ISSUE 33

SCOPE

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NZ METAL ROOFING MANUFACTURERS INC.

Below is a brief introduction to the 2013 executive of The Metal Roofing Manufacturers Inc.
It is intended that Scope be representative of the industry and therefore material of interest is welcomed from all sectors of the building industry be it design, research, manufacture or construction.

Darrell Back: President
NZ Metal Roofing Manufacturers Inc.
Managing Director of the Steelform Group of Companies.

Vice President
Tom Marshall: General Manager
Marshall Industries Ltd.

Immediate past President
Tony Barbarich: Director of Business Development Metalcraft Industries.

Executive Members:
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Stuart Hayman: Consultant.
Warren Oliver: Managing Director Franklin Long Roofing.
Darren O'Brien: General Manager for Dimond
Rod Newbold: Commercial Manager Steel & Tube Roofing Products.
John D'Arcy: General Manager Calder Stewart Roofing
Gary McNamara. Marketing & Business Development Manager Metrotile Roofing

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

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Scope is the official publication of
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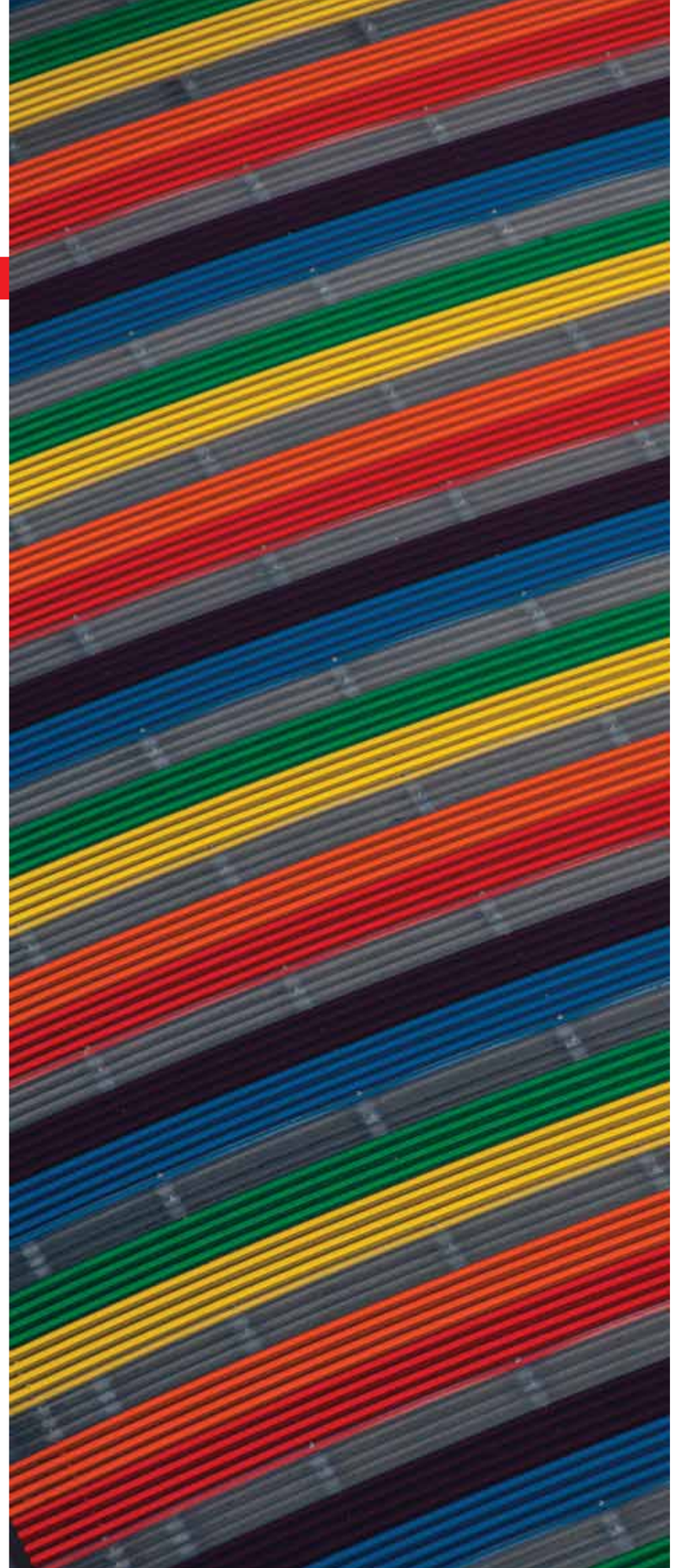
Executive Officer: Peter Atkinson
Private Bag 92 066, Auckland.
DDI Ph: 09 367 0934,
Ph: 09 367 0913



RAINBOWS END IN AUCKLAND

By Graham Hepburn

ColorCote® Steel roofing is often a practical choice but Rainbow's End wanted to add a fun dimension when it came to providing cover for its Kidz Kingdom precinct.

