46

SCOPE

NZ METAL ROOFING MANUFACTURERS INC.

SCOPE

NZ METAL ROOFING MANUFACTURERS INC.

JANUARY 2018

Scope is the official publication of
The NZ Metal Roofing Manufacturers Inc.

Executive Officer: Garth Wyllie
Private Bag 92 066, Victoria Street West,
Auckland.1142
DDI Ph: 09 367 0935
Ph: 09 367 0913
www.metalroofing.org.nz

Opinions expressed in Scope do not necessarily reflect the views of the NZ Metal Roofing Manufacturers Inc., its executive, committee members or publisher unless expressly stated.

Published by ICG Limited.
46 Attwood Road, Paremoremo Auckland.
Telephone: 09 413 6242.
e-mail: conceptart@xtra.co.nz

Managing Editors: Warren Oliver, Christine Wilkinson, Chris Back.

If you would like to submit material please contact any member of the executive or the publisher.
Visit our website at: www.metalroofing.org.nz

Below is a brief introduction to the 2018 executive of The Metal Roofing Manufacturers Inc. It is intended that Scope be representative of the Metal Roofing and Cladding Industry in both commercial and residential sectors. Your submission of material you consider is of interest is welcomed be it design, research, manufacture or construction.

PROJECTS

ARTICLES

One of the largest and most advanced manufacturing facilities in New Zealand

SISTEMA

Plastics business Sistema is renowned for its bold and innovative approach and that attitude has continued through to its new state-of-the-art facilities near Auckland International Airport.

On a 9.6ha site, the 52,000sq m building is one of the largest and most advanced manufacturing facilities in New Zealand, producing clever food storage solutions. The new facility has also enabled Sistema to consolidate all its operations from six buildings around Auckland under one roof, as well as serving as international headquarters for the company.

Designed by Woodhams Meikle Zhan Architects and built by Haydn & Rollett, the building is definitely big but it is also beautiful according to the judges of the prestigious Property Council New Zealand Rider Levett Bucknall Property Industry Awards.

The Sistema manufacturing facility received the Rider Levett Bucknall Supreme Award, after being awarded the ‘Best in Category’ for the Yardi – Industrial Property Award.

▶

“The project is world-class and demonstrates a high level of consultation and collaboration between the design teams, builder and occupier.”

Featuring a strong operational focus, the building’s design was lauded by chief judge Andrew Evans due to the attention given to all aspects of work flow, future flexibility, divisibility and expansion. he said.

“I am also delighted to see the Supreme Award go to an industrial development that is pushing the boundaries in design and functionality, delivering the most significant industrial building in New Zealand.” Mr Evans added, “The project is world-class and demonstrated a high level of consultation and collaboration between the design teams, builder and occupier.”

Steel Roofing’s managing director Brent Botha says his team was not only involved in installing the flowing roof but also included in the design process, helping construction company Haydn & Rollett to streamline the roof concept before the final design stage.

He says this meant the client benefited from savings in time and money with a building programme that ran smoothly.

Steel Roofing used Maxispan in ColorCote ZinaCore® X ‘Pacific White’ for the roof, while large parts of the building were clad in Multirib ZinaCore® X Double Sided (also in ‘Pacific White’), both sourced from Roofing Industries.

Paul Ross, of Roofing Industries, says the Maxispan high rib roofing provides better spanning with a low pitch and wide cover, which further reduced installation time. “And ColorCote ZinaCore® X has outstanding colour and gloss retention and is ideal for industrial sites where there is a high risk of deterioration from corrosive elements in the environment,” Ross says.
“The combination of the two products resulted in a roofing and cladding system that combines strength and longevity with good looks.”

A curved façade reminiscent of the ‘Sistema blue clip’ greets visitors to the new building, which has 47,000sq m of manufacturing, storage and distribution space as well as 5000sq m of offices and ancillary rooms.

The two-level office building façade has aluminium joinery suites with tinted reflective glass and aluminium composite panel cladding.

The ground floor, with dark tinted glazing and black aluminium joinery, is visually recessive. In contrast, the first floor offices with reflective glazing and white aluminium composite panel cladding, appear to float as they are cantilevered over the ground floor. With curved/faceted corners, the first floor building form flows from end to the other.

The main entry to the office block is centrally located and signified by a wide, curved opening. The main body of the building also has contrasting colours and materials, being clad in pre-cast concrete panels with the Multirib cladding above. This arrangement is interrupted by full height pre-cast concrete portals painted in ‘Sistema Blue’ that are clearly numbered and break up the bulk of the building. Vertical groove lines at 1m intervals in the concrete wall panels establish a connection with the profile of the metal cladding above.

▶

"The functionality of the design ensures a smooth and logical flow of materials, people, and resources through the production process, facilitating the efficient operation of a world-class business,"

The structural grid design of the building was based on the size of the machinery it had to accommodate for the production line and gantry cranes.
A mixture of traditionally reinforced, fibre reinforced, combislab and post-tensioned concrete floors with epoxy coatings were used to meet the varying demands of the facility.

A double-pitched roof structure was used to achieve maximum building volume while staying within height restrictions.

Tapered steel portal frames with high gloss enamel paint were used to provide clear spans of 80m between columns. The portal structure in the production area allows for the use of gantry cranes that can be removed in future to allow this area to be used for storage and racking.

As well as catering for the practicalities of such a facility, the aim was also to create a sense of arrival for visitors. At reception, visitors can see the production floor through full height windows, and can be taken on a walking tour around the facility following a coloured walkway route. The layout of the route and the building means visitors are slowly introduced to the inner workings of the building: production lines, plant rooms, tool rooms and research and development stations.

The interior is all white with high gloss surfaces to create a sense of space, calm and cleanliness.

Woodhams Meikle Zhan Architects

Since its launch in 2001, Woodhams Meikle Zhan Architects (WMZA) has grown to become one of the large architectural practices in New Zealand. The firm specialises in the master planning and design of retail, commercial, industrial and large scale residential projects both in New Zealand and internationally.

With a diverse client base including property developers, corporate organisations, retailers and hospitality outlets, WMZA can also supply a complete turnkey operation: from initial bulk and location schematics to the final interior design package. The practice has its own interiors division, with experience across retail, hospitality and workplaces.

Architects: Woodhams Meikle Zhan Architects
Auckland and Christchurch
Ak Telephone: 09 377 5215
E-mail: design@wmzarchitects.co.nz
www.wmza.co.nz
Building Contractor: Haydn & Rollett
Auckland
Telephone: 09 444 7379
E-mail: info@haydnrollett.co.nz
haydnrollett.co.nz
Roofing Manufacturer: Roofing Industries Ltd.
Telephone: 09 414 4585
E-mail: office@roof.co.nz
www.roof.co.nz
Roofing: 0.55g Maxispan ZinaCore® X
in ColorCote 'Pacific White'.
Cladding: 0.40g Multirib ZinaCore® X
Double Sided in 'Pacific White'.
Roofing and cladding installer: Steel Roofing Ltd.
Telephone: 09 415 8060

The beauty of the site is that you wouldn't know it was there

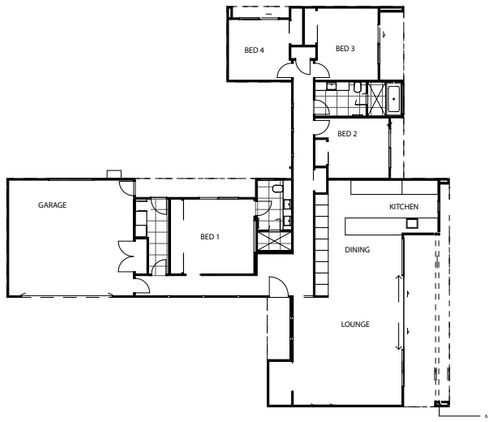
LITTLE OASIS IN THE CITY

The concept for this home was simple: a shed in the bush.

But the site – down from the road in a gully with a stream – posed some design challenges.

As architectural designer Noel Jessop says, "With the fog and weather patterns we already have in Hamilton, building 15m below the road down in a valley the big worry was that the house could be cold and damp. "So we tried to push the house back as far south on the site as we could to get the sunlight in but that was restricted by budget and factors such as the stream below."

▶⋙



The ribbed profile is a sharp look
and the black highlights the warmth of the cedar in the recesses.

He adds, “But the beauty of the site is that you wouldn’t know it was there even though it’s only a couple of minutes drive from the city. It’s on the outskirts in a rural area that borders south east of Hamilton and you drop down to it from the road and it’s in its own little oasis surrounded by trees and bush.”

He says he walked the site with the owner, with the layout and the shape of the 228sq m home being determined by the stream running at the back.
“We went through two seasons before building got underway and not a lot changed between the concept stage and when building began.”

Noel says the home was oriented to face north – up the slope to the road - to bring in as much sun as possible and to provide view shafts of the site. With an insulted ribraft floor, the home is double glazed and insulated above code. The northern glazing has been maximised for solar gain, while glazing on the southern face has been kept to a minimum.

Louvred windows form narrow vertical slots in the walls and provide efficient ventilation.

Noel adds, “Although budget was a constraint and we tried to keep the home simple, the family has three young boys so the home had to be durable.

“We used ribbed roofing and we also clad big areas of the house in the ribbed profile because it goes up quickly and easily and is durable. The ribbed profile is a sharp look and the black highlights the warmth of the cedar in the recesses.

“You look straight down on the property so you do see the roofing and cladding more than most houses that you approach from ground level so we wanted a simple house that sits well with the land because there is already a lot of detail in the bush and the greenery around the home.”

Noel says using the ribbed profile was all about ease of construction – meaning they could use a truss roof and lay the roofing at a pitch of 3 degrees, with external gutters and all rainwater running to the rear of the house.

A compact design was used to position all living spaces and bedrooms with direct access to the exterior and the bush beyond.

“With the three young boys it was important to have a connection from the house to the land so they could run in and out, and ride their bikes on the deck.”

The layout of the home, with the boys’ bedrooms in one wing and the master bedroom behind the living spaces means the parents have their own private courtyard.

Inside, the home is also designed with durability in mind with distressed oak floors and tiled bathrooms, while the kitchen has tiled areas and stainless steel bench tops.

“They allowed the kids to get involved with choosing colours in the main bathroom so that has blue tiles, while the master en suite has a black and white colour scheme.”

Noel Jessop Architecture

A boutique architectural practice, Noel Jessop Architecture is passionate about designing modern, contemporary architecture for the residential and commercial sectors. “Our studio is a space of quiet achievement. We spend time listening before we create positive environmental change to enrich the lives of our clients. We are passionate about what we do, and have had our work recognised numerous times over the past 17 years.”

Architectural Designer: Noel Jessop Architecture
Hamilton
Telephone: 07 854 6635
www.nja.co.nz
Cladding and roofing manufacturer:
Dimond, Hamilton
Telephone: 07 847 3159
Profile: Dimond BB900
Colour: ‘Ebony’.
Roofing and cladding and roofing installer:
Westgate Roofing
Telephone: 07 850 9407
www.westgateforroofing.co.nz
Builder: Straightline Construction
Jason Fletcher
Telephone: 021 829 321

SAINT BARTHOLOMEW'S CHURCH: A CHURCH ON THE MOVE

St Bartholomew's Church dates from 1855 and is the oldest timber church in Canterbury. It was designed by the renowned architect of the day, Benjamin Woodfield Mountfort and followed an earlier timber and brick church, located in Lyttelton, in the South Island. This particular church had been destroyed by high winds and this event influenced the "A" frame design of St Bartholomew's. Little did Mountfort know at the time the strength of his design would also be subjected to, and tested by, the September 2010, 7.1 magnitude Christchurch earthquake felt in the Kaiapoi region 150 years later.

Four years after the building was completed, in 1859-60, the sandy sub-soil beneath the church began to subside and required the entire building to be relocated to a more stable site. Years later, as a result of the earthquakes of 2010 -11 the foundations to the church settled and a decision was made to move the church yet again. This time the move was only a temporary measure while new foundations were constructed. Once the work to the foundations had been completed, the church was moved back again. It is now fondly referred to locally as "a church on the move."

Dave Pearson, of DPA Architects in Devonport, was appointed by the Christchurch Anglican Church Property Trustees to repair the damage caused by the earthquakes and remediate any deferred maintenance. The practice specialises in heritage building conservation and is committed to preserving New Zealand's history and culture.

Suzanne Price, manager of the Recovery Programme for the Anglican Church Property Trustees, speaks highly of the expertise and commitment Dave brought to the project. "As the project progressed it was discovered that many unforeseen aspects of the building required attention. A decision was made to completely refurbish the building rather than do a "patch-up" job that would require additional work in the future. Dave's passion for heritage buildings proved invaluable in the execution of the various work required."

This work schedule was extensive and included virtually every part of the building from the foundations to the belfry and much of what was in-between.

Suzanne's passion for St Bartholomew's Church is also evident as she explains, "As a child I was raised in Kaiapoi and St Bartholomew's Church was my church, the church I attended, grew up with and loved. I was fortunate to be a part of the restoration team. The repair and restoration has been enormously challenging but it is wonderful to see how it looks now with a new roof, a complete repaint, restored windows and the magnificent interior timber beautifully oiled and restored."

Our insurance funds covered only part of the earthquake damage costs. The Canterbury Earthquake Heritage Building Fund grant met the balance of the EQ repair costs with the Lottery Grants Board Environment and Heritage Fund meeting the restoration costs.

Once the decision was made to move the church to enable a complete rebuild of the foundations, all the heavy items such as the church pews and the fragile, and precious, church organ had to be removed from the church for safe keeping.

Working at height on such a steeply pitched roof is not for the faint hearted

The soft corrugate profile of True Oak provided the perfect solution

The church was moved by Heritage House Relevellers and managed by director Lindsay Smith. It was jacked off its original foundations using pneumatic jacks and steel whalers were then placed beneath to support the building. Wheeled bogies were positioned under the whalers and the building was pulled along timber rails. “Once up on its rail track the building was moved aside surprisingly quickly,” says Suzanne. “It seemed to move at about one metre every five minutes and was quite spectacular to watch.”

The original intention was to replace part of the roof and then to repaint the entire roof. As with many restoration projects what lay beneath the existing paintwork was not apparent until work started. The existing roof had been treated, at some time in the past, with a bituminous product and even after extensive preparation it was impossible to remove. The new paint would not adhere to it and simply blistered off on the entire east side of the roof. As this is a very steeply pitched roof, and repainting it in the future would prove expensive and difficult, a decision was made to reroof the entire building using a pre-painted corrugate profile to match the original profile. The soft lines and colour of Roofing Industries “True Oak” met the brief perfectly.

The timber belfry is an intricate structure supported on posts that go through the roof to be connected to the main roof beams. There was considerable decay present in some of the timber members both within the belfry and the church below and the decision was made to remove the belfry for repair and restoration. The belfry was craned off the building and both it and the church were repaired, both no small feats.

Once the belfry was restored a decision had to be made about water proofing around the timber supports. Previously lead was used to flash around the posts and it was recognised that there could be metal incompatibility issues between the lead and the new corrugated roofing. In reality, there was no alternative. If and when corrosion occurs, and some sheets of corrugated steel immediately below the belfry need to be replaced, it is seen as an acceptable risk, given the alternative of regular painting.

“The lead flashings on the belfry are a work of art and well worth preserving despite the possible drawbacks”, says Suzanne,” and considerable care was taken to isolate the two metals as far as possible”.

The sheathing of the belfry presented another potential dilemma. Originally, the belfry, like the roof of the church was apparently clad with timber shingles. At some stage the church was reroofed with Marseilles clay tiles and the belfry with a zinc coated steel pressed into a “fish scale” pattern. Although it is no longer possible to obtain pressed zinc sheets, similar patterned sheets are made in Australia from aluminium. Again, there were potential issues with incompatibility, and the sheets had to be well painted to reduce any risk of failure.

The stained-glass windows in the church are in themselves works of art that are highly valued by the parish. The windows within the sanctuary are believed to have been made in London around 1883 and feature the Sermon on the Mount and the Four Evangelists. The windows at the end of the nave are leadlights which may date from the time the church was originally constructed. Some damage was caused to the windows by the earthquakes and work was required on all of them. The stained-glass windows and the leadlights at the end of the nave were temporarily removed and restored by Graham Stewart of Stewart Stained Glass in Loburn, Canterbury. The leadlight windows in the two transepts were completely rebuilt.

▶

The original woodwork of the interior has been restored, oiled and returned to its former glory by highly skilled master craftsmen

St.Bartholomew's Church: Restored and back home.

The church is reputed to have been constructed of Totara and Black Pine (Matai) obtained from the nearby bush. These timbers were probably used for the main structural members. Kauri is also present, complete with evidence of termites, now hopefully dead. The external walls appear to have been sheathed with Kahikatea, a timber that is less durable and susceptible to borer attack.

Over the years, water had caused decay in some of the structural members. All decayed timber was removed and Purple Heart, a sustainably milled timber from Central and South America, was spliced into existing sound timber members.

"The main contractors on the project were Simon Construction and the carpenter on the project was a true craftsman and did an exceptional job of the timber restoration," says Suzanne, " particularly given our very limited budget to complete the project."

The interior of the church is magnificent and belies the rather plain and humble exterior. Beautiful solid beams and braces together with the completely sarked ceiling gives a warm and friendly ambience befitting a place of worship. As part of the project, the entire interior of the church was oiled and brought back to its original glory.

St Bartholomew's Church spokesman, Stephen Walters says, "The project has been "a ground up restoration", from repairing native timbers, such as kahikatea used in the original build, to fixing the "precarious" steeple and belfry. There isn't one aspect of the building which hasn't had attention and it is all the better for it. It is now preserved for future generations, but it's not a museum, it's a working space that we all enjoy."

The Anglican Church Property Trustees have 290 buildings held in trust. 234 sustained earthquake damage in the Christchurch earthquake including 50 of the 55 vicarages. Of these 152 projects have been completed with 20 in progress and 30 in the planning stages.

DPA Architects, Heritage Architects

DPA Architects was founded by Dave Pearson in 1996 with the aim of providing clients with expertise in heritage architecture.

Since that time, DPA Architects has become one of New Zealand's foremost architectural practices specialising in that area. The practice continues to strive for excellence in architecture and seeks to provide the best possible outcome for its clients. Various architectural and heritage awards including a UNESCO Asia Pacific heritage award have been received for a number of projects.

DPA Architects has also developed a high level of technical expertise through involvement with a large number of projects ranging from large commercial projects to small domestic alterations. Projects have included restaurants, churches, educational facilities, town halls, railway stations, dwellings, historic military buildings, museums, theatres, office buildings, community facilities, cemeteries, old hotels, and courthouses.

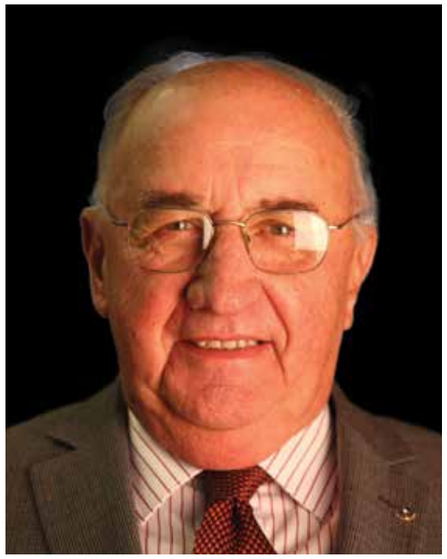
The practice has been closely involved with the Christchurch rebuild since the earthquakes in 2010-2012. As a result, we have developed considerable understanding of building behaviour during earthquakes as well as extensive experience in retrofitting buildings to resist seismic forces.

Heritage buildings are often required to meet current design standards. DPA Architects are experienced in the upgrading of these buildings including the provision of disabled access.

Architect: DPA Architects
Dave Pearson. Devonport
Telephone: (09) 445 8544
http://dpaarchitects.co.nz
Roofing Installer: Newfield Roofing. Christchurch
Telephone: 03 335 0077
http://newfieldroofing.co.nz
Roofing Manufacturer: Roofing Industries Christchurch
Telephone: 03 339 2324
E-mail: south@roof.co.nz
www.roof.co.nz
Profile: 0.40 True Oak® ZinaCore® in Grey Friars
Moving church: Heritage House Relevellers Ltd.
Telephone: 021 868 338
http://heritagerelevellers.co.nz
Main Contractor:
Simon Construction Ltd

TONY BARBARICH

"When he spoke, people would listen. He always had a lot of common sense and could sum up a situation well."Brian Cosgrove



People who know the Auckland octogenarian and New Zealand Metal Roofing Manufacturers life member Tony Barbarich, Director – Business Development, MetalCraft Roofing, Auckland, tend to use the same descriptions when talking about him. He never loses his cool, talks sense and people listen to him.

TONY Barbarich has been working for 65 years and the 34-year executive member of the New Zealand Metal Roofing Manufacturers is not quitting yet. Even more remarkably, if he were to start his working life again, he'd do it all again.

His father was a Northland gumdigger when Tony was born in Mangawhai in 1936. He was 10 when his parents opened a fish shop in Hobson Street, Auckland and he attended Marist School Vermont Street and Sacred Heart College.

In February, 1952, he started with Winstone Group as an apprentice motor mechanic. He worked his way up, and up, and up until he was managing a huge fleet of 250 vehicles. Just over 30 years later, his last role there was Corporate Distribution Manager which included all transport, distribution and vehicle purchasing operations..

In 1983, he moved into roofing when he was appointed general manager of Dimond Industries, Winstone's roll-forming subsidiary. He was quickly on the executive of the Metal Roofing Manufacturers, a post he still holds.

The shift came because Winstone believed in moving appropriate senior managers about the company to lead and gain additional experience in subsidiaries. Fletcher Challenge acquired Winstone Group in 1988. It had its own roll-forming business, Brownbuilt, which he integrated with Dimond. In 1989 he became general manager of the combined organisation, known eventually as Dimond Industries.

He was appointed President of Fletcher Challenge Steel International in 1994, and set up and ran the export steel business, a job which required a great deal of travel, particularly in Asia.

Then in 1996, he was appointed General Manager of CSP Pacific, the civil engineering steel products and galvanizing operations of Fletcher Challenge.
In 1998, he retired from the company, aged 62.
"I was really going to retire and maybe take on some consulting work on a casual basis," he said.
But he was tapped on the shoulder by United Industries, a group of companies, one of them being MetalCraft Roofing where his role was Director-Business Development. Once again, he was back in roofing, although not full-time. "It's a three-days-a-week job. I've been here ever since."

When he started, there were four branches in Auckland, Hamilton, Palmerston North and Christchurch. Today he assists the Group managing director, John Williams, with running the national MetalCraft operation over its 12 branches from Whangarei to Cromwell.

"We grew the business and then we added branches," he said. Its work is substantially in residential but it undertakes commercial work where required or where a specialist product is needed.

The challenges were no different than those other roofing companies faced. "We've been through the era with a big emphasis on occupational safety and health," he said. "That was quite a big item for everyone in the roofing industry to get their heads around, to implement all of the changes that were required to comply with all the new rules."

The company had to train all its people how to work at heights. It also had to make sure they were trained in the use of safety and related equipment. "In the factories, we've had to go through the process of putting guarding on all of the machines. That's all evolved over the past five years."

Introducing new products always brought issues to resolve. "We've introduced a lot of new profiles into the market. They individually have their own challenges when you introduce them. But they've all bedded down now."

The arrival of less expensive imported coil which meant increased competition had been another challenge. "We buy generally New Zealand-made coil."

One of the bigger and more interesting jobs was for Fonterra at its plant near Hawera in 2014, which required an on-site roll-forming machine. Lengths of up to 63m were manufactured on site and lifted into position using a specially manufactured beam. In all, the job had 33,000 sq m of roofing and cladding. "But we have a number of interesting, regular jobs particularly with our Espan® profile which is tailored towards architectural design. A number of our jobs have been featured in Scope."

Tony has had considerable influence in the MRM as a member of the executive since 1983 and president on two occasions, in 1987-1988 and 1997-98. He believes MRM has done a lot of good work, probably more so in the last decade.

One important piece of work where he was heavily involved was in writing the Metal Roofing Code of Practice. The work was started by the late Stuart Thomson and Brian Cosgrove, of Timaru, and when the latter retired from the executive, Tony took over. "Tony was a great watchdog in that role," said Brian, who had followed his father into the business through Dan Cosgrove Ltd, a company he operated until 2014. The implementation of the COP required considerable liaison with other industry groups so that standards were consistent. Once written, it meant the metal roofing industry had demonstrable standards of workmanship.

Brian first met Tony in 1983. "When he spoke, people would listen. He always had a lot of common sense and could sum up a situation well." He was also methodical and keen to see the association followed the industry guidelines.

"That was one of the most significant undertakings we've made as an association," Tony said of the Code of Practice. " It's being updated at the moment but it's really ended up being the Bible of the roofing industry. It was probably a four or five year project from start to finish, done on a part-time basis, as those on the executive are."

Stuart Hayman, the MRM's consultant on technical issues since 2009, is another who has worked closely with Tony for a long time on technical issues and external relations. A long-standing member of the Technical Committee, Stuart's early memory of Tony was that seemed to be on every committee existing. Resolving technical issues has become a vital part of the MRM's work and even though Tony was deeply involved in the political side of the business, Stuart had never seen him lose his cool. "Tony is a very well respected and senior member of the industry," he said.

A huge challenge for the association arose in 1985 when coloured steel roofs came on to the market. They were immediately popular but fading issues arose. MRM, under President Darrell Back, of New Plymouth, and fully supported by Tony, had become a more pro-active organisation rather than one loosely representing the industry. Darrell recalled: "The first big challenge we had was a massive paint failure on pre-painted roofs. Tony was very much to the fore in that and we actually managed to get the paint companies internationally to take responsibility for the paint fade, instead of the rollformer companies."

The astute businessman had other skills that served the association well, such as good contacts in

▶

If he had his time again, would he take the same path? “I probably would,” he said, chuckling. “I obviously enjoyed it because I continue to do it.”

the likes of MBIE. He had spent six years on the Building Research Association of New Zealand (BRANZ) board.

Tony and Gary MacNamara instigated Scope magazine in 2002 to provide a contact point with the industry and to showcase what members were capable of. From 20 pages, it grew to 42. Gary, Auckland manager of Edwards and Hardy Roofing, who enjoyed a long association with Tony, worked with him on that project.
At the time, MRM was debating what value it delivered to members. There was core value around the code of practice and compliance but how could it promote specification of steel over other products? “It was from that background that Scope magazine originated,” Gary said.
It became a magazine to celebrate the use of steel and, through articles and photographs which showed what members were doing, encouraging customers, clients and architects to be part of that celebration.

Tony was always supportive of anything that added value to members, Gary said. “He wore an MRM hat while he was engaged on MRM business and then wore a MetalCraft hat when he was engaged on his general duties.” He admired Tony’s ability to handle his two roles – “A lot of people struggle with that.” His focus was to add value to members via MRM, a desire that flowed on to other projects. Gary found him a grounded leader, sensible, straight-talking and not given to playing games.

He would bring his wife, Maureen, to conferences, and family was clearly a big part of his life. So what’s next for Tony Barbarich? When will he retire for the second time? “I will one day,” he said. “I’m not sure when. I enjoy the work.”

Where does he see roofing going?
“I think we will always see metal roofing used in both the commercial and residential market. I don’t see anything taking it over. I see that as a long-term situation,” he said.

When he started his working life, he never envisaged ending up in the roofing business.
“I thought I’d probably be staying somewhere in the transport industry. But I’ve ended up probably doing 50 percent of my working life in transport and 50 percent in roofing.” If he had his time again, would he take the same path? “I probably would,” he said, chuckling. “I obviously enjoyed it because I continue to do it.”

In his leisure time, he follows his interest in classic cars, particularly British MGs. He goes on regular runs in his MG CGT and 2004 MG TF. He’s been a member of the Rotary Club of Otahuhu since 1990, was president in 2000-01 and is a Paul Harris Fellow. He and Maureen have one daughter, four grandchildren and one step grandson, aged from 29 to 16. “Obviously, we have an interest in what our grandkids are doing.”

That has already taken them afar, watching granddaughter Ainsley Thorpe, 19, and grandson Trent Thorpe, 21, representing New Zealand at the World Triathlete Championships in Holland.

“We keep an eye on them.”

We had to raise the house because of floods - the river seems to flood more post-earthquake

RECOVERING FROM THE EARTHQUAKE...AND THEN A FLOOD

Like a lot of Christchurch homeowners, Phil Grey and his family were left in limbo when the earthquakes hit the city in February 2011.

The family bungalow and section beside the Heathcote River was substantially damaged beyond a full repair and was deemed a rebuild. Phil, an architect with Warren and Mahoney, says, “After the earthquakes, we sustained a lot of damage to the house foundations and the site changed dramatically with natural water springs appearing.”

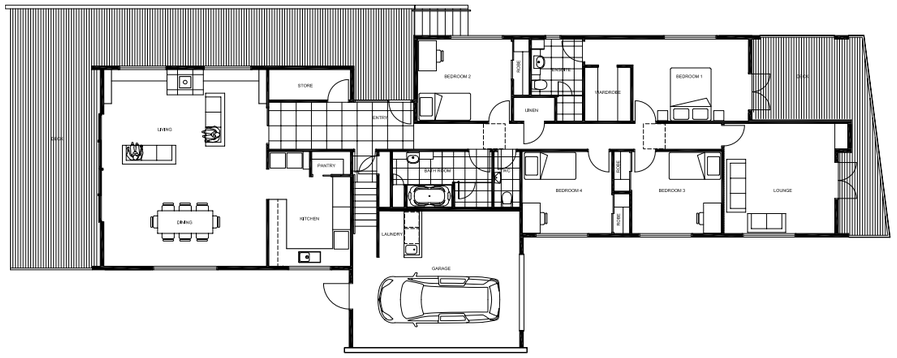
“Initially we didn’t know whether to stay here or move on but in the end, we decided to demolish the house, repair the damaged land, deal with layers and layers of bureaucracy and took the opportunity build a bigger house for our family of five.
“We knew that there would be risks in building on this particular piece of land but it made sense financially and especially with the location by the river.

So the family home of 15 years – a 110sq m, timber-framed bungalow - was demolished and work began on getting the section ready for a new 240sq m home for Phil, his wife and three daughters. “The brief evolved purely from what was required: four bedrooms, a separate lounge for the kids and the living spaces at the rear of the property, which is west-facing,” says Phil. “With a long, narrow site the house was always going to have a linear orthogonal form.”

To prepare the site for the house, Phil says they had to create a 700mm-deep gravel raft foundation base. The remediated land was so effective and hard, that the builders had to use a Kango hammer to dig holes for the formwork. “We had to excavate all the poor soil and install a series of drainage pipes under the raft as there are permanent springs that needed to be diverted. A de-watering system was

▶

Because it's such a long form I wanted to move away from horizontal weatherboards and give it some verticality with the cedar cladding and the Espan®.



installed during construction that was so effective it drained all the adjacent properties for a period of time. On top of the gravel raft was laid a 150mm-thick reinforced concrete slab with the house sitting on 1.2m-tall piles set into the concrete slab.

"Specific council requirements meant that we had to raise the house floor level as the area was now in a Flood Management Area - the river seems to flood more post-earthquake and by raising the house, it allows for the house to remain liveable should the predicted global warming increase water levels," says Phil. "Should there be another earthquake and the house moves or settles it can be consistently levelled relatively easily because all the piles are uniformly tied into the slab." Phil says raising the house did create complications such as factoring in shadowing of neighbouring houses and working out the necessary setbacks from the boundary. "Apart from that, we located the front of the house where the old house was to maintain an alignment with the existing street scape.

Designed in two gabled pavilions with the entrance in the middle of the two, the house has four bedrooms and the kids lounge in "Part A" on the street frontage, while "Part B" has the kitchen, dining and living space. A recess in the house's east façade creates space for a sheltered, glass-balustraded deck facing the street outside the master bedroom, which has a walk-in wardrobe and ensuite.

A deck begins at the entry between the two pavilions and runs down the side of the house, wrapping around the west facing living area.

On the opposite side of the house to the entryway is an attached, flat-roofed garage. Phil says the two pavilions have a different façade look to define the function. "The front pod is a full wrap in Espan® with cedar-clad gables while the pod at the back is cedar-clad with an Espan® roof because I wanted to create some differentiation in the areas rather than just have a monolithic black form." He adds, "Because it's a relatively long house, I wanted to move away from horizontal weatherboards and give it some verticality with the cedar cladding and the Espan®. "And the wide metal tray for the cladding and roofing gives a unique, timeless look that is comparatively maintenance-free."

The front pavilion also has two chimney-like light wells and a vertical cedar battened façade that breaks up the east façade "Again, it breaks up the roofline and there's nothing better than having natural light into a home," says Phil. "There's a light shaft up to the overhead glazing, which is 900mm square so it gives you a decent view that goes up from the corridor and you can look up to the sky. "

In the rear pavilion Phil says he chose not to opt for an open plan kitchen/living area. "My kids like cooking and if you have an open plan kitchen you have to keep it tidy," he says. "With an open plan kitchen you are also restricted with wall space for cupboards." The living has a skillion roof with exposed beams as a point of difference.

Phil says while he wasn't aiming for a super energy-efficient home, he opted for 150mm-thick framing to accommodate extra insulation. "It also helped with the design of the windows as they are 'punched in' to the facade. As well as thermally broken double glazed windows, the house has hot

water heat pump-powered radiators in the rooms and a low-emission woodburner in the main living space. As Phil explains, underfloor heating wasn't an option with the house due to the timber floor construction.

While Phil designed the home to withstand inundation of the site, he wasn't expecting it to be tested so soon with a big flood coming through in July. "It was quite scary; the old house wouldn't have coped with it and it would have been touch and go if the house had been any lower."

Phil Grey

With Warren and Mahoney since 2005, Phil was made a principal in the Christchurch office in 2008. Phil's experience includes leading design and documentation work on some of New Zealand's most significant health and retail projects. He likes to engage in a holistic role of design, documentation, and contract administration to be the complete project champion.

Warren and Mahoney is an international architectural design practice based in Australia and New Zealand. With a 65-year history and a 300-strong team, the practice has been recognised with more than 300 awards for work ranging from commercial developments to landmark public buildings.

"Our design vision is built on the understanding that the most authentic, successful and enduring projects are those that reflect the shared identity of their users. Our work strives to capture social and cultural identity in ways that resonate with communities and enhance a sense of belonging."

Architects: Warren and Mahoney. Phil Grey
Telephone: 03 961 5926
warrenandmahoney.com
Roofing Manufacturer: MetalCraft
Profile: Espan® 340
Colour: Ebony
Roofing and cladding installer:
MetalCraft Christchurch
Builder: Quigley Developments Ltd

NZMRM WORKING IN STANDARDS DEVELOPMENT.

The Standards process has been well understood and existed as an independent, industry initiated, developed and managed operation outside of Government control or involvement in NZ for over 70 years.

In previous articles we have discussed the role Standards play in providing a framework for regulation of all sorts of products, systems, safety in many industries, and specifically how it does this for the building industry. Standards NZ have covered the new relationship with MBIE, and its transformation from a stand-alone service provider to being a business unit within MBIE.
We have discussed the quite large number of Standards, NZ, Australian and joint and some ISO, which cover the materials and systems we use in producing roofing systems which comply and which comply with the NZBC.

In this final article we will cover the Standards in which NZMRM Technical Committee members have been involved, and discuss where these are at. Participation may be as a member of a Standards Committee, or by submitting into the Public Comment process, (which can be as effective in bringing comment to the Committee as being on the Committee itself – and with less restraint).

I have previously discussed the difference between NZ and Australian standards committees.
In NZ, a committee is set up for a specific project. Once is has been decided (now by MBIE) that a new Standard is needed, or an existing one needs to be revised or amended, then committee members representing various organisations are nominated by these organisations. Once the project is completed the committee is disbanded.

In Australia, various standing committees exist over some (sometimes many) years and these cover a range of apparently related standards. Members come and go, but there is a continuing core of people who can remember the past.
We have served on both types, and both have benefits and disadvantages. Overall the standing committee has the benefit of covering several related standards, and of some continuity of membership.

A - Standards we have worked on as committee members

NZS 3604 -Timber framed buildings - (restricted to 10m maximum height i.e. residential or light commercial buildings) 1999-2000 completed in 1999 and amended in 2000; and 2009-2011, completed in 2011. This is the primary NZ standard affecting all residential and smaller commercial building construction and is effectively a very large Acceptable Solution, compliance with which is regarded as complying with the NZBC.

In 1999 we only became involved in the final stages of development of the Standard, and MRM's primary concern was the specification of purlin and batten fasteners where we were able to achieve what we regarded as a more practicable outcome, which was published (with some other changes) in 2000 as Amendment 1.

In 2009 we were involved from the beginning and contributed in a number of areas.

A primary concern of the committee was the strength classification of timber caused by significant degradation of pinus radiata quality in the intervening 10 years and we now have three strength grades. Here the previous single grade was classified as the lowest, and there are now two grades above this – with the strongest having limited availability.
(All the more reason to use steel framing!)

Other concerns were with durability and location of fasteners and the corrosion zones in which materials are used (different to those for external materials), and at a late stage the assessment of ground stability (following the Christchurch earthquakes, after which it became clear that the previously used zoning was incorrect.)

NZS 2295 Permeable pliable building underlays (i.e. does not include foil underlays or other vapour checks/barriers) 2005-2006 (Chair) and 2016-2017 completed in 2017.

In 2006, this was a belated update to the 1988 version, which was in itself derived from a 1972 British Standard. We had instead been using and calling up relevant bits of AS/NZS 4200.1 1994 (see following) as being more up to date, but 4200.1 did not properly cover permeable underlays, which are the predominant product in non-industrial buildings in New Zealand. So the 2006 version was a complete revision of tests and specification, and allowed the inclusion of synthetic wall underlays, which by then were in wide use and not covered by any Standard. It still only provided for kraft based roof underlays.

In 2017, NZS 2295 was amended to include provision for synthetic roof underlays, by now in wide use and widely accepted as an Alternative Solution to the NZBC.
This is now ahead of 4200.1.

AS and AS/NZS Committee BD-058 Thermal Insulation

AS/NZS 4200.1 Pliable building membranes and underlays – Materials (includes foils used as vapour barriers, or thermal insulation, or lighting improvement – not used for residential in NZ) Revision, completed in 2017, but while including and specifying for permeable underlays, and covering the permeability of synthetic underlays, still does not provide for them in the duty classifications (strength).

AS 4200.2 Pliable building membranes and underlays – installation. Not an NZ Standard but the only relevant standard in NZ or Aus. Does include many aspects of foil installation relevant to NZ commercial buildings. Completed in 2017. 38 pages of content replacing 6 in the previous, 1994, version, and contains much information valid for New Zealand for both permeable underlays and vapour control barriers (foils.)

AS/NZS 4859.1 Materials for the thermal insulation of buildings – General criteria and technical provisions – primarily bulk insulation, but also use of foil for insulation. Comment only for NZMRM but relevant. Under revision currently.

Committee BD-014 – Metal Cladding AS 1562.1

Design and installation of Sheet roof and wall cladding Part 1 Metal. NZMRM has been a member of BD-014 since 2002 when 1562.1 (then AS) was intended to become a joint standard. Put on hold/ inactive from 2009 to 2016, then revived. Since the advent of successive NZMRM CoPs this is less needed as a joint standard (and will still be AS only), but this remains the only Standard covering sheet roofing (Parts 2 and 3 cover corrugated fibre-reinforced cement, and plastic). 1562.1 is still under revision, but should be issued in 2018. Some sections of this are incompatible with NZ practice, but others will be useful in NZ and will be considered in the current revision of the NZMRM CoP.

AS 4040.0 Methods of testing sheet roof and wall cladding - Introduction

AS 4040.1 Resistance to concentrated loads

AS 4040.2 Resistance to Wind Pressure for Non-Cyclone Regions

AS 4040. 3 Resistance to wind pressures for cyclone regions
The 4040 series covers the test procedures for sheet wall and roof cladding. The methods are called up in AS 1562.1 where the outcomes to be achieved are prescribed. NZMRM broadly follows the method in the CoP Section 15, but requires different outcomes.

4040.1 covers concentrated or point load and we follow this method.

4040.2 covers Uniformly Distributed Load (UDL) created by wind uplift pressure. NZMRM follows the method but not the outcome, as 1562.1 specifies maximum deflection at which failure is deemed to have occurred and NZMRM tests to actual failure. We are currently determining what alignment there is between these criteria. 4040.2 is currently under review of a few points.

4040.3 covers testing in cyclone regions (there are none in NZ but these are Zones C and D in Australia; roughly north of Brisbane where tropical cyclones are likely to occur) and is about to be significantly changed. Currently, there are two different test programmes in this Standard (4040.3

▶

We now have a system of documentation of the “right way to do things” generated by those affected and those using the documentation to create better outcomes for the community of users

for WA and Qld, and DABM for NT) and neither of these is considered to reflect real-life experience. In the mid-2000s BD-014 considered it necessary to revise the test programme, and the outcomes. In 2009 a new, more realistic, regime called Low-High-Low (LHL) was introduced and mandated by the Australian Building Codes Board for compliance of roof cladding with the BCA. Walls and doors continued to be subject to the previous regime(s). Roof claddings in Australia for use in cyclone regions have been tested (or retested) to LHL since 2009. Now in 2017, this is recognised and 4040.3 will include two subsections – LHL for roofs, and walls if specified; and the previous 4040.3 for walls if specified and garage and large access doors.

AS/NZS 4505 Garage and other large access doors. NZMRM has an interest in panels and test processes, and provided liaison with NZ door manufacturers. Completed in 2012. Changes here were that doors were required to be type tested, which was not the case previously, and this was seen as creating some issues for NZ manufacturers. NZMRM may be able to do some door testing for NZ manufacturers.

Committee MT-009 Metal Finishing

AS/NZS 2728 Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements describes required properties of materials used to manufacture products like those made by NZMRM members. Reviewed in 2012-3 to include new Bluescope Australia products. We think this needs more work on durability provisions and assessment. Committee ME-029

AS 3566.2 Self-drilling screws for the building and construction industries - Corrosion resistance requirements. Revision was sought in 2010 of the 2002 version, but lack of agreement between committee members from screw manufacturers and members from screw users during 2011-13 led to Standards Australia withdrawing the standard in 2014. However, apart from creation of “Class 5” in the NZMRM CoP and adoption of this description, this remains the only Standard covering these products’ durability in use and the method of testing is still useful.

Other standards covered by Australian committees, including ISO liaison, which may not strictly affect NZ roofing, can still be commented on, and keeps the NZMRM name in focus.

B - Commenting using the Public Comment process.
These are standards of which NZMRM have not been on the actual committee. This process can still be used by committee members and all Comments are considered by the committee.

AS/NZS 3500.3 Plumbing and drainage - Stormwater drainage – deals (inter alia) with roof drainage capacity, from profile capacity through to downpipes. This is a very useful and relevant standard used and quoted by other standards. NZMRM have a specific interest in changing the design restrictions on valley gutters, which are used by E2/AS1. We have submitted changes to several revisions of 3500.3 so far with no success, but have overridden the restrictions in the CoP, which is then quoted by E2/AS1.

NZS 3640 –chemical preservation of round and sawn timber. Following the “leaky building” crisis this standard was upgraded to prescribe treatment for various uses of timber. This included timbers not previously treated, such as Douglas Fir, and created a storm of comment from DF producers. In the end the treatment process was limited to pinus radiata timber. NZMRM’s concern was that timber treated using excessive quantities of copper was not in contact with metal roofing or wall cladding, and we were also concerned with the use of solvent based treatment in which the solvent was not completely removed. Amended in 2013 to cover more treatment methods and to align with B2/AS1.

AS 1397 Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium. This was revised in 2011 to include new Bluescope metallic coated products but initially dropped other metallic coatings used in NZ and so would have meant these were not covered by a standard. These are now included.

Overview
From all this you can see that NZMRM has had a quite long, and mostly fruitful relationships with Standards NZ and Standards Australia International. The Standards process has been well understood and existed as an independent, industry initiated, developed and managed operation outside of Government control or involvement in NZ for over 70 years.
We now have a system of documentation of the “right way to do things” generated by those affected and those using the documentation to create better outcomes for the community of users (even if they are often unconscious of the benefits).

The Future
By the late 2000s it was clear to many that Standards NZ was not fulfilling its function as well as it could, and in 2012 a consultation process was initiated by MBIE to discuss with interested parties the way forward to increasing the use of, access to, and value of Standards in NZ. NZMRM attended one of these sessions.

The outcome was a report by the independent facilitator recommending a number of changes to the management of Standards development. This is available elsewhere.

In earlier times it was more or less understood that Standards development, although much of the actual work was done by self-funded committee members, was not a profitable exercise but one fulfilling a useful function in society. Now it seemed that it was not fulfilling this either.

Reaction to the changes in the Building Code during the 1990s which in part allowed the construction of some inadequate or even dangerous buildings (“leaky buildings”) has resulted in more legislative controls and Government involvement in Standards. Following this consultation process it was eventually decided by MBIE that Standards should cease to be an independent organisation, but be included under the MBIE umbrella and managed by someone appointed by MBIE.

This took some time to bed down, during which period nothing much seemed to happen. Our first involvement with the new system was the NZS 2295 revision/amendment. This was quite a change from earlier committees and whether this is productive in generating useful Standards remains to be seen.

During the same period, Standards Australia also became more concerned with commercialisation of Standards and the cost benefits of recommendations contained in Standards as well as the cost of producing them.

26/11/17
Stuart Hayman: Technical adviser to MRM

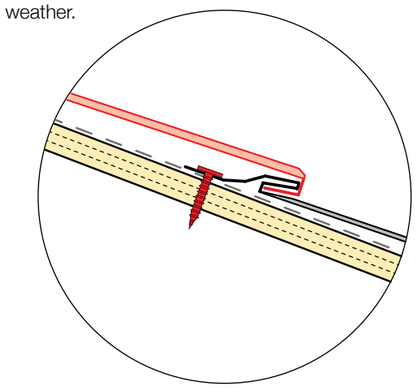
NEWS & VIEWS

A NEW ROOFING SYSTEM FROM METROTILE

Metrotile’s new Shingle concealed fastening roofing product is an innovative system that offers roof watertightness. With an interlocking Secure Lock (SL) lap system that can be installed direct-to-deck.

Key features of the CF Shingle System:
- Concealed fastening
- Innovative interlocking
- Minimum roof pitch to 9.5 degrees
- International test reports available
- Manufactured from New Zealand Steel

The back-fastening tab of the first panel folds over itself, which provides strength and a secure area to fasten the next panel. The next panel conceals the fasteners to ensure they are not exposed to the weather.



Benefits of the CF Shingle System:
- Durable and long lasting. Designed to last and endure even the harshest weather conditions.
- Environmentally friendly. Unlike Asphalt Shingles, which are a petroleum based product, our CF Shingle panels are 100% recyclable.
- Can be installed in extreme weather. Steel will not expand, contract, or crack at below freezing temperatures, or during extreme temperature fluctuations.
- Provides sound protection from external noise by allowing for a direct-to-deck installation
- Class A fire rating.
- Meets the most stringent wind resistance tests and is able to withstand hurricane-force winds of up to 190kph.

“We could see it was worth future-proofing the home. We can’t believe how warm it is and the power bills are tiny.”

MARK GRAY: JACKS POINT HOME

By no means would Jenny and Murray Butler describe themselves as “greenies” but they could both see the sense in building a sustainable, energy-efficient holiday home in Queenstown.

The couple, who live in Auckland, had bought a piece of land in the exclusive Jack’s Point subdivision and took their inspiration for the build from a show home in the area.

They enlisted architect Mark Gray, of Wyatt + Gray Architects, and he suggested they use Evolution homes, which builds energy-efficient homes that are both architecturally beautiful and interesting. Homes built by Evolution, a division of Rilean Construction, have the potential to reach a minimum of a 6 Homestar rating – ideal for the extreme Central Otago climate.

“When we talked to Mark and Rilean, they explained that in future a star rating would be expected but you can’t do that later; it has to be done now,” says Jenny. “We’re not greenies, so to speak, but we could see it was worth future-proofing the home; we can’t believe how warm it is and the power bills are tiny.” The Butlers have yet to have their house Homestar-rated but plan to have that done soon.

To make the home energy-efficient it has an airtight thermal envelope that ensures maximum warmth with minimum use of resources. The house is double glazed and also benefits from a fully insulated MaxRaft foundation, increased insulation in the exterior walls (R4.2) and ceilings (R5.2), Proclima membranes and hydronic underfloor heating that keep it warm, dry and weathertight with a minimum of condensation. The superior window joinery goes beyond double-glazing and includes argon-gas for better insulation, thermally broken aluminium to minimize condensation and Low E to protect the interior from harmful UV rays.

While those practicalities were taken care of, Jenny and Murray also wanted a home that sat easily within its environment and made the most of the spectacular mountain and lake views.

The 270sq m cedar home with schist detailing and metal tray roofing consists of three gabled pavilions. Design guidelines are tight at Jack’s Point, a 1200ha settlement on the shores of Lake Wakatipu, just 20 minutes outside Queenstown.

There are controls over site placement, building volumes, colours, materials and landscaping – among others. Gabled rooflines are preferred, and garages should not be visible from the road.

One of the elements that the Butlers incorporated into their home was a glazed gable end and this frames views of Jack’s Point golf course and the mountains.“We’ve started calling it ‘The Church’ because of that window,” says Jenny.

The couple also asked Mark to design a home with three bedrooms in one wing, away from the living area, and a fourth bedroom (with en suite) over the garage at the other end of the house. “I also wanted a scullery that I could food prep in behind the kitchen, and I wanted a toilet separate from the main bathroom,” says Jenny.

She says the home’s elevation and the way Mark has oriented it and cleverly placed windows means they get all-day sun and enjoy views from just about every room in the house. “We can seen Jack’s Point golf course, Cecil Peak, Ben Lomond, and we look out over other houses to the southern arm of the lake,” says Jenny. “From the kitchen you can see Fern Hill and the end of Queenstown, and if you look the other way you can see Coronet Peak, which is beautiful in winter when it is all lit up for night skiing and it just sparkles.” She adds, “Even when you are lying in bed in the loft over the garage you can see the top of the Remarkables through the skylight.”

▶

“There’s always a trade-off between performance and budget. For a Homestar-rated home the costs involved can be a bit of a shock”

To achieve this aesthetic, both the architect and homeowners agreed on a COLORSTEEL® Alpine Tray profile

From the street, the crisp lines of the tray roofing complement those of the vertically arranged cedar weatherboards. “A lot of the homes around here have that Alpine Tray roofing because it looks good,” says Jenny. “I like earthy colours; they all have to blend so that is why the house is light and then we have the darker ‘Iron Sand’-coloured roof.”

One of the other striking features of the home – another on the couple’s list – is the glass double doors sitting in an LED-lit, schist-walled entryway before reaching the front door proper. Jenny says, “That means you can come in out of the snow and the rain and shake yourself off before going inside.” With its high stud and gabled roofline, the home has the “lodgy feel” that the Butlers wanted. “We wanted it all open plan with a big end window and dark-stained French oak on the ceiling.”

Mark Gray says because the section is a fan-shaped corner site there were constraints on how the home could be placed. “With the planning controls, homes are quite often laid out as variations on a ‘U’ or ‘T’ junction,” says Mark. “It made sense to go across the contour with the living and garage, and the living room is on the crank to pick up the contour and face the view.” This arrangement of the pavilions also helps to create a sheltered outdoor area with fire pit.

Mark says Evolution homes are cost-effective for the efficiencies and comfort they deliver. “There’s always a trade-off between performance and budget. For a Homestar-rated home the costs involved can be a bit of a shock and you can build smaller to counter that but if you have a family that is not realistic.” He adds, “The upside is that the houses are pretty easy to run for nine months of the year and just need a little bit of heating in winter.” Heating in the Butlers’ home is provided by a heat-pump powered hydronic system in the insulated floor slab, with a gas fire for ambience.

Mark says the Jack’s Point design controls that limit buildings to maximum widths and lengths aren’t ideal for energy efficiency because it means “a high wall to floor ratio” that promotes heat loss but that can be countered by placing windows so as to maximise solar gain and minimise heat loss. With corrugated iron not allowed in the subdivision, Mark says a lot of homeowners have opted for cost-effective Alpine Tray. “As a premium residential neighbourhood, Jack’s Point has tightly defined guidelines in respect of material build and general aesthetics,” he says. “The developers, understandably, have been keen that any new builds on the estate are generally sympathetic to the immediate environment. It’s very much a case of harmoniously blending in, rather than actively standing out.” To achieve this aesthetic, both the architect and homeowners agreed on a COLORSTEEL® Alpine Tray profile, pre-painted in the popular ‘Ironsand’ colour.

Jenny says the one thing that living in an energy-efficient home has taught her is that she has to be careful to dress for the weather. “You get dressed inside in winter thinking it’s warm and then you go outside and it’s freezing,” she says. “When we were planning this home, we wouldn’t have believed how good it is. We’re really thrilled with it.”

Wyatt + Gray Architects

An award winning New Zealand design practice that pursues quality, style and value in its work, Wyatt + Gray Architects enjoy opportunities for continued learning and keeping up to date with the latest construction techniques. The practice recognises the importance of sustainable design and informs clients about opportunities where it could enhance a project.

“We believe that the success of any project rests on the ability to realise a client’s goals and our priority is to listen carefully to the needs of the client and respond with a well-developed and innovative solution. “ Mark Gray, a Homestar assessor, has been practising architecture since 1990 and in Queenstown since 1996. He is keen on affordability and sustainability, and loves the alpine environment.

Architects: Wyatt + Gray Architects
Mark Gray. Queenstown
Telephone: 03 442 8709
mark@wyattgrayarchitects.nz
www.wyattgrayarchitects.nz
Roofing manufacturer:
Queenstown Roofing
Profile: COLORSTEEL® Alpine Tray
Colour: Iron Sand
Roofing installer:
Queenstown Roofing
Telephone: 03 442 3883
www.qtroof.co.nz
Main Contractor: Evolution,
A division of Rilean Construction
Telephone: 03 442 3484
www.evolutionseries.co.nz

ENERGY EFFICIENCY, SUSTAINABILITY AND DURABILITY

When architect Mitchell Coll designed two adjoining townhouses in central Christchurch, he also future-proofed them by making them removable and joinable. “Eventually the land will be worth more than the buildings so I would like to think that they will be moved off and used as baches rather than being demolished,” says Mitchell. “You see that a lot here in Christchurch with land values going up and houses being demolished.”

The townhouses are also designed so that with a few simple modifications they can be made into one four-bedroom, two-living room house. With high quality construction and durable materials, it is hoped that they can have a long life by being adaptable to the ever-changing needs of the owners.

Mitchell designed the 74sq m homes on the 300sq m site for young professionals with energy efficiency, sustainability and durability at the forefront of all decisions, without compromising aesthetics. Floor plan and volume efficiencies were made where possible to keep the energy and costs to a minimum, for both the building and running of the homes.

The houses sit on steel bearers on screw piles with brackets. The adjustable brackets allow one person to easily relevel the building up to 120mm in under two hours. “The ground conditions are something like 6m of peat then 150mm of gravel then 6m of peat so essentially there is nothing to bear on,” he says. “That peat is going to decompose so the houses are still likely to move even if you put down a concrete footing. By having the steel it’s easy to get the building off the ground and have it cantilevered. With just eight steel bearers it’s really simple to adjust the foundations and they make for easy sub floor access for services and if you want to move the building.”

While the screw piles and steel are relatively expensive they are quick and easy to install, saving time and labour. To further aid speed of construction, cross laminated timber (CLT) was used - and it also has good acoustics, some thermal mass, as well as allowing for unique detailing such as recessed LED strip lights, a cantilevered canopy with no structure beneath and true floor-to-ceiling windows. The CLT stair detailing allows for a prefabricated architectural open tread stair that can be installed quickly and at minimal cost.

Mitchell says all materials were selected based on sustainable qualities such as New Zealand grown pine for the CLT and ply lining - both acting as a carbon sink along with natural oils and wool insulation. The CLT floors in this building hold 20 tonnes of carbon alone.

Designed for passive solar gain, the homes’ airtight construction with R3.6 insulation value of floors and walls and R4.2 for the ceilings gives excellent heat retention. The heat recovery ventilation system provides fresh air for a healthy home with minimal heat loss in the winters. Passive ventilation is achieved through strategic placement of windows and skylights for zero energy summer ventilation.

New Zealand’s alpine huts were the inspiration for the form of the building, which also nods to the Brutalist and ‘Christchurch School’ buildings of the 60s and 70s. The use of Canterbury Prickles and E-Span® 470 tray roofing, rusted natural steel, the gable-to-gable form and honest materials all contribute to this aesthetic.

▶

A lot of bang for your buck.
It's by no means cheap but you get really good quality for the cost.

Mitchell says the Corten steel rainscreen is detailed to achieve a minimalistic look so the small building does not look overly complex or heavy, helping to keep the exterior areas feeling spacious. The colour of the Espan® 470 tray roofing - 'New Denim Blue' - was chosen because it will go well with all the shades of orange to brown of the Corten steel as it ages, as well as helping such a contemporary building fit in to the surrounding 1990s neighbourhood.

The Corten façade has clean exterior lines with no flashings. The steel to glass of the windows and the crisp line of the Corten steel to COLORSTEEL® junctions are major aesthetic features of the building.

Mitchell says to maintain these clean lines, the placement of roofing and cladding had to be "millimetre perfect". "We basically had to start by placing just two sheets of the steel and work our way from there." While the exterior looks industrial, it's a different story inside. "The effect I wanted to achieve was a hard shell with warm interiors," says Mitchell.

And with the interiors he also went for a minimalist look to make the spaces feel bigger – skirtings, architraves and door reveals were detailed so as not to be cumbersome or intrusive.
The CLT floors and ceilings and ply wall linings offer the warmth and quality feel of solid construction, as well as being durable and easy to patch repair. The CLT also allows for flush fitted LED strip lighting. The lighting was designed with carefully selected wattages and locations to offer statement lighting without additional fittings needing to be added, maintaining a minimalistic look.

Compact laminate has been used for the custom-designed kitchen island and vanities. This material offers a durable finish and is impregnated with silver to maintain a hygienic surface. The solid block of colour offers a counterpoint to the heavy use of timber. The black exposed edges to the laminate mimic the black negative details to the wall linings.

Resene 'Unwind' was selected to match the colour of the compact laminate and has been painted on the bedroom wardrobe sliders so all rooms have a splash of colour to contrast against the natural tones of the timber. Blue tiles were selected to bring the 'New Denim Blue' from the exterior COLORSTEEL® to the interior, while offering a subtle contrast to the black fittings in the shower. The application of the tiles to all surfaces in the shower including the ceiling, combined with the timber slats to the floor, help to give a feeling of a luxury spa.

The architectural stair built from the same materials as the rest of the building ties it in with the home, as opposed to feeling like an addition, while the open tread stairs and open balustrade ensure the surrounding space still feels airy.

Outside, Mitchell has cleverly integrated large garden sheds with hidden doors so they look like they are part of the fences and don't intrude on the outdoor areas or detract from the clean lines of the main building. Access to the back unit is down an alleyway on the south side. The alleyway is private with the two units opposing each other with no south-facing windows to ensure they don't overlook each other. The street art on the existing boundary wall helps to give the impression that the back unit is accessed off their own street. Careful detailing and high quality materials to the inter-tenancy wall mean there is no airborne or impact sound transferred between the units.

Special attention was given to all the detailing of the interior and exterior to give the overall feel of a refined singular 'product', as opposed to a building that has been pieced together from various parts. Mitchell says this method of building gives you "a lot of bang for your buck. It's by no means cheap but you get really good quality for the cost," he says." I would like to do more of them and work on the combination of design elements and materials to make them as cost-effective as possible."

Coll Architecture

Mitchell Coll started full time work as an architectural designer in 2003, but exposure to the industry stems from as far back as early childhood, with his father running his own architectural business for over 20 years. Mitchell worked for various firms before starting Coll Architecture in 2009, prior to the earthquakes.

Coll Architecture is a small design practice offering a personalised service for people looking to build their dream home. They specialise in complex builds that require a thought-through design solution for the clients and the site. After working on over 1100 projects of various sizes and complexities throughout the South Island, Mitchell brings substantial experience to the table. Combined with the support of a friendly and motivated team, Coll Architecture delivers the design services clients deserve.

Over the past 10 years, Mitchell has worked on a large variety of projects including many large and small houses, both on the hill and on the flat, as well as multi-unit developments, motels, churches and light commercial buildings.

His recent awards, including ADNZ Supreme and People's Choice Awards for 2017, are yet another step forward. Mitchell currently sits on the National Board for Architectural Designers New Zealand which is a testament to his commitment to the industry.

Architectural Designer: Coll Architecture
Telephone: 021 223 0113
www.collarchitecture.co.nz
Roofing and cladding Manufacturer:
MetalCraft Christchurch
Telephone: 03 349 7350
www.metalcraftgroup.co.nz
COLORSTEEL® Endura® in 'New Denim Blue'
Profile: Espan® 470
Roofing and cladding installer:
JK Roofing
Builder: Feutz and Goldsmith Builders Ltd, Christchurch
Telephone: 03 359 6046
www.feutzandgoldsmith.co.nz

SCOPE

NZ METAL ROOFING MANUFACTURERS INC.

Members

Ellerys Roofing Direct Ltd
250 Main South Road
Karoro
Telephone: 03 7686514
Contact: Clark Ellery

B J Moss Ltd
PO Box 1007
Gisborne
Telephone: 06 867 1219
Contact: Roger Moss
www.bjmoss.co.nz

B R Roofing & Walling Co Ltd
Ford Road
Onekawa, Napier
Telephone: 06 843 6968
Contact: Phillip Fendall

Calder Stewart Roofing
PO Box 1400
Invercargill
Telephone: 03 214 5544
Contact: John D'Arcy
www.roofer.co.nz

Continuous New Zealand Ltd
PO Box 151
Takanini, Auckland
Telephone 09 268 1555
Contact: Nick Claridge
www.continuous.co.nz

Contour Roofing Nelson Ltd
PO Box 9015
Annesbrook, Nelson
Telephone: 03 546 4260
Contact: Dave Freeman
www.contourroofing.co.nz

Dimond
PO Box 13546
Otahuhu, Auckland 1643
Telephone: 09 622 4625
Contact: Aidan Taylor

Franklin Long Roofing Ltd
PO Box 151
Pukekohe, Auckland
Telephone: 09 238 9249
Contact: Warren Oliver
www.franklinroofing.co.nz

E.R. Freeman Ltd
Freeman Roofing, Nelson
Roofline Marlborough, Blenheim
Canterbury Long Run Roofing,
Timaru Canterbury Long Run
Roofing, Ashburton
www.roofing.co.nz
Roofing Solutions, Dunedin.
P.O. Box 2317
Stoke, Nelson
Telephone: 03 5443108
Contact: Shane Atherton
www.roofing.co.nz

Gerard Roofs
PO Box 18071
Glen Innes, Auckland
Telephone; 09 521 8792
Graeme Wilson

Marshall Industries Ltd
PO Box 846
Invercargill
Telephone: 03 218 2579
Contact: Tom Marshall
www.marshalls.co.nz

Metal Roofing Systems Ltd
PO Box 117
Takanini, Auckland 2245
Telephone: 09 268 8959
Contact: David Moselen
www.megamiroofing.co.nz

Metalcraft Roofing
PO Box 51286
Pakuranga, Auckland
Telephone: 09 274 0408
Contact: Tony Barbarich
www.metalcraftgroup.co.nz

Metal Design Solutions
PO Box 33
Drury, Auckland
Telephone: 09 294 9134
Contact: Jan Alberts
www.metaldesignsolutions.co.nz

Ross Roof Group
PO Box 72-062
Takanini, Auckland
Telephone: 09 299 9498
Contact: Sean Wu
www.metrotile.com

Queenstown Roofing Ltd
PO Box 2418 Queenstown
Telephone: 03 442 3883
Contact: Bill Giller
www.qtroof.co.nz

Quin Roofing Ltd
PO Box 1087
Levin, 5540
Telephone: 06 3679480
Contact: Bruce Love
www.quinbuildings.co.nz

Roof Manufacturers Limited
PO Box 319
Tauranga
Telephone: 07 578 2650
Contact: Martin Smith
www.roofman.co.nz

Roofing Industries Ltd
PO Box 302 385
North Harbour Post Centre 0751
Telephone: 09 414 4585
Contact: Paul Ross
www.roof.co.nz/

Roofline Canterbury Ltd
PO Box 16302
Hornby, Christchurch 8441
Telephone: 03 349 8439
Contact: Colin Megaw
www.roofline.co.nz

Silbery Long Run Ltd
69 Montgomery Crescent
Upper Hutt
Telephone: 04 526 9343
Contact: Angie Silbery-Dee

Steel and Tube Roofing Products
PO Box 204216 ,Highbrook,
Manukau 2162, Auckland
Telephone: 09 273 7628
Contact: Tony Rallis
www.steelandtube.co.nz

Stratco (NZ) Ltd
PO Box 8494
Christchurch
Telephone: 03 338 9063
Contact: Andrew Staff
www.stratco.co.nz

Taranaki Steelformers Ltd
Wanganui Steelformers
King Country Longrun
PO Box 36 Stratford
Telephone: 06 765 5191
Contact: Darrell Back
www.steelformers.co.nz