels: Tier 1, Tier 2, and Tier 3. Building Surveyors will obviously form most trained personnel, but ensuring New Zealand has sufficient RBA capablity to respond to and underpin a significant major event should not be underestimated. Have you thought about getting involved and undertaking the training?

Admittedly, the RBA role is not suited to everyone, but I would encourage any member to consider an involvement, given the skill sets we can bring to helping and assisting communities at times of need. It is important that building assessments are undertaken in a competent and consistent manner, by a practitioner who has experience and is well informed. Experienced Building Surveyors bring these qualities to the table, qualities that can quickly aid and change the circumstances of those in need.

On a lighter note. While weather events are unpredictable, BOINZ runs events that are predictable. We have 9 branches regularly updating and informing your skill sets through their networking and training programmes. Our two national events Conference and SBCO Forum deliver high quality technical programmes that also add to defining your professionalism. No matter how you look at life, events define you and the community. It's all about engaging and contributing, whether attending BOINZ events or contributing to support a weather or earthquake event. Thank you for your participation.

Nick Hill - Chief Executive

Nick Hill
Chief Executive

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Personal Wellbeing During a Natural Disaster

Hi team, well it's been a long time since I had to do building evaluations during a national emergency, but it seems that they are occurring more regularly. My heart goes out to the families that have had their homes and livelihoods affected by the floods in Auckland (my hometown) and the devastation from Cyclone Gabrielle from the Far North to the Wairarapa, and particularly the Hawke's Bay region.

Building evaluation and buildings affected by emergencies (under the Civil Defense and Emergency Management Act) have been included under the Building Act 2004, through an amendment to the legislation in 2019, through section 133BA – 133BZA. Look, I'm not here to discuss the alphabet soup of the Building Act, but generally it's been brought into the Act to help the transition from civil defense emergencies to legislation that is used every day, i.e. the Building Act.

As Kiwis we tend to keep our feelings to ourselves, or compartmentalize the experiences we have.

What I want to talk about is the stresses that our members, building officials, endure whilst undertaking building evaluations during an emergency.

As building officials in New Zealand, 99.9 percent of the time we are looking at plans and specifications. We discuss designs with owners and designers, and we inspect construction, but when a disaster happens, all that usually goes out the window. Our members end up going building to building, house to house, undertaking building evaluations, or rapid assessments. That process requires the assessment of buildings, homes, premises, and, ultimately, a decision on the spot about whether the owner is allowed into the building. Obviously, this causes stress to the owners, but it can also cause stress to you.

During the National Emergency as a result of the Canterbury earthquakes, we undertook building evaluations of the majority of commercial and residential buildings in Christchurch. Many of the building officials that worked with me during that emergency had experiences that I would consider traumatic, from houses destroyed, and I don't like saying this, to lost loved ones.

The disasters that we have experienced in the last few weeks is no different, our members, council and government staff have been face to face with people who have had their homes destroyed and loved ones taken.

Many of you responding to the flooding, slips and cyclone, have probably been working with Fire and Emergency New Zealand (FENZ) staff and New Zealand Police. These organisations have to deal with traumatic situations on a day to day basis, but they have training behind them and support from their organisations through counseling.

For those of you that work for councils in areas affected by these disasters, you are often affected by the disasters yourselves, whether it be flooding of family members' homes or your own home. That adds to the stress that you can experience. First and foremost, you need to make sure that your own family is safe.

Many of you work for councils, and all councils will have an employee assistance programme (EAP). You can use this to discuss your experiences, or what we used to call it in the Army 'de-compress'.

Peter Sparrow - Director

As Kiwis we tend to keep our feelings to ourselves, or compartmentalize the experiences we have, locking it up is not good for our mental health. I speak from experience, I had support from professionals after the Canterbury earthquakes and talking about what I experienced really helped.

Team, I am by no way a professional in this field, but I do recommend talking to one, even if it's just to share the experiences that you have had. Sometimes it can build up without you noticing it, talk to your partners and family, and if you or your family have concerns, please talk to the people that manage your EAP process. I orea te tuatara ka patu ki waho. A problem is solved if we keep looking for solutions. So don't just ignore what you are feeling. Reach out and look for ways to help yourself process what you have experienced.

Lastly, I am more than happy to talk to you, even if it's to just hear your experience's. Remember, a problem shared, is a problem halved. Kia Kaha.

Peter Sparrow, Director, Building Officials Institute of New Zealand, Senior Lecturer, Building Surveying, Future Skills Academy
Ph: 021644407

MINISTRY OF BUSINESS, INNOVATION AND EMPLOYMENT

Building for Climate Change

MBIE's Building Performance team is leading the building and construction sector's response to climate change.

As you will be aware, the building and construction sector is a significant contributor to greenhouse gas emissions which are emitted when building materials are produced, when buildings are constructed and demolished, and when energy is used in buildings when they are being used.

If Aotearoa New Zealand is to achieve its climate change goals, including net zero carbon by 2050, the building and construction sector must play its part.

We are working on a range of initiatives to reduce emissions and increase the climate resilience of our built environment.

Learn more about what we are doing here: https://www.building.govt.nz/getting-started/building-for-climate-change/

Proposed changes to the law

In December 2022, the Minister for Building and Construction announced proposed amendments to the Building Act. These proposals are to:

- make it mandatory for new and existing public, industrial and large-scale residential buildings (such as multi-storey apartment buildings) to hold energy performance ratings
- require those intending to undertake certain building or demolition work to have a waste minimisation plan
- change the principles and purposes of the Building Act, to clarify that climate change is a key consideration.

We know that as the climate changes we can expect more extreme weather events, such as heatwaves and flooding. This will impact both tenants and building owners. These proposals provide a clear signal that considering climate resilience and the emissions impact of our buildings is a core responsibility of the building and construction sector.

In 2023, the Government will introduce a Bill to progress the proposed amendments to the Building Act. Changes to regulations will also be developed and consulted on publicly. These changes are expected to be phased in from 2025. You will be able to have your say on these changes this year and we will keep you informed on how to do this.

You can read more about the proposed changes here: https://www.building.govt.nz/about-building-performance/all-news-and-updates/proposed-building-for-climate-change-amendments-released/

Oct 2020	Feb 2022	May 2022	August 2022	Dec 2022
Consultation on the framework for embodied carbon and operational efficiency of buildings	Whole of life embodied carbon assessment technical methodology	Emissions reduction plan published	National adaptation plan published	Proposed Building Act amendments announced

ACRS

Conformance of Fabrication/ Processing of Steel Products

The need for certified structural and reinforcing steel is recognised in New Zealand with rigorous certification schemes such as the ACRS Product Scheme being used in the building sector for supplied steel products.

In structural components for buildings, the ACRS product is typically called up, as the certification process of an unverified product requires additional checks as well as mechanical testing to demonstrate the compliance of the product to the AS/NZ standards. Additional processing or fabrication of these products into building components, then utilises schemes such as the SCNZ Steel Fabrication Certification (SFC) to provide the certainty of quality in the product and enables an easy path for confirming compliance.

For reinforcing products in New Zealand there is an acceptance that the reinforcing steel has third party certification, but the next stage of processing the product for use on site and the need for verification for compliance is not well-known. The relevant standard AS/NZS 4671-2019 “Steel for the reinforcement of concrete” outlines the requirements for chemistry, mechanical properties, geometric properties, bend diameters, surface geometry for bars as well as the additional requirements for mesh such as weld strength. The chemistry is a function of the feed product, and as this material tends to be sourced from independently certified mills it is typically not an issue. However, for product taken from coil or the fabrication of mesh these processes are typically conducted independent of the mills. To ensure that material being supplied is still compliant the standard requires further checks on mechanical properties, rib geometry, straightness etc.

While it may be assumed that if the feed is compliant, then any material processed is compliant, this is not always the case. If we take decoiling as an example; this is where the reinforcing bar is taken off a coil and straightened, then if required, bent to the scheduled shapes. The process of straightening the coil sees the bar passed through a number of rollers that plastically deform the bar, commonly referred to as “cold working”. One of the side effects of this process is that the mechanical properties are altered, with an increase in strength and a subsequent decrease in ductility. As a rule, there is sufficient ductility in the reinforcement that even after this straightening process the mechanical properties still comply. Regardless of this, AS/NZS 4671 requires the demonstration of product conformity, and outlines that decoiled product samples shall be taken after straightening and monitored as part of manufacturing control. If the straightening process is not closely controlled, or the decoiling process is accelerated to meet production schedules, a resulting loss in ductility to below specification may be observed, and deformations crushed to the extent they no longer comply. Thus, the standard also requires checking of surface geometry such as rib height after decoiling. For mesh, similar testing is required after manufacture to confirm the mechanical properties of the reinforcement, to monitor the impact of the welding or any associated under cutting of the wire, the shear strength and surface geometry also requires checking.

When we consider the effects that the processing may have on the mechanical properties and effectiveness of the bonding it is essential, as is the practice for structural steels, to demonstrate compliance of a material. To achieve this the Building Control Officer should ask for the results of the testing as outlined in the standard, for each batch of reinforcing being supplied to site. Alternatively, the processor could supply a certificate from an appropriate independent certification authority, such as ACRS, that has carried out auditing on the processor and has conducted an expert review of the production data to verify compliance.

Weathertight Concrete Code of Practice Updated

Concrete NZ has published a revised 2022 version of the *CP01 Code of Practice for Weathertight Concrete and Concrete Masonry Construction* to help establish new standard practices.

Concrete NZ chief executive Rob Gaimster notes that the update of the 2014 version was prompted by a need to improve the thermal performance of residential concrete buildings and account for new construction systems.

Insulation shown in the code's details has been enhanced and thermal images of the details themselves included - enabling a better understanding of the risk of condensation at the internal surface areas and junctions.

"It has been eight years since the *CP 01 Code of Practice for Weathertight Concrete and Concrete Masonry Construction* was last updated," Rob says.

Image: Point Chevalier House - Ponting Fitzgerald Architects

When we build better, everybody benefits.

"The majority of the edits have been revisions of the detailed drawings to allow for improved thermal performance.

"The addition of acceptable surface temperature factors will help architects and designers determine a detail's climate zone suitability, while new Appendix A describes the methodology that was used to develop the detail and provides further thermal performance information."

The code's updated details also reflect new weathertightness systems that have become more prevalent in New Zealand over the past decade, such as double glazing and thicker thermal insulation.

Sustainable Engineering Ltd director and contributor to the 2014 and 2022 versions Jason Quinn believes the update demonstrates admirable leadership from Concrete NZ, establishing new standard practices in advance of *New Zealand Building Code* minima.

"An important new focus in the CP01:2022 is thermal performance, and we calculated the thermal bridging and surface temperature factors (mould index) for the various details," Jason says.

"These calculations help architects and designers to understand the risk of mould growth and underpin comprehensive changes to the detailed drawings of this document.

"When we build better, everybody benefits."

The updated code has been prepared for use by practitioners with the appropriate qualifications, experience and professional judgement as a way to demonstrate compliance with the *Building Code Clause E2 External Moisture*. Practitioners using this code should ensure design solutions meet all the performance requirements of the *New Zealand Building Code*.

The 2022 version should be assessed as an alternative solution. The current 2014 version remains the cited version in Acceptable Solution E2/AS3 and should be assessed as an acceptable solution for *New Zealand Building Code Clause E2 External Moisture*.

The new CP01:2022 - Code of Practice for Weathertight Concrete and Concrete Masonry Construction can be downloaded for free from the website: www.concretenz.org.nz

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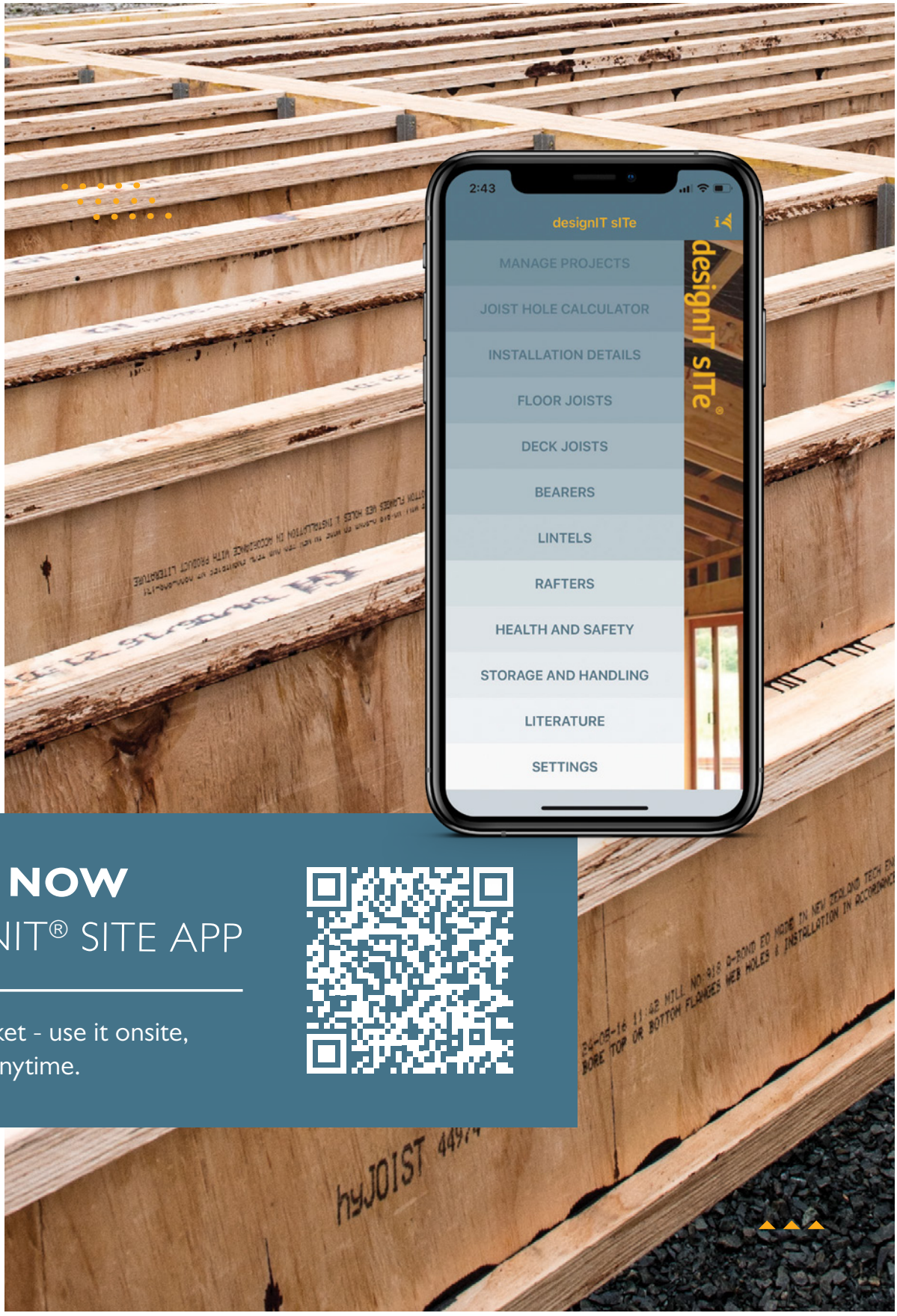

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Aotearoa - Six Months in a Leaky Boat

Membrane roof failure risks are not being taken seriously

Ultimately if leaks in membranes do go undetected, it may take more than six months to find you have a leaky boat, but when leaks are finally detected, as the song says, "Ship-wrecked love can be cruel."

There is some irony that at least Split Enz knew that they were in a leaky boat. So, in true kiwi stoic fashion, they celebrated it with a song. However, in the last six months, NZ has experienced weather events well beyond the expectation of the NZ Building Code. But that's ok, right? Because over the past 20 years, we have become experts in weathertight buildings. Designing, inspecting and testing to ensure they don't leak. Or have we?

External waterproofing is essential to a building's life and success; vertical construction is only achievable when there is certainty in managing surface water from all external surfaces.

'Flat membrane roofs, balconies & podiums', through the fundamentals of their design, are arguably the most challenging external waterproofing system for successful water management. These horizontal surfaces have liquid or sheet membranes, torched, glued, and fixed to them, with a level of skill and experience that is nothing short of brilliance.

The installation of membrane waterproofing is a critical path item on a high percentage of NZ construction projects; now, with the rapid transition to Medium Density Housing and the increased height in residential structures, it is likely to become even more prominent.

So, what's the problem?

For years BCA inspectors have become experts at checking substrates for membrane application and the sighting of completed works. That is truly commendable. However, it is not when the most significant membrane surfaces risk occurs.

After the completion of the membrane, the surface will instantly become the workbench for a carnival of proceeding trades, material storage, impromptu-smoko locations, etc. Let's face it, an empty deck area (in a sunny spot) is just crying out to be used (AND ABUSED).

Smart builders protect the membrane, but who can honestly say they have never dropped a tool or even been aware of the screw lodged in their boot?

In short, the post-membrane completion construction phase is the most significant risk for the waterproofing membrane. And guess what? Nobody is coming back to check it is still watertight.

Alarming Evidence!

Test data for Electrical Membrane Testing was recorded over a 40-month period.

(855 Tests over 261 projects for new membrane installations)

Frankly, the results are alarming and merit serious industry concern!

- **74.6%** of tests reported water tightness breaches (638 of 855)
- **2255** Watertightness Breaches were identified over a surface area of 137,000m2 of Roof & Podium Membrane.
- **1 in 2** Balconies tested were found to have a watertightness defect (with a sample size of 1323 balconies).

Additionally, **Non-Watertightness Areas of Concern** were reported in 85.5% of the reports. (773 of 855) i.e., Mechanical damage, termination issues, Unfinished details, unsealed fixings penetrating membrane.

What is good practice?

There is a silver bullet to mitigate the damage left behind – External Waterproofing surfaces can be tested; ideally, this should be as late as possible before the building's practical completion date.

There are two internationally recognised standards for testing & reporting the verification of the waterproofing watertightness for membrane roofs.

- ASTM 5958 - 98 (Reapproved 2005) Standard Guide for Flood Testing Horizontal Waterproofing Installations

And

- ASTM 7877 Electronic Methods for Detecting and Locating Leaks in Waterproofing Membranes

The Bad News

There is guidance from the Waterproofing Membrane Association Inc (The Torch On- Code of Practice), but Industry has had limited take up for mandatory testing.

Despite these test standards providing BCA's reliable compliance evidence, very few BCA's require membrane tests pre-CCC.

Many NZ manufacturers & suppliers require testing to confirm compliance in support of their warranty. However, there is no current guidance on round when the testing should be carried out and for the majority of warranties the tests are not being completed.

One of the reasons that there is a reluctance to test is that it can be costly and impractical. Flood tests require the entire membrane surface area to be flooded to a 50mm – 100mm above the highest point. That equates to 1 tonne of water for every 10m2 of the roof. That's a lot of weight and indeed not to be undertaken without structural advice on temporary support. Also, don't forget that you need to get rid of the water afterwards.

Electrical Leak Detection methods as described in ASTM 7877, are far simpler and cost-effective method, **Conductance Leak Location** -

The principle of the Electronic leak testing method is the establishment of an electrical potential between the electrically insulating waterproof membrane and the conductive underlying substrate.

Electric conductance leak location requires that the substrate material directly below the membrane be sufficiently conductive for the test method employed. In most instances, a concrete substrate is sufficiently conductive to allow this method. In certain membrane assemblies, where the substrate is nonconductive, it is possible to install a conductive material directly under the membrane to facilitate testing.

Low Voltage Methods (Electric Field Vector Mapping EFVM®)

When testing using a low voltage electrical potential, a thin controlled covering of water on the surface forms the conductive path horizontally across the membrane to any membrane breach. At a breach location, an electrical path to the substrate is formed through the water connecting to the substrate below. A sensitive receiver detects the leakage current and alerts the operator to the exact location of this connection.

Ultimately if leaks in membranes do go undetected, it may take more than six months to find you have a leaky boat, but when leaks are finally detected, as the song says, "Ship-wrecked love can be cruel." And the money saved from testing will be trivial compared to repair cost.

Our recommendation is that Industry wakes up to the risk and insists on waterproofing membrane testing to ensure homeowners can remain confident that their properties are safe and compliant.

Written by Rob Tierney Farsight NZ and Thomas McLaughlin ILD NZ

Controlling Water When Tanking

Dewatering is defined as the process of removing water from a given condition. Dewatering involves lowering the water table and intercepting water seepage which would otherwise emerge from the faces or bottom of an excavation.

There are several different methods that can be utilized to achieve temporary dewatering. Some of the most common systems currently in use include wellpoints, deep wells, submersible pump method or a combination of these methods.

In many locations around the country, the control of groundwater during construction is a very common practice. Yet, despite its common occurrence, dewatering can be a complicated process

1. Wellpoint system.

In comparison to the submersible pump method, the wellpoint method is more efficient. The following image illustrates the concept of this dewatering methodology.

2. Submersible pump.

Contractor could use submersible pumps operating 24/7 on a float switch. Being placed strategically around the site, those pumps could be sited in 44 gallon drums, which are submerged below FFL of basement. In most cases, this is a cost-efficient way to achieve dewatering.

3. Other considerations.

Connecting to subfloor coils, pressure release pipes/outlets through basement slabs, would be helpful to spread water pressure evenly throughout the underside of slabs. Several factors would need to be considered to achieve an efficient subfloor drainage, including diameter, slope, and spacing of drainage coils, etc.

The determination of what system to use is project specific and depends on several factors including; the type of soils at the site, the soil permeability, the depth of the groundwater, the required excavation depth, and the physical constraints of the site. Wellpoint dewatering systems are the most versatile and commonly used systems.

On most construction projects, a specific dewatering method is not part of the project architect's design, but rather the general contractor is responsible for selecting the most appropriate dewatering system for the particular project. In such cases, the general contractor is responsible for designing, furnishing, installing, operating, maintaining, and removing the temporary dewatering system as required

to lower and control water levels alleviate hydrostatic pressures during construction activities. The general contractor must also determine whether the pumped water can effectively be contained on-site or whether it will need to be disposed of off-site, as well as whether or not the pumped water will need to be treated.

In many locations around the country, the control of groundwater during construction is a very common practice. Yet, despite its common occurrence, dewatering can be a complicated process depending on the site conditions and the excavation requirements.

Why choose CETCO Volclay

Dewatering system needs to be in place to create a workable condition of substrate for Volclay membranes. Otherwise, membrane pre-hydration and bentonite component being washed away are prone to occur.

However, this is not the disadvantage of CETCO Volclay membrane, because:

- No other waterproofing membranes can be installed in ponding/running water. Other alternatives either rely on flame applied on site or adhesive on laps, or both, which will have even stricter requirements on substrate. Sodium bentonite-based CETCO Volclay tanking membranes, barely need any treatment on laps, and are more adaptable to wet sites.
- After concrete is poured onto the membrane to form the basement slab, the "movement" of the groundwater occurs in the hard-fill/soil underneath CETCO Volclay membrane.

  This cycle of saturation to non-saturation will not wash/flush the bentonite away.

While de-watering during construction is beneficial to CETCO Volclay application, it is to be noted that post construction, any ongoing water control systems (sub floor drains, external drain coils, cesspits, sump chambers) are crucial to the site being non-hydrostatic.

If the site has no water control, post construction; then the hydrostatic conditions will require the CETCO Volclay detailing to be significantly more robust.

For advice on good dewatering practice for your specific site, please contact an Allco Technical Advisor TATeam@allco.co.nz

SPOTLIGHT ON A MEMBER

Spotlight on a Member - Quentin Dagger

Quentin started out his career as a carpenter nearly 50 years ago but admits that he didn't spend a lot of time on the tools after finishing his apprenticeship. Instead, he got involved in the industry, mainly with engineering and construction, at a higher management level.

Then in 2006, at nearly 50 years old and after closing a business, Quentin faced being out of work for the first time in his life. Coincidentally, an associate at Waitakere City Council asked him two questions: “Have you been in the construction industry?” and “Can you read plans?”. From those answers Quentin got a six-month contract helping the building consent department. After three months, he was team leader. He left that role, and several others after that, about 11 years later.

After a few years of middle management positions at Auckland Council he decided to semi retire but failed miserably. Two weeks after leaving council his phone started ringing with people who had problems with building contracts and getting code compliance. Next thing he knew he had a full-time consultancy business turned new build project management out of his small office on Waiheke Island.

What has been the highlight of your career so far in Building Control?

I think it was reaching a point within Council, because I went in there and progressed quite quickly, I had to learn a lot in a very short period, and I had to learn the legislation to the point where to this day it's still a major part of my business. I do a lot of expert witness work for law firms and that sort of thing. So, I think achieving that, getting my diploma in building control, you know, it's late in life to restart your education, but I quite enjoyed that.

And a highlight of the last six years in your business?

Two years ago, I took over a job that was half built. There was a major dispute between the builder and the owner, so I had to break that job down, resolve the issues and get the job finished and handed over to the client. Seeing that finished and seeing a smile on her face

for the first time in a year and a half was quite special. Being able to work with people, break all those hurdles down and then put the relationship back together again is extremely satisfying. But it's also hard work.

What are the biggest changes you've seen in the industry?

Oh, it would be several things, I guess. I think the advancement of modern technology, the battery power tools, that’s a huge change, because as an apprentice I can remember my job

every morning was to run miles of extension lead out through the mud for the chippies, crawling through the mud and dragging these things around wasn't a lot of fun. But technology in the ability to pick up your phone or laptop and find out some technical information about a product, that's a massive step. Also, the vast number of building products and systems that are on the market today, we didn't have all these imported highly technical products.

Apart from the technology, are there any others changes you've noticed?

Most definitely. So, in 1986, we stopped training apprentices in New Zealand and the industry started going backwards very quickly and we've never recovered from that. Especially for young guys, they don't have the ability to understand or have the in-depth knowledge of the trade that we had when we were trained. We had to understand all the subcontract roles and not just the plans. We had to understand how to build something.

Where do you see the industry heading in the future?

I think unless there's some major changes around the Licenced Building Practitioner Scheme, I don't know that we're going to progress much further than where we are. People are still building substandard buildings. But there are several aspects there and I'm not being negative about it, this is just a genuine observation. I think if the industry was in a better position, I wouldn't have to work this out. People wouldn't need me, and then I can go fishing more.

The theme for this year's conference is 'Building Competency and Capacity', what do you think that phrase means to the industry?

Well, from a building control perspective, I think we need to ensure that young people going into building control are armed with the information and the knowledge to be able to make common sense decisions within the parameters of the Building Act. If you're recording your decision properly, then you still comply with the policy and the accreditation process. Being too risk adverse doesn't instil a confident working environment.

So, it's competence and confidence. One will come with the other, and I think if people are thinking clearly and not dwelling on issues stalling building consents by asking for further information, that's going to help the capacity. It's going to help the councils get through those consents a lot quicker, so therefore they're going to have the capability to produce more building consents. That's really the training regime and their lack of confidence that brings about that situation. So that's where we must start.

What do you find is the benefit of BOINZ membership and the training that we offer?

I used to value it highly when I was at Council. It gives you the ability to build up a network of people across the country, and you can talk about how they deal with issues compared to how we deal with them. You can assimilate a commonality between the outcomes. But when I said I used to value it highly when I was there, I value it even more now. So, because my office isn't very big, it's having that ability to meet up with people. It's important to be able to keep up to date with product information and technology.

What advice would you give someone looking to start their career in this industry?

I think take every opportunity to view the industry at a grassroots level. Because one thing that becomes very easy when you get involved in the Council environment is you can lose track of the real world. You can lose track of what the builders are facing on a day-to-day basis, and you can lose track of what the homeowners are facing. It's important to have a good grounding in the industry before you get into building control, but certainly when you get in there, I think it's about learning the building code and the legislative framework and then once again being confident to be able to work within it for the right outcome.

How do you relax outside of work?

Well, I've got a boat sitting out in the front yard that I like to use as often as I can, but unfortunately, I don't. But yeah, there's nothing quite like a couple of mates going out for a few hours fishing. Otherwise, I might pop into the little workshop I have here and build something.

Is there anything else you'd like to add?

There's one thing that I still can't understand, and I probably failed my marketing training way back, is understanding how people track me down because I don't have a website. But I get obscure phone calls from Europe, America, clients all over the show. It just blows me away how they get hold of me. My current job, so we're building a house right on the beach at Onetangi here on the island., this type of construction has never been done before, and the client heard about me when he was at an opera in Vienna. Because he started talking to someone who had previously been a client of mine.

A New Code of Ethics for Licensed Building Practitioners

The code of ethics, which came into force on 25 October last year, sets behavioural standards for Licensed Building Practitioners (LBPs), to give both the industry and the public clarity on what is expected from LBPs, and to hold them to account.

Why have a code of ethics?

The code of ethics ensures high standards are maintained in the industry, while giving the public more confidence that LBPs are undertaking building work in a safe, legal, and professional way. It also provides people, such as homeowners, with an avenue to complain should an LBP breach the standards.

Most LBPs already work to the highest professional and ethical standards. The code of ethics will hold those who do not meet these standards to account, by providing clear grounds for the Building Practitioners Board to take disciplinary action against LBPs who behave unprofessionally.

What does the code of ethics include?

The code of ethics is made up of nineteen standards, which sit under the following four key principles:

1. Work safely

- Take responsibility for health and safety
- Report unsafe behaviour by others on a building site
- Avoid harming the environment.

2. Act within the law

- Comply with the law
- Report breaches of the law.

3. Take responsibility for your actions

- Know what building work you are allowed to do
- Explain risks to your client
- Inform and educate your client
- Be accountable for building work carried out by you, or someone under your supervision
- Advise clients of any delays as soon as they become apparent
- Act in your client's interests
- Generally, you should follow your client's instructions unless the instructions are dangerous, are contrary to contracts or consents, or would mean you would not be acting within the law.

4. Behave professionally

- Behave professionally
- Act in good faith during dispute resolution
- Price work fairly and reasonably
- Declare and manage actual or potential conflicts of interest appropriately
- Maintain confidentiality of client details, unless there is good reason for sharing information
- Acknowledge and respect the cultural norms and values of your clients and colleagues
- Conduct your business in a methodical and responsible manner.

Where can I find more information?

The Ministry of Business, Innovation and Employment has developed information and education resources to help LBPs and the public learn more about the code of ethics.

These are available on the LBP website and include a detailed guidance document and an interactive on-line learning module. The module takes 20-30 minutes to complete and can count towards an LBP's skills maintenance activities (note LBPs must log-in to the module for it to count towards skills maintenance).

Code of ethics information and resources – LBP website

H1 Energy Efficiency Changes – Common Challenges Part 2

BRANZ is receiving numerous queries from industry about the new H1 *Energy efficiency* requirements. In this two-part series, we answer some of the most common questions. Part 1 focused on windows and doors. Part 2 focuses on secondary insulation layers and concrete slabs.

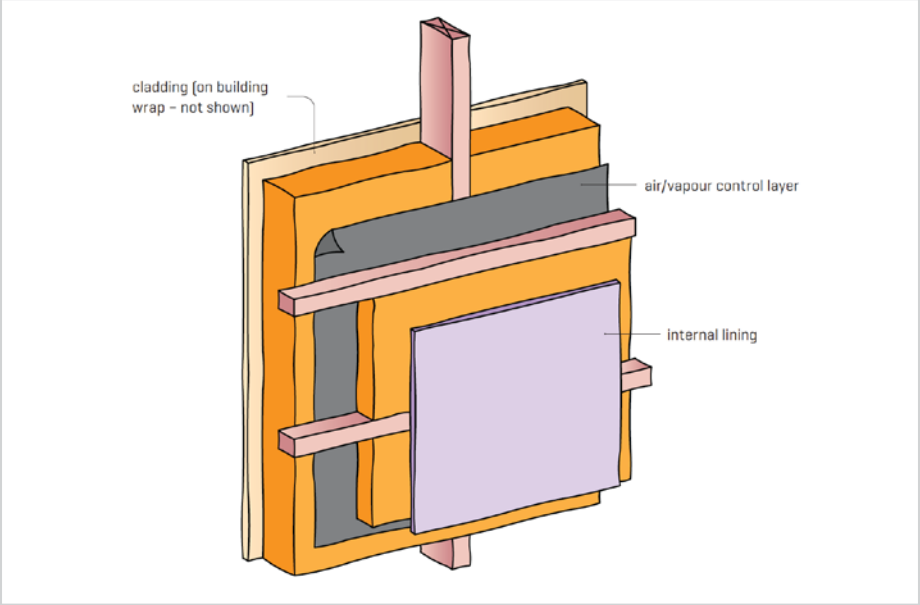
How do I use secondary insulation layers to increase the R-value?

One construction approach that can lead to a big improvement in the thermal performance of a wall or roof is a secondary insulation layer. How big an improvement? Almost a doubling in wall and roof construction R-value can be achieved in some circumstances. You can find examples in the BRANZ House insulation guide 6th edition (https://www.branz.co.nz/energy-efficiency/house-insulation-guide/).

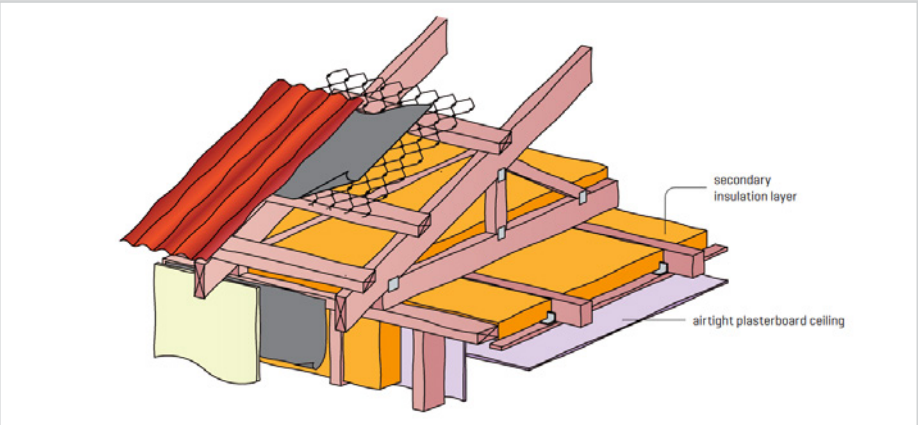
With walls, the secondary insulation layer commonly takes the form of a cavity constructed with horizontal timber battens spaced to suit the installation of insulation and direct fixed interior linings. Additional bracing may be needed. This could be provided by a rigid underlay on the outside or additional bracing (such as plywood) between the two insulation layers. It is important to ensure that the interior lining is airtight to reduce the risks of moisture transfer.

A similar approach can be followed with roofs. The battens for the secondary insulation layer should be fixed at right angles to the main framing members to reduce thermal bridging. Where strips of blanket insulation are installed, they should also be installed at right angles to the primary insulation.

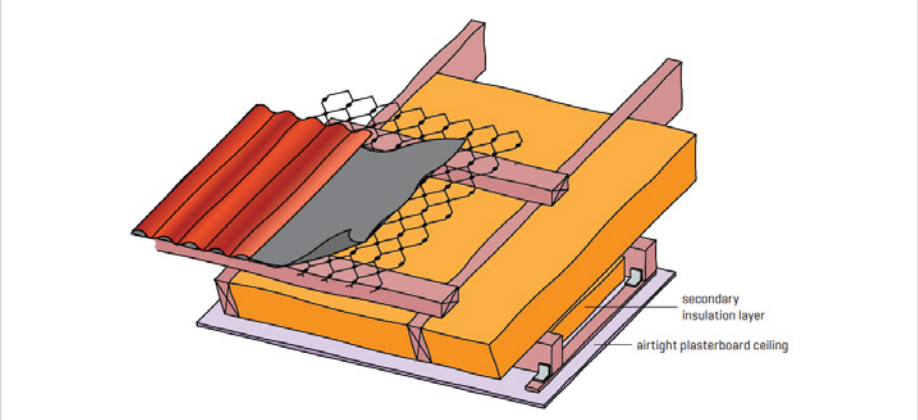
With roofs as with walls, it is important to ensure that the interior (ceiling) lining is airtight to reduce



Schematic drawing of external wall with secondary insulation layer



Schematic drawing of truss roof with secondary insulation layer



Schematic drawing of skillion roof with secondary insulation layer

the risk of problems with moisture transfer from the living spaces.

The use of a secondary insulation layer should be determined early in the design process and discussed with the frame and truss manufacturer at an early stage.

How do I deal with concrete slabs with attached unconditioned spaces such as garages?

While a garage commonly sits on its own separate slab, one step down from the finished floor level of the habitable area of the dwelling, there are cases where an attached garage occupies the same slab-on-ground floor as habitable spaces.

H1/AS1 defines unconditioned space as: "Space within the building envelope that is not conditioned space (for example, this may include a garage, conservatory, atrium, attic, subfloor, and so on). However, where a garage, conservatory, or atrium is expected to be heated or cooled these spaces shall be included in the conditioned space."

H1 does not require unconditioned spaces to be insulated, but Appendix F of H1/AS1 – the appendix that covers the thermal resistance of slab-on-ground floors – makes the comment:

"Since insulation cannot be easily retrofitted to slab-on-ground floors, it is recommended to also insulate the floor of any unconditioned spaces of the building, where these may become conditioned spaces at a later stage during the building life. An example is an attached garage that could potentially be converted into a habitable space in the future."

Where this is not done, another comment in Appendix F of H1/AS1 applies: "Any parts of a slab-on-ground floor that are not part of the thermal envelope (such as the floor of porches, attached garages or storage areas) should be thermally separated by installing vertical edge insulation in between conditioned and unconditioned parts of the floor."

Thermally separated edge insulation within slabs is not currently common practice and may require specific design by an Engineer to consider any impact on the foundation design, reinforcing and load bearing capacity of the slab at this junction. Minimum slab thicknesses should not be compromised.

Note: NZS3604:2011 clause 7.5.10 states that "Thermal insulating material may be used provided that there is no reduction of any dimension given by this standard.

While an attached garage can be considered as an unconditioned space and thermal insulation could be installed between the two slabs, Engineers (and designers) will need to consider what happens at wall / roof level between the two structures if they are separated and how they might be tied together. This will likely have design, build and cost implications and the owner / builder may prefer to install the insulation under the unconditioned space to save costs and 'future proof' as mentioned above.

How do I comply with the rules around slab-on-ground with embedded heating?

The H1/AS1 schedule method has minimum construction R-values for heated ceilings, walls or floors, set out in Table 2.1.2.2.A.

As the table shows, the minimum construction R-value for heated floor slabs is R2.5 in climate zones 1–3, R2.8 in climate zone 4 and R3.0 in climate zones 5 and 6.

For housing only, for building consent applications submitted before 1 May 2023, the minimum construction R-value for heated floors in all climate zones is permitted to be reduced to R1.9.

The calculation method cannot be used to reduce the performance of slab floors with embedded heating systems – the minimum construction R-values in the schedule method apply.

Appendix F in the new H1/AS1 and H1/VM1 gives an acceptable method for determining the construction R-values of slab-on-ground floors, with extensive tables in H1/AS1 showing construction R-values for selected slab-on-ground floor scenarios. The generic types of slabs include raft foundation slabs for the first time.

TABLE 2.1.2.2A: Minimum construction R-values for heated ceilings, walls or floors

Paragraph 2.1.2.2 a)

Building element	Construction R-values ($m^2 \cdot K/W$)[1],[2],[3]					
	Climate zone 1	Climate zone 2	Climate zone 3	Climate zone 4	Climate zone 5	Climate zone 6
Heated ceiling[4],[5]	R6.6	R6.6	R6.6	R6.6	R6.6	R6.6
Heated wall[6]	R2.9	R2.9	R2.9	R2.9	R2.9	R2.9
Heated floor[7]	R2.5	R2.5	R2.5	R2.8	R3.0	R3.0

SITE SAFE VR

Virtual Reality Foundation Passport Training Gives Innovative Construction Site Experience

Job seeker Jacob Hedley was so astounded by how easy it was to use Virtual Reality (VR) to learn and experience what's required of him on a construction site that he just had to tell as many people as possible.

"I was actually blown away. I told my missus, I told my brother-in-law, father-in-law and a friend over in Australia," he said.

Jacob, who recently moved from across the ditch with his young family, was the first person in New Zealand to receive a site safety card after completing a trial run of Site Safe's new VR Foundation Passport training course.

He was confident these newly gained skills would help him in his search for a job.

The course - created in collaboration with the Ministry of Social Development and VR company SkillsVR - gives job seekers looking to join the construction industry an innovative way to learn crucial on-site safety skills.

Before moving to New Zealand, Jacob was responsible for inducting new workers on forklifts for a major logistics company in Australia.

He hoped more organisations would adopt VR to induct their workers, particularly those operating machinery, as he said that it was

often a time-consuming process with a lot of potential for accidents.

He suggested workers do the VR induction first; that way, management can monitor their skills and then make an informed decision about when they are placed into a real-life situation.

"If you look at it, it's similar to an air pilot simulator. If you can get it down to a fine art, you can actually go [onto the] site, take a video of whatever that site is and say, 'this is what we do here' and also what that will do [is it] will save managers time in getting someone to induct them."

Site Safe NZ Chief Executive Brett Murray said it was great to receive positive feedback from VR trialists.

"We continue to see a growing trend of digitisation in construction and as an industry leader in health and safety, Site Safe will remain at the forefront of utilising technology such as VR to provide innovative ways to improve workplace health and safety.

"In the current climate where there are serious skilled labour shortages, it is important that construction, alongside other high-risk industries, are doing all they can to make it a safe and attractive industry to join.

"That's why Site Safe will continue to work hand-in-hand with our many industry partners and working groups to set the standard for what the sector wants in a foundational construction course."

Amanda Nicolle, Director of Industry Partnerships at the Ministry of Social Development, said the Site Safe VR Foundation Passport training course is an innovative training solution.

"We are funding industry-endorsed solutions of this kind to prepare clients for work and have developed this course in collaboration with industry trainers and SkillsVR as learning experts. It readies people for jobs available now, and employers who want to hire people who have done Site Safe through VR can go directly to www.skillsvr.com/vr-job-expo to find upcoming expo dates where Site Safe will be available."

So far, there have been several successful trials of Site Safe's VR Foundation Passport training courses. These will continue to take place at selected companies across the country until late January, followed by trialling within our Site Safe training facilities.

Further developments on the VR project are expected early next year.

To find out how you can get involved in our VR Foundation training, visit the SkillsVR website at: https://skillsvr.com/modules/sitesafe

By Site Safe Communication Advisor Jonathan Guildford

In the current climate where there are serious skilled labour shortages, it is important that construction, alongside other high-risk industries, are doing all they can to make it a safe and attractive industry to join.

Resistance is Futile – The New Ways Windows are Calculated in H1

A Guide for Window Suppliers and Homeowners

Calculating the thermal resistance of windows previously was very simplified and while it was convenient for the suppliers, councils, builders and homeowners there was certainly a measurable performance gap.

The performance gap leading to unbelievably high costs for heating, daily temperature fluctuations inside houses from 0°C in the morning to 40° in the afternoon. Not to mention the high rates of condensation and mould formation around window frames and glass that lead to unappealing staining but real health issues for the occupants.

The changes that are coming into effect lay the foundation for better window performance albeit the simplified data entry provided in H1AS1 Table E.1.1.1. and here is why.

In Europe, where these standards have been used for decades all window suppliers have got their product datasheets freely available for download.

Until now the R-Value for a specific window suite was calculated based on a fixed size window with a generic frame R-Value and a generic glass R-Value. This one R-Value was then used across a whole range of windows and doors of various sizes of the same suite. I have tried to match some of these R-Values with more accurate frame data and sizing, however, to get to the previous minimum R-0.27 I still had to use some creative mathematics on the glass and frames R-Values.

I have done a reasonable amount of window frame calculations and the R-Values attributed to non-thermally broken aluminium frames were astonishingly good. I'm surprised that non thermally broken windows are still advertised as being able to achieve this R-Value. But considering that the new minimum is R0.46 with the temporary allowance for R0.37 for climate zone 1 and 2 it is pretty clear now that thermal breaks are now a must across the board!

H1/AS1,AS2

The new way to calculate the R-Value now is to separately consider

- the frame area
- the glass area and
- the glass edge length

This is done for each individual window size and not just based on a standard window like before. Smaller windows will therefore be more affected by the frame R-Value and larger windows more by the glass R-Value – and overall, the heat loss, for each window will be more accurate than before.

It also means that it will be a different R-Value for each window size, opening style and glass variation. Some windows might be under the minimum R-Value, some might be over. What counts is the average across all windows and doors across a building.

And here is where it gets complicated.

Unlike stating that a window suite has a certain R-Value it has to be calculated for each single window and door using the formula of ISO10077-1:

$$U_W = \frac{\sum A_g U_g + \sum A_f U_f + \sum l_g \Psi_g + \sum l_{gb} \Psi_{gb}}{A_f + A_g}$$

Which in simplified terms means that:

the sum of all the glass area multiplied by their U-Value to ISO 673

+

the sum of all the frame areas are multiplied by their U-Value to ISO 10077-2

+

the length of the glass edge (spacer) multiplied by the liner heat loss factor (Psi) to ISO 10077-2

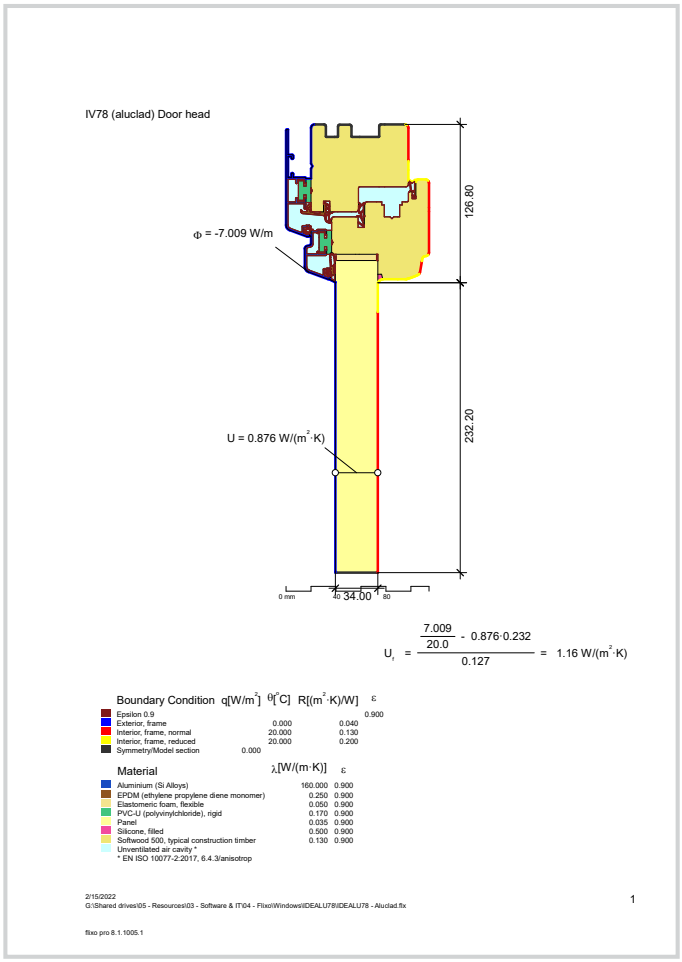
+

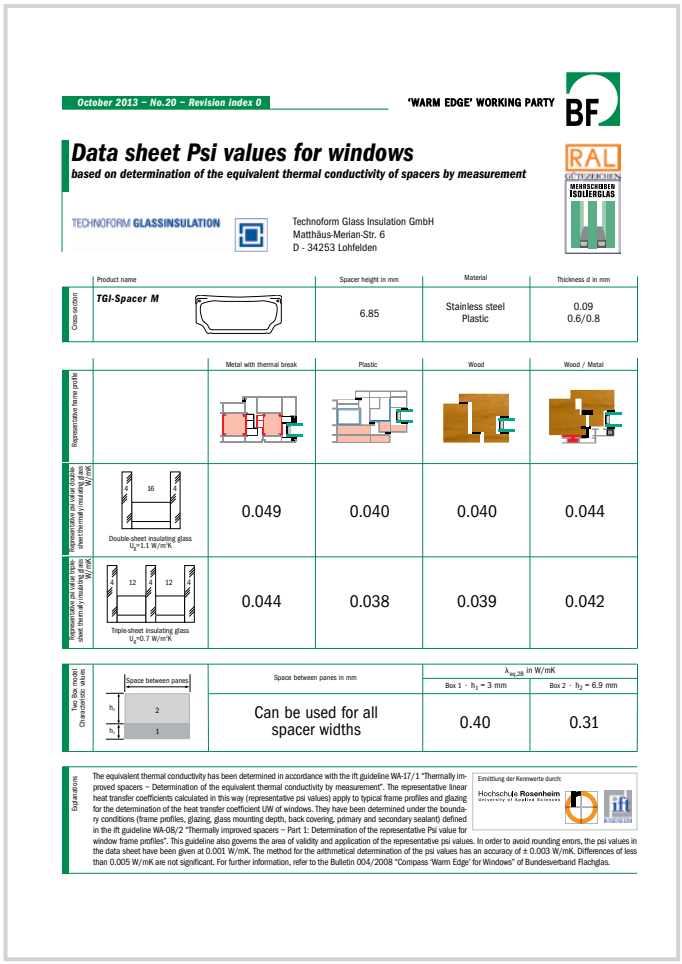
the length of the frame installation linear heat loss value (also a Psi)

(which is not included in the current H1 updates yet)

The sum of the above then divided by the sum of the total window area.

Window suppliers can incorporate the maths into their quoting system, so that the customer not





only finds a price tag but also an R-Value for each supplied window and also the R-Value average for all.

It is therefore great to hear the WGANZ has provided H1 guidance along the same lines recommending that a 'Declaration of Thermal Performance' is submitted by the window suppliers. (https://www.wganz.org.nz/h1-information-hub/)

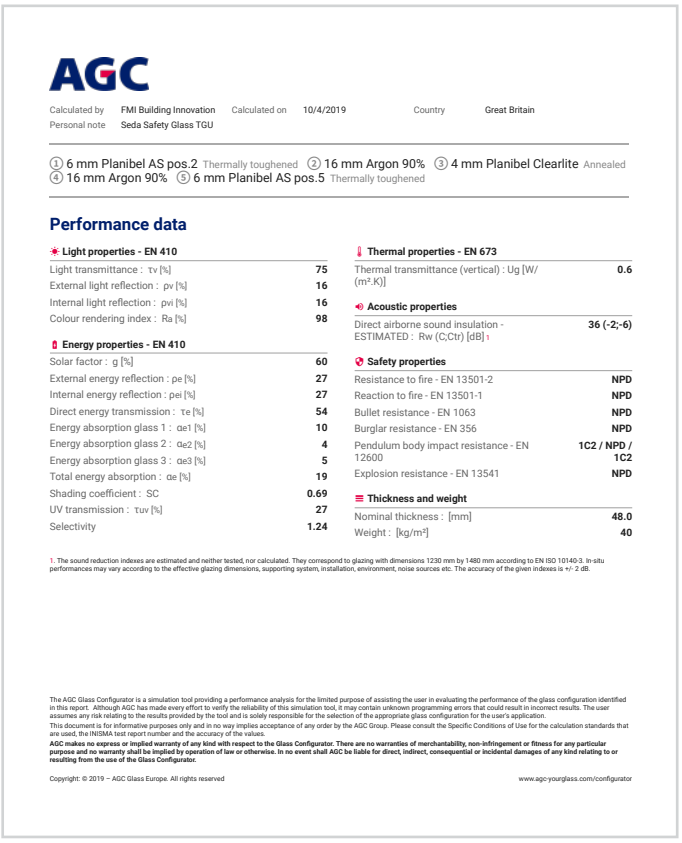
H1/VM1,VM2

If you choose to go the path of thermal modelling the windows have to be modelled individually in a 3D model, or method that meets the BESTEST, or ASHRAE140 standard.

This means that the person who does the modelling needs more information of the individual frame sections and their U-Value, as well as the glass data sheet and the glass edge data. A typical datasheet for these look something like those shown above.

This also means that the window and glass suppliers should have the individual data of their product available to the clients who choose to do energy modelling for compliance.

To obtain all the frame sections for all possible window configurations should not be problematic, considering the calculations have to be used in house anyway.



Examples of typical U-Frame, glass and spacer data sheets

STARKE AMBIANCE™ INLINE WINDOW SYSTEMS PHPP DATA TABLE FOR PASSIVE HOUSE PLANNING PACKAGE

Search

Description	Uf left W/(m²K)	Uf right W/(m²K)	Uf bottom W/(m²K)	Uf above W/(m²K)	Frame width left (m)	Frame width right (m)	Frame width bottom (m)	Frame width above (m)	YGlazing edge left W/(mK)	YGlazing edge Right W/(mK)	YGlazing edge Bottom W/(mK)	YGlazing edge top W/(mK)	Yinstallation left W/(mK)	Yinstallat W/(mK)
Starke 70 Fixed White	1.30	1.30	1.30	1.30	0.070	0.070	0.070	0.070	0.050	0.050	0.050	0.050	0.040	0.040
Starke 70 Awning White	1.34	1.34	1.34	1.34	0.117	0.117	0.117	0.117	0.050	0.050	0.050	0.050	0.040	0.040
Starke 70 Tilt & Turn White	1.38	1.38	1.38	1.38	0.119	0.119	0.119	0.119	0.050	0.050	0.050	0.050	0.040	0.040
Starke 70 Hinge Door White	1.43	1.43	1.43	1.43	0.147	0.147	0.147	0.147	0.050	0.050	0.050	0.050	0.040	0.040
Starke70 Sliding Door Fixed	1.37	1.62	1.34	1.34	0.056	0.055	0.056	0.056	0.050	0.050	0.050	0.050	0.040	0.040

Maybe window suppliers can add these calculations to the CAD and PDF library that already exist. Or provide a tabulated database for data entry into PHPP (Passive House Project Planner), which is used widely for H1 compliance as well. See Starke windows example on their website. https://starke.co.nz/suites/starke-ambiance-upvc-window/

In Europe, where these standards have been used for decades all window suppliers have got their product datasheets freely available for download. Considering that windows have to comply with other technical specifications under NZS4211 it should not be a matter of if, but when. In the meantime, if you are not sure feel free to check out our website or get in touch.

Written by Denise Martin, Principal Analyst Oculus Architectural Engineering Limited

J-Frames structural bond type has a proven, internationally recognised durability record for exposure to moisture and stress.

Therefore J-Frame, laminated veneer lumber [LVL] “can be used in applications involving extreme long-term exposure to weather or wet and damp conditions. But we always recommend keeping it dry when possible.

Have confidence in the structural capacity of your framing, even after extended periods of weathering.

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- New steel frame options with a 60 minute fire resistant rating
- Detailed illustrations and assembly videos

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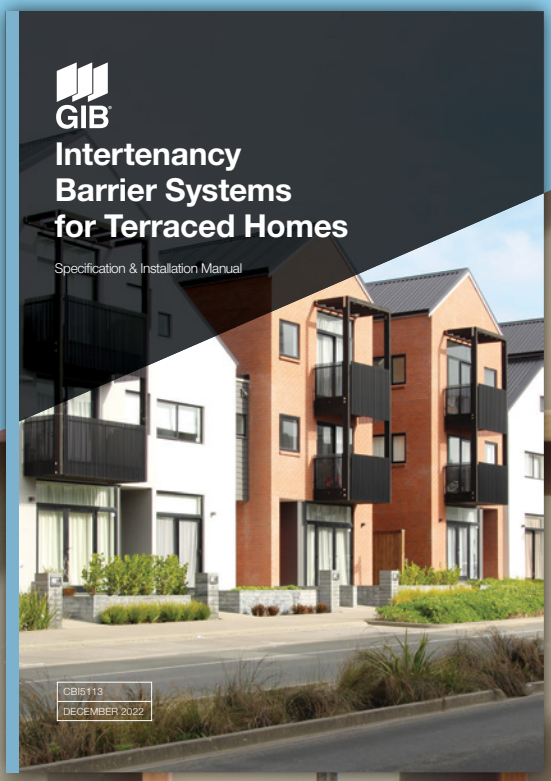

NEW MANUAL OUT NOW

GIB

Updated GIB® Intertenancy Barrier System

As housing becomes more intensified and terraced housing and apartments more prevalent in New Zealand, enhancing our products to meet the more complex needs of the compact homes more Kiwis are living in is something we are continually looking to improve.

GIB® Intertenancy Barrier Systems for Terraced Homes provide an NZBC-compliant separating wall between attached dwellings, delivering fire protection, noise control and bracing qualities.

We have worked with designers, builders, and developers to bring new enhancements to this product range, making it easier to install alongside more versatile options designed to help streamline the building and consenting process.

GIB® Intertenancy Barrier System, a system designed for connected dwellings to meet fire resistance and noise reduction ratings, now offers more versatility and easier installation.

New construction details

We have added new construction details, including options addressing a cantilevered mid-floor area, stepped roofing profiles, and a timber base level detail.

New 30-minute fire resistance rating option for roof space laminate

Reviewing the roof space laminate options has allowed us to offer an alternative of the lighter, 10mm GIB Weatherline® for systems where 30-minute fire resistance ratings are required.

Option of a 13mm GIB Fyreline® or GIB Weatherline® layer to support longer exposure time

Cost saving through improved systems by replacing the 16mm GIB Fyreline® with 13mm GIB Fyreline® and adding the offer of using a layer of 13mm GIB Weatherline®, which offers a longer exposure time to align with the current offer of 90 days weather exposure of the GIB Barrierline® system.

Two new steel frame options with a 60-minute fire-resistant rating

There are now two new steel frame systems (GBSLAB 60a and GBLSAB 60b) with 60-minute fire resistance ratings available and an STC of 61 and 67, respectively.

Putting it all together, we are here to help.

Detailed illustrations of each new option are included in the GIB® Intertenancy Barrier System literature. In addition, we have added QR codes, which take you directly to a step-by-step animated assembly process.

For further information call 0800 100 442 or visit gib.co.nz/barrierline

By Russell Pedersen, Technical Support and Training Manager

Are We Too Busy Doing Dishes To Install A Dishwasher?

Whilst there are cluster groups there seems to be limited cohesive action across regions and even less across the country on bigger strategic issues such as operating a 'pinching Peter to pay Paul' resource model.

From hospitality to health through to horticulture and everything in between, it seems every week news programs are reporting on skill shortages.

Compounding this, as we have seen in Christchurch, Kaikoura and Buller, following a natural disaster there is an increase in building activity. More recently we have a new term, 'atmospheric rivers' which have impacted Auckland and regrettably the devastating realities of cyclone Gabrielle will be with us for some time. It follows that these events stretch resources and do nothing to help the existing housing shortage but also create a shortage of their own. Noting fluctuations in lending rates, conditions seem right for the boom-and-bust cycle and skill shortage in the building industry to continue in the foreseeable future.

Taking a helicopter view, post the doom and gloom of the global financial crisis of 2007, there was an economic recovery. Covid-19 had all the hall marks of a significant downturn, however the data indicates otherwise. Looking back at the great depression of the early 1930's, it did come to an end. And that's the point, 'what goes up must come down'. The question is not is there a cycle, rather how do we respond to it. What decisions will we make and how will we make them?

The world of the building control manager seems to have several attributes similar to juggling chainsaws crossed with that of a magician. The ability to attract and retain staff can be a magic act in of itself. When we think there will be an economic downturn, understandably managers gravitate to a conservative approach. Putting a halt on recruitment to limit costs, at least in the short term, is an attractive option. Against that view, building control is a long-term proposition, our economy the building industry works in cycles. It takes time for Councils to recruit and then get staff productive, unfortunately you cannot teach experience. Meaning building control also has a skilled labor supply issue.

In recent years the role of the BCA contractor model seems to have been cemented. One factor we see a lot of is staff movement, both between councils and to contractors. When someone leaves a Council but stays within the industry, although a loss immediately for that Council, if the industry retains the skillset that must be a positive. Yet there is a tension.

Financially contractors focus on a revenue stream without needing to supply any of the non profit services TA/BCA must. Some BCA managers have expressed a view at least in part of, 'we train them [the staff] but when they become productive, contractors actively recruit them, then want to sell their services back to us at a profit'. Contractors have a place in the market. It would be unfair to create an impression otherwise. However, BCA's and contractors are different, BCA's don't exist for profit.

Through procurement process there may be a discussion about that contractor not approaching the BCA staff to work for them, yet its only one degree of separation to another Council. As a cliché its 'pinching Peter to pay Paul' and this fits the description of a 'zero sum game', as a business model it seems flawed. But the overriding situation is the Council can be in a position of a distressed client, where they must meet legislative needs but have restricted ability to do so. That is inherently a poor situation and no good for anyone.

It comes about as we focus on our own backyard and the pressures that will bite us first. If we balance our budget, meet the 20-day clock

and retain accreditation, we are doing well. This is an incredibly narrow focus. It's like saying the walls in a house are plumb and square without considering is the house on the right section. It is missing the bigger picture, for example smaller Councils salaries seem insurmountable and overwhelming compared to larger organizations. They then can struggle to attract staff and must rely on contractors irrespective of the cost. Yet in the medium term this is somewhat solvable. The bigger issue is BCA's have legislative authority to act in their regions and are leaders in the industry yet make decisions and act in isolation. Whilst there are cluster groups there seems to be limited cohesive action across regions and even less across the country on bigger strategic issues such as operating a 'pinching Peter to pay Paul' resource model.

Working at Future Skills offers a unique perspective. We look across the country one student at a time. It certainly brings into focus the importance an organization like BOINZ can play. Taking a higher-level approach what would our industry look like if we had a genuine willingness to act together, with a collective strategic approach?

An economic downturn or civil defense emergency is the perfect opportunity to recruit and train new staff before demand increases, obviously this is contrary to a short-term view. It might also increase the bandwidth for smaller councils to pull on the scale of bigger organizations, not because they know someone but through a planned approach. We might even consider technical capacity across the country and how we best utilize workforce resources. Taking a national view to Regulation 8 is something we could do, and if working strategically we should be looking at.

As a point to consider, on such a serious issue in an attempt at humor, turkeys don't vote for Christmas, I guess are we turkeys? As an industry is this a discussion we can have. One thing is for sure, if we do nothing, nothing happens.

Written by Sam Hay, Lecturer at Future Skills Academy

HERA Research Programme

"Developing Construction 4.0 Transformation" Will Revolutionise Aotearoa New Zealand's Construction Industry

Note: Construction 4.0 is a circular construction system with a decentralised connection between physical space and cyberspace via ubiquitous connectivity.

Aotearoa's construction industry reached over $18.1 billion in 2022 and it became the third largest workplace in the year ended June 2022, significantly contributing to the New Zealand's economy. However, it has long been criticised for its low productivity, inefficiencies, and its significant contribution to the carbon emission.

Currently, there is a profound limitation in the way that buildings are built in New Zealand. The principal challenge is that complex decisions with far reaching outcomes that span generations are being made based on 'pre-digital age' practices.

The decision points in the process are traditionally made in linear silos with little inter-connection or data-derived decision support. For example, designers do not have adequate tools to optimise designs for the ease of manufacture/ fabrication, let alone the ability to resolve the conjoint considerations required to deliver design for sustainability, constructability, te ao Māori, resilience and affordability simultaneously.

This challenge requires a complexity science and construction 4.0 approaches to solve these long-standing limitations and to revolutionise conventional construction. Construction 4.0 promises the construction industry with a decentralized connection between the physical space and the cyberspace via ubiquitous connectivity.

HERA in cooperation with research and industry partners have responded to the challenge and successfully secured MBIE Endeavour Funding for developing Construction 4.0 transformation of Aotearoa New Zealand's construction sector. This research will develop a solution to source and use complex system and interactive data sets simultaneously to inform decisions made across the construction value chain that concurrently impact subsequent and preceding steps in that chain.

This research programme aims to deliver high quality research to create a transformation in terms of productivity, quality, affordability and sustainability. It will include key experts from the global research community and leverage international research. It will provide opportunities for Māori enterprises, incorporate distinctive Māori relationships in the industry and create positive impacts on whānau, as well as meet Māori needs in innovation and technology.

This research will link into key emerging MBIE strategies and policies, such as the "Building for climate change" programme to transform the building and construction sector to become climate resilient. It also supports key aspects of the Construction Sector Accord, which is a shared commitment between government and industry to transform the construction sector.

Construction 4.0 research will focus on: digitalisation, design and interoperability; computation of workflows; training and skills in Industry 4.0; and interoperability of product data and BIM models. It will introduce new thinking, technologies, processes, policies and business models to ensure that the sector transitions to Industry 4.0 approaches and delivers a step-change in productivity and technology adoption.

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The methods and results of this project will be integrated into university coursework to support research-informed teaching and wider vocational training and skills development.

The increased adoption of Industry 4.0 technologies within the sector will also lead to new types of innovation which will be based on data collection, management and analysis and involve high-tech development.

By Kaveh Andisheh and Michail Karpenko

MODELDOCS

ModelDocs - Transforming Building Consenting Behaviour for Better NZ Housing

Funded by BRANZ's Building Research Levy, ModelDocs - Transforming Building Consenting Behaviour for Better NZ Housing, understands that a productive building and construction sector will help NZ achieve its well-being and economic goals.

The key is the building consent system which is now under Governmental review. During the consent process, miscommunication between ***Senders*** (e.g., LBPs, architects, designers) and ***Receivers*** (building officers) causes substantial delays.

Our research project seeks to create efficiencies within the system by assessing the behaviours of those who send and receive building consent applications to identify behaviours that promote fast, accurate transmission of information and those that create barriers to efficiency. ModelDocs does not seek legislative or technological change as we look for quick wins through behavioural transformation.

Our research team includes the Auckland Council and the University of Auckland members. It is our belief, and that of our stakeholders (BOINZ, Construction Sector Accord, DINZ, LBP, MBIE, MetroGroup, NZCBA, NZIA, NZRAB, RMBA...) that we can innovate the system and streamline consenting behaviours by developing a set of model documents based on behavioural observations.

We need your help!

We would like to establish a baseline for existing behaviours via a ten-minute survey to selected Senders and Receivers. Click here. Your input helps us understand what types of documentation you think is appropriate against the six BCA competency levels and building code clauses.

Media enquiries to:
modeldocs@auckland.ac.nz

Prof Anthony Hoete, School of Architecture and Planning, University of Auckland

Peter Laurenson, Chair of BOINZ

Peter Townsend FNZIA, Director, Townsend Architects & NZIA Auckland Branch rep

Dr Sarah Cowie, Director of Behaviour Lab, University of Auckland

TRAINING

Join the BOINZ Learning Pathway for Building Surveyors – From Entry Level to Advanced

For continuing professional development, maintaining and extending your skill-set is important

Building Competency and Capacity is the theme of our BOINZ 2023 Conference. Competency and capacity are two sides of the same coin – when staff are knowledgeable, trained and up-to-date with their skills, productivity increases and fewer errors are made. This means less rework, faster problem-solving and less time lost. More gets done and gets done well. Building skill helps building quality.

Helping you grow your knowledge and upskill is the main purpose of The Training Academy at BOINZ. Established in 2007, the Academy has evolved to provide the formal, vocational and practical skills needed to gain and maintain Building Surveyor status. Our courses are backed up by our Continuing Professional Development (CPD) programme – the CPD points you gain recognise the ongoing knowledge, skills and training that build your professional practice and qualities.

The BOINZ Training Academy offers a range of options that recognise the different stages and situations staff are in as learners and workers.

For those entering the BCA environment

For BCA managers it's an investment to bring their new staff up to speed quickly. A great place to start for those new to the BCA environment, with or without a Regulation 18 Qualification, is our two-part Entry to BCA package. This was developed with BCA Managers to help quickly build BCA capacity and capability.

Entry to BCA – Part 1, launched in April 2022, consists of three self-paced online courses that give starters and those looking to enter the industry a grounding in the basics: an overview of the Building Code, the Building Control Process and the fundamentals of writing for inspecting and processing.

Entry to BCA – Part 2 was run first as a pilot in 2022 and is now running with its first official intake through early 2023. This programme offers a cost-reduced combination of Entry Level courses over 12 weeks with our experienced trainers over zoom. It runs technical training in blocks with trainees able to apply their learning back at work in the time in-between. The range of courses includes Ethics, Communication, Building Controls, Accreditation, Plan Processing, Site Inspection, and the individual Building Code clauses.

Watch out for the next intake of this Entry to BCA – Part 2 programme!

At the same time, other learners might need to plug a particular topic gap or work to a different time schedule than that of the Entry to BCA package. For these learners, our Entry Level courses are available to enrol in as one-offs, not just through the package.

For those looking to refresh and extend

For continuing professional development, maintaining and extending your skill-set is important. When you're busy it's easy to put more training on the backburner, but enrolling in a refresher course or training that takes you to the next level of competency will help address time-consuming problems and questions at work.

These learning opportunities are available through our suite of fundamental and advanced courses that you'll find under our face-to-face website training calendar. The courses are available by zoom and may be available in person by contacting Training@boinz.org.nz if numbers are sufficient.

We are still building our calendar of courses for 2023, especially for the second half of the year, so watch out for new offerings coming. We're here to help you and your staff with your learning, so if you have any questions about our training we'd love to hear from you.

National Processing Achieve Extra Low Risk Status

National Processing Limited (NPL) has reached the pinnacle for a processing organisation being assessed against the Building (Accreditation of Building Consent Authorities) Regulations 2006.

Starting in 2017 the owners and management of NPL have had a clear objective that NPL should strive to be the best building consent processing organisation they can be in all aspects - from business practice to staff and ultimately service delivery.

NPL is one of several processing organisations providing services to client BCAs. Some private providers are accredited under the Regulations, and some choose not to be accredited. We chose to be assessed by IANZ and accredited as a mark of quality and accountability and to help improve our business.

The 2022 assessment saw NPL become the first organisation in the BCA Programme to be issued no non-compliances at the time of assessment and subsequently reached the status of becoming an “Extra Low-Risk” organisation, receiving recognition and congratulations from IANZ, MBIE and others.

We are incredibly proud to be the first organisation to be in this position. We are the only BCA/AoB to have no non-compliances under the reformed accreditation scheme post 2017.

Like all businesses NPL do our upmost to serve our client base and are proud to be able to support the industry with professional processing assistance, competent directly employed staff and full insurance cover for our processing staff, and now as the only “high performing, Extra Low Risk” AoB.

We are now working hard to maintain that recognition and continue to be the best we can be.

NPL provide processing support from Res 1 to C3 unrestricted for BCAs across New Zealand and operate from three offices, Waikanae, Hastings and Thames.

NPL is also well supported by its sister company, National Consultants Limited (NCL). NCL is a specialist fire engineering practice which provides peer and regulatory reviews of fire reports, technical support and publishes fire reports for clients.

We are continuing to set the benchmark for others to follow, proving that it can be done and proving that we have the processes, management, and staff in place to deliver a first-class service to our clients.

If you need more information or want to chat about any aspect of our work or working for NPL please drop us a line.

Watch this space...

National Processing Ltd
PO Box 488 Waikanae 5250
04 293 1078

WISS speakers: L-R, Nikki Hart, Michelle Gutierrez-Smith, Kelly Jeffries, Bridget Young

STEEL CONSTRUCTION

Structural Steel Industry Targets Women With New Initiative

Industry body launches initiative to foster gender diversity in the structural steel industry

More than 50 women gathered at the Hilton Auckland last February for the inaugural Women in Structural Steel event.

Hosted by industry body Steel Construction New Zealand (SCNZ), the event brought women together from different backgrounds, different industry roles and different stages in their careers to connect and learn from one another.

"SCNZ is committed to supporting diversity and inclusion," says Darren O'Riley, General Manager, SCNZ. "This initiative aims to encourage women into the industry by creating a welcoming and supportive environment, and showcasing the variety of opportunities within the sector. Ultimately, we want to grow the number of women engaged throughout the industry, year on year."

Last year, SCNZ Services Coordinator Michelle Gutierrez-Smith attended a Women in Leadership summit and was inspired by all of the women and the diversity in the room – age, experience, background and industry.

"I looked at the structural steel industry with fresh eyes," says Gutierrez-Smith. "I want to see more women in our industry; I want to see more women in leadership roles in our industry; I don't want them to be hindered because they are women. It was a catalyst for SCNZ to establish Women in Structural Steel."

Attendees at the event heard from three speakers: D&H Steel Construction's Kelly Jeffries and Grayson Engineering's Bridget Young shared their inspiring stories of thriving in the traditionally male-dominated structural steel industry; and nutritionist Nikki Hart offered some invaluable insights into how to maintain a healthy relationship with food and drink in our busy, modern world.

SCNZ plans to build on the success of the first event and host regular Women in Structural Steel sessions in future.

About SCNZ

Steel Construction New Zealand Inc. (SCNZ) aims to advance the interests of New Zealand's diverse steel construction industry by promoting the benefits of steel solutions in building and infrastructure projects. Members include manufacturers of structural steel and steel products, distributors, fabricators, designers, detailers, galvanisers, and paint and building supply companies. SCNZ provides its members with technical advice on the latest in steel design trends and standards, networking opportunities and a representative voice with key industry and government decision-makers. For more information please visit www.scnz.org.

Top Accolade for Building Surveying Student

Olivia McGregor has landed her dream job and earned a prestigious excellence award since beginning her Building Surveying journey with Future Skills Academy two years ago.

Olivia has just finished the NZ Diploma in Building Surveying with Future Skills. She completed the first year of her diploma in class and the second year on the job.

During her studies, she landed her dream role as a Building Control Officer at the Timaru District Council. Olivia says she loves the variety of the job and the fluid nature of the industry.

"No two days are the same and there is always something to learn."

Just 10 months into her new role, Olivia won the Young Building Control Professional of the Year award at the annual BOINZ conference.

"Winning the award has been the pinnacle and personal reward for sticking with the diploma through both 'in-class' within the first year and then transferring through to 'in-employment' for the second year," she says.

She is thankful to her team at Timaru District Council and Future Skills for the part they have played in her journey.

> *It's hard work, but what isn't? All you have to do is start*

"I work in a very supportive team and winning the award shows the amazing teachings and support that have been passed onto me by the whole team and the Future Skills tutors, which I am extremely grateful for."

Timaru District Council Building Control Manager Jayson Ellis says Olivia has worked very hard in the short time she has been with the council and has been managing many different things simultaneously.

"We are all very proud of her achievements and the recognition BOINZ has awarded her is a result of her hard work and the commitment she has brought to our team."

He says Olivia is a strategic thinker and is always looking at how she can learn from any of the decisions she makes.

"She has slotted into the team seamlessly and is a great source of contagious positive energy."

Jayson says the training Olivia has undertaken through Future Skills has benefitted her wider team.

"Olivia's hard work and commitment have resulted in an increased level of competency, allowing her more autonomy in making technical decisions with less oversight from her team leaders," says Jayson.

"This also increases her level of confidence which allows growth in her role as a Building Control Officer as she works toward achieving dual competency in both processing and inspections."

He can see her progressing into a senior or team leader role as she continues her development into the future.

Future Skills Academy Building Surveying Head of Department, Patrick Schofield, recalls Olivia joining Future Skills as an in-class student in 2021, hoping to find employment as a Building Control Officer.

"Olivia was an enthusiastic student who needed to gain practical Council Building Consent Authority knowledge and experience."

She worked well during the in-class component of her diploma but needed on-the-job experience and a good mentor, which she found when she landed her role at Timaru District Council.

That role provided her with a good launching pad into the second year of the diploma, says Patrick.

"Olivia was a little nervous about the commercial building learning and study needed for year two of the Diploma, although, after a meeting between Future Skills lecturers, and her manager, Olivia committed herself to the study needed and achieved great results."

Olivia says she now looks forward to giving back to all of those who have supported her.

"I feel like winning this award has enabled a platform to provide some ideas that I have for both Future Skills and BOINZ for the betterment of its students and members," she says.

"The networking that the awards ceremony provided was great to be able to meet influential and driven individuals of our sector."

She has some words of advice for those thinking of undertaking a Building Surveying programme with Future Skills: "It's hard work, but what isn't? All you have to do is start, surround yourself with a good support network and then keep ticking things off."

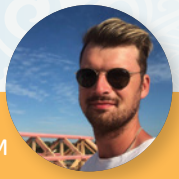
She may even return to Future Skills for some further study herself. She is interested in the Bachelor of Building Surveying currently in development.

"Although this degree isn't a must-have to be able to perform the job, you can never have enough knowledge and I love the saying - knowledge is power."

Future Skills ACADEMY

ENROL NOW FOR MAY

YOUR **FUTURE,** YOUR **SKILLS.**



SAM

"It opened up a whole new aspect of building."

NZ Certificate in Building Regulatory Environment (Level 4)

This programme is aimed at staff at Building Consent Authorities involved in processing and vetting of building consents AND now staff at construction companies, design firms, architecture firms and similar who are involved in the building consent submission process. Join from anywhere in Aotearoa and help build efficiency in the building consent process by reducing RFIs and building timelines. This is the perfect opportunity for your BCA staff as well as the contractors they interact with.

STARTS:	9 May 2023
DELIVERY:	Blended online classes: Week 1: 3 Days Week 6: 4 Days Week 12: 2 Days *Please note that course weeks may differ slightly from actual weeks due to breaks
DURATION:	20 weeks
LOCATION:	Blended online
FEES:	$3,608

DELIVERED IN PARTNERSHIP WITH Building Officials Institute of NZ

0800 550 410
www.futureskills.co.nz

Please contact our Student Recruitment and Marketing Manager Kavi Sewdayal at kavi@futureskills.co.nz or call direct on 027 232 4483

PASLODE

No Surprises With New Positive Placement Nailing System

Look for the 'P' on site! Yes, that's right. 'P' and 'P+' symbols will shout from the trusses that fasteners have been installed in line with the metal connector manufacturer's specifications.

Paslode has introduced a new positive placement nailing system to the market. The new Impulse PPN-Master™ and Paslode's fasteners stamped with a distinctive 'P' and 'P+', work together to provide fast installation and high quality, compliant connections, meeting the needs of builders and building authorities.

This new PPN-Master™ tool is dedicated to metal connector installation. An exposed probe eases into metal connector guide holes pin-pointing accurate placement every time. It is a well-balanced, lightweight, and cordless tool making it no fuss when manoeuvring up ladders and between joists and trusses or reaching into niggly spaces. Also, builders can get perfect depth of drive right every time and can eliminate any chance of plate damage by simply adjusting the depth of drive to suit the application.

The use of power-driven nails to install bracing, tie downs and other connectors is a method worthy of scrutiny from building inspectors. The PPN-Master ™ uses its automated probe to locate a pre-punched hole and install the nail directly through it. The installer needs to cover the hole with the end of the tool for perfect placement, which means even new apprentices can achieve a very high-quality install.

The fasteners are BRANZ-appraised (BRANZ Apraisal number 546). They are durable and meet the performance benchmark for product nails. There's a 35 x 3.15mm hardened round head product nail in both mechanically-galvanised and stainless steel finish for day-to-day bracket applications, as well as a 40 x 3.75mm nail designed specifically for I-Joists found in the more commercial and multistorey builds. The 35 x 3.15mm and 40 x 3.75mm nail heads are imprinted with a 'P' and 'P+' respectively for instant recognition that you are looking at the right fastener for the install. So, when building inspectors, certifiers, and building authorities see the P+ at the head of the nail, they'll know that's a 40mm nail. The spec for an I-Beam is a 40 x 3.75mm nail —so that's a tick.

Adam Dawson, Technical Manager Pryda ANZ says the Paslode Impulse PPN-Master™ and the three approved fasteners are a reliable system for installing Pryda pre-punched connectors.

"In my opinion, the Paslode Impulse PPN-Master™ and approved fasteners provide a higher quality of workmanship in the installation of structural connections than conventional power-driven nails."

Peter Johnston, Paslode's Innovation and Product Development Manager says Paslode's new Positive Placement Nailer will make an impact in the hands of experienced builders and new apprentices and have flow on effects for confidence and speed across the sector. "When it comes to fixing joist hangers, strap bracing and other metal connectors, this is the best tool for the job."

The Paslode and Pryda brands are both owned by ITW Construction Products.

Paslode®

2023 BOINZ CONFERENCE & EXPO

‘Building Competency and Capacity’

22 - 24 MAY
GRAND MILLENIUM HOTEL AUCKLAND

REGISTER TODAY!

EXCELLENCE AWARD NOMINATIONS ARE OPEN!

The Building Officials Institute of New Zealand’s Annual Excellence Awards is a prestigious ceremony where members are given the opportunity to recognise and acknowledge those who stood out and made a difference within the Building Control sector in 2022. If you know someone who has demonstrated dedication and excellence through their contributions to BOINZ and to the profession of Building Control, we welcome your nomination.

Nominations can be completed via our website www.boinz.org.nz or by emailing Vivian at EA@boinz.org.nz.

Nominations close Friday 14th April.

The Awards will be presented at the Conference Gala Dinner on Tuesday 23rd May.

Building Officials Institute of NZ

Conference 2023

22 - 24 MAY 2023

BOINZ CONFERENCE & EXPO

GRAND MILLENNIUM HOTEL
AUCKLAND

We look forward to seeing you there!

Building Officials Institute of NZ