With that in mind, the Manukau-based theme park wanted a curved, multicoloured canopy that would not only keep the area protected from the elements but also provide a 'rainbow' overhead for children and parents in the Kidz Kingdom rides and playground area, which is aimed at smaller children.

Dimond's Styleline profile was selected for the 42m drape curve roof, and there was also extensive work carried out on the adjoining building with close to 1400LM of Dimond Zincalume® product used to upgrade the existing facilities.

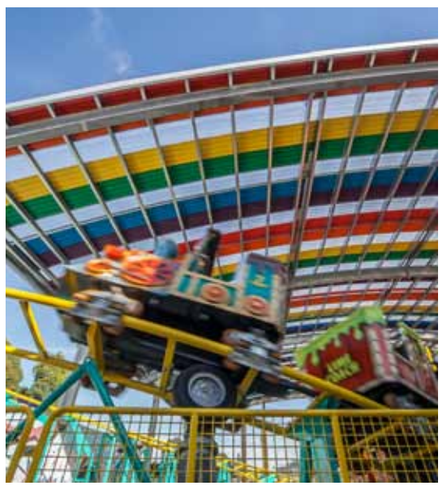
Rainbow's End wanted the roof to allow visitors to enjoy the area no matter what the weather was doing and also wanted it to feature stripes of bright, vivid colours in line with the park's colour scheme. Pacific Coilcoaters (A part of the Fletcher group) supplied strong primary colours in their ColorCote® ZR8™ range, pre-painting them double-sided as part of the requirements for the project so that the colour scheme would not only be visible from below to brighten the play area but also make a permanent mark on the local landscape. As part of the cleaning schedule the "unwashed" areas of the roof are regularly cleaned during high pressure wash downs.

The engineer on the job, Maurice Harris, of Harris Foster Consulting (HFC), says the required coverage of the area was worked out in conjunction with the builder so that the rides and playground could be comfortably accommodated.

"Rainbow's End wanted the curved, rainbow-coloured roof – that was always the concept, which was an interesting cover over all the new rides," says Maurice.

The canopy sits on steel supports more than 8m tall with its apex rising to be more than 11.5m from the ground.

Although it is attached to a neighbouring building the canopy is designed to be self-supporting with 600mm universal columns on one side and 457mm circular columns on the other side. The main curve is formed with welded 600mm deep beams at 103kg/m. The roof is supported on HSTC steel purlins.



Maurice says having the canopy supported by L-shaped legs attached to the neighbouring building creates the illusion that it is floating.

Work began on the job in November 2012 and was completed at the end of December 2012, in time for a grand opening of the refurbished area earlier this year.

The new roof has made a dramatic impact to the skyline and has added a bit of colour to the traditionally dull industrial surroundings in the South Auckland suburb.

Engineer: HFC:
Civil and Structural (North) Ltd,
Telephone: 09 367 1070.

Roofing Manufacturer: Dimond,
Telephone: 0800 Dimond
or www.dimond.co.nz

Pacific Coilcoaters
Roofing: ColorCote® ZR8™
Styleline profile

Natural Lighting: Ampelite
0800 267 3554

Builder and roofing installer:
Macbuilt,
Telephone: 0800 622 284

EXPLORING SUSTAINABLE DESIGN

By Graham Hepburn

75 per cent of the existing wall framing and subfloor was retained in keeping with the principle of re-using.

As the owner of a family construction business, Andrew Pepper has become keen on exploring sustainable design and materials.
He sees those principles becoming more important with new builds and renovations so when it came to a major overhaul of his family home he put his money where his mouth is.

With the help of architectural designer Tony Biesiek, of Imagine Building Design, what was once a character home has been extended and rebuilt with a Pasifika/Kiwiana theme and with energy-efficiency and sustainability a priority.

Tony says, "The brief for this house was to alter and extend the existing cottage which was a jumble of styles into a modern family home with a Pasifika theme to show their collection of sculptures and artwork from around the Pacific. Good outdoor living and maximising the sea and bush views were top priorities. All with excellent sustainable design focusing on 'the five Rs': Reduce, Reuse, Replace, Recycle and Rethink."

He says some of the home's form was dictated by height-to-boundary rules and daylight angles as well as the family's desire to have the living areas upstairs so they could enjoy the views. An upstairs internal covered deck provides privacy and shelter from the prevailing winds. Andrew and his wife Paula say the inspiration for the rebuild came when they were up on the roof, repainting it. The views up there made the thought of adding another floor appealing and the fact that they had to do the painting made Andrew turn his mind to more sustainable, lower maintenance materials.

"We had the house 10 years before we did the major renovation and in that time we had painted it once

ourselves and got it painted by someone else and it is a thankless task," says Andrew. "To me, it just makes sense to reduce living costs and maintenance."

With that in mind, the home was reclad with a combination of macrocarpa and ribbed Zincalume® and re-roofed with COLORSTEEL® Maxx® corrugate. In addition, the soffits have been lined with aluminium to further reduce maintenance. The ribbed Zincalume's strong vertical lines provide a contrast to the horizontal macrocarpa weatherboards and help to define the more 'modern' elements of the house as opposed to the traditional look of the gabled roofs.

The tray profile of the Zincalume® was custom-formed for the project with Tony and Andrew working up a profile that was manufactured by Taranaki Steelformers. The ribs are flashed to hide the fixings to achieve a clean, elegant look. Tony says having a local steelformer supply the cladding and roofing was part of the plan to minimise the 'embodied energy' of the home – each panel was custom-made for the job locally whereas using an out-of-town supplier would have meant hours of freight.

Using a lightweight metal roof was a no-brainer for Tony.
"I am a huge fan of corrugate," he says. "I love the softer finish that it gives. To me it is a default product so unless a client feels strongly that they don't want that look then that is what I give them."

He says using a lightweight metal roof was also an easier option considering the fact that they were building over the existing structure of the home. The upstairs level is wooden-framed and independent of the ground floor, which sits on wooden piles. Building this way meant the home's original footprint could be retained and 75 per cent of the existing wall framing and subfloor retained in keeping with the principle of re-using as much of the existing materials as possible.

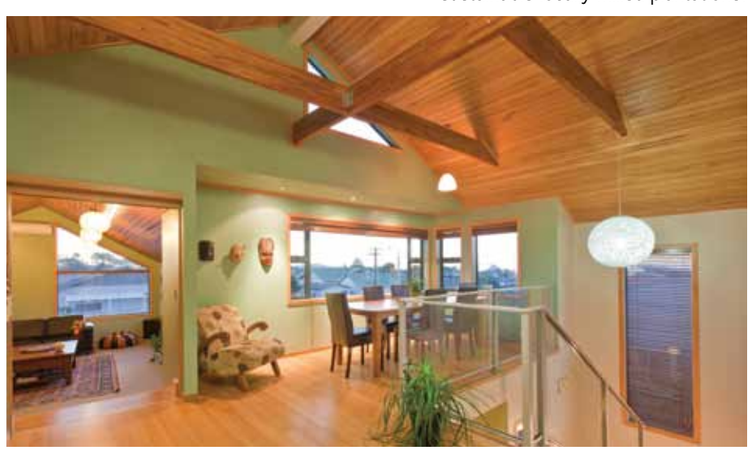
While Andrew is keen to explore new materials and innovative technology, he says a lot of sustainability principles are grounded in the traditional approaches to building undertaken by his grandfather Len when he began Pepper Construction in 1936. The business, which was later taken over by Andrew's father and uncle, was heavily involved in building schools and state houses.

Andrew, who recently took over the firm from his father, says in some ways sustainable building is "going back to our roots".

"Things like passive solar design and passive ventilation are fairly simple principles," says Andrew. "But these days people are a lot more aware of sustainability so that is why when it came to our house I thought the best way to learn about it is to do it myself."

It also gave him an appreciation of what clients face when they push the boundaries.

"Being in the trade you are use to working with budgets but when it's your house you feel the full sting of the cost especially when the budget goes out the window," says Andrew. "I wanted to incorporate more sustainable measures but cost became an issue; it was a bit of a learning curve."



However, for their $500,000 budget, Andrew and Paula have achieved a lot. The home has solar hot water heating, photovoltaic solar energy collectors with inverter to the network grid, wetback wood fire, inverter heat pumps, eco and LED lighting, R1.6 under floor, R4.8 ceiling and R2.6 wall insulation, and argon filled thermally broken aluminium framed double glazing. Rainwater is collected for the garden, which also reduces runoff.

Household water consumption is cut by using low flow fittings. The insulation in the home is 100 per cent recyclable polyester.

The flooring is sustainable bamboo. The macrocapra cladding and the eucalypt used in the decking and ceiling sarking are all from sustainable locally milled plantations.

Tony says sourcing timber from local plantations was not only sustainable - as they could choose the right board lengths - but also enjoyable. "I love that part of the process," he says. "Going out to the mill, picking out the timber and talking to the guy who mills the timber. And you know with a plantation-grown product that when trees get cut down, more get planted."

With his home completed, Andrew says he is keen to learn more about building sustainably and incorporating principles such as Lifemark, which promotes building homes that will suit occupants for a lifetime, especially as they enter old age.

He has a bit of a headstart with his home, which now has a lift well incorporated into it in case a lift is required later in life.

Imagine Building Design

Founded by Tony Biesiek in 2002, Imagine Building Design prides itself on its "relationship marketing". The majority of commissions come to the award-winning practice by way of referrals from existing clients, a product of creating quality relationships with clients. This is achieved by friendly, clear and up front communication matched with a quality design service that meets the client's aesthetic, functional and financial requirements. Tony Biesiek is a director on the national board of Architectural Designers NZ.

Architectural Designer: Tony Biesiek
Imagine Building Design
Telephone: 06 769 9599
www.imaginenz.com

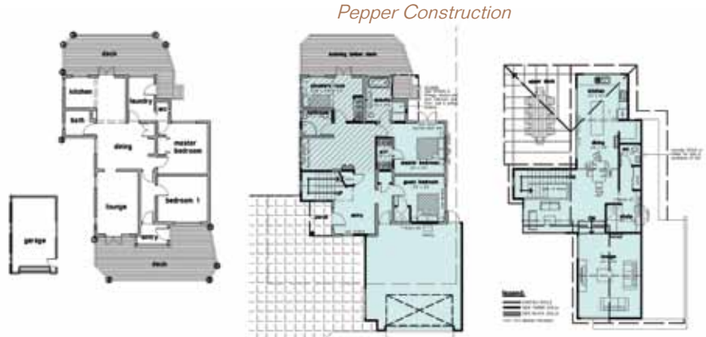
Builder: Pepper Construction
Telephone:06 7536159

Engineer: West Point Engineers
Telephone: 06 215 0990

Roofing: COLORSTEEL® Maxx®
'Denim Blue' 0.55mm corrugate
Cladding: Custom-formed Zincalume®

Roofing and cladding supplier:
Taranaki Steelformers
Telephone: 06 765 5191

Roofing and cladding installer:
Pepper Construction



existing floor plan

proposed lower plan

proposed upper plan

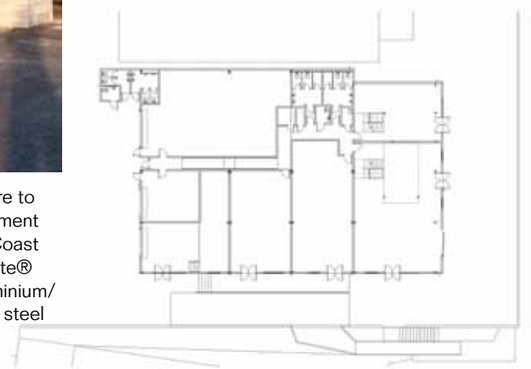
RECREATING A COMMUNITY ICON

In early 2010 a fire at the Raglan Wharf and adjacent building all but destroyed a much loved community facility. Following strong community sentiment, the Waikato District Council committed not only to reinstate the whole facility but to enhance its functionality and upgrade the wharf structure. Beca was appointed as architecture and engineering consultants for the project, bringing extensive international experience in both wharf buildings and community facilities from around the Asia-pacific region to the challenge.

The first step was to consult with the community and really understand what role a new facility could play in Raglan and how locals and visitors might utilise it. This process provided a comprehensive picture of what the solution needed to capture – and a challenging brief for the consultants!

Following a workshop with the client on how to proceed, Beca worked with the concept of the new building being 'long life, loose fit'. Long life signifies durability, while loose fit empowers the community to utilise the interior spaces as demand required, providing long term tenancy options. Large span steel structure paired with light weight partitions allows for the prospect of change should tenants or the market demand.

The result is a building that seamlessly integrates into the surrounding environment. Visually, the new building references the form of the existing building with variable formed pitched gable roofed elements, picture framed windows and a covered walkway/verandah. Dimond Corrugate roof and wall cladding in ColorCote® ZM8™ Alpine Blue and Grey Flannel respectively were selected for their robust and durable nature to sustain the corrosive environment synonymous with the West Coast and the Raglan surf. ColorCote® ZM8™ has a hot-dipped aluminium/zinc/magnesium alloy-coated steel substrate which gives it enhanced cut-edge and wet-area performance in severe environments. The cladding has been used horizontally and vertically to express the different elements of the building. While the chosen exterior colours reference the existing building they also draw from the palette of natural features that surround the wharf – the sea and harbour, iron sands of the west coast beaches, the cliffs and flats around the harbour, and the vast sky. The building aesthetic and colours provide a grounded and complementary feature on the wharf that has been well received by the public and local community.



Powdercoated aluminium ‘C’ channels have been used to exaggerate frames around exterior windows and doors that draw upon historical references of the previous building. The appearance of plywood soffits in natural satin finish complement the exterior aesthetic in contrast to the extensive use of steel. The extensive use of prefinished materials is intended to minimise the amount of maintenance required for a public building of this nature for the Client. The interior of the tenancies have been lined with natural plywood and the public and staff toilets have vibrant colours introduced to contrast with and distinguish them from the relative ‘quiet’ and elegant simplicity of the exterior.

Design solutions that get recognised

The team at Beca are focussed on creating enduring architecture and design that is specifically tailored to the needs and requirements of the client and the end users. In an exciting development for the Raglan community, this project was a Finalist in the 2013 New Zealand and Australia Dulux Colour Awards.

We believe that the success of any project lies in the development of a close, integrated and collaborative approach between the client and the design team. Coupled with a desire to establish and maintain clear communication among our clients, consultants and staff, we keep each project evolving flexibly and quickly – carefully considering the key drivers of cost, programme, lifecycle and environmental sustainability.

Beca

Established in 1918, Beca is a leading engineering and related services consultancy in the Asia-pacific. The Beca group is an employee-owned company, with over 3000 employers operating in major hubs out of Australia, Singapore and New Zealand. Our team is focused on providing clients with solution driven advice, drawing on international experience and best practice. We are committed to building strong and lasting relationships with our clients that deliver value to the communities in which we live.

Architect:
Roger Dowling Senior Architect
Registered Architect NZRAB Beca
Alana Thorn - Architectural Graduate
Telephone: +64 7 578 0896
Mobile :64 27 669 0682
E-mail: roger.dowling@beca.com
www.beca.com

Roofing/Cladding Manufacturer:
Dimond
Profile: Corrugate in ColorCote® ZM8™
Colour: Alpine Blue and Grey Flannel

Main Contractor:
Livingstone Brothers
70 Maui Street, Hamilton NZ, 3241
Telephone: 07 849 0082
www.livingstonebuilding.co.nz

Roofing Supplier:
Pacific Coil Coating

Roofing Installer: TCB Roofing
75 Rototuna Road
Hamilton
Telephone: 07 846 6390
Email tcbroofing@xtra.co.nz

SCOPE NEWS AND VIEWS

RANZ PROFESSIONALISM IN METAL TILE INSTALLATION AWARD - 2013

The reroof of a 500sqm, earthquake damaged home in Christchurch with multiple pitches and requiring removal of 47 tonnes of concrete tiles has seen installer Chris Meldrum, of Town & Country Roofing Ltd win this year’s RANZ Professionalism in Metal Tile Roof Installation Award.
Sponsored by Metrotile NZ Ltd, the award acknowledged the physical and technical demands of this project which involved realignment of the roof trusses and lifting of the roof in some areas to create a straight ridge line for installation of Metrotile’s shingle profile.

Chris Meldrum, along with business partner Te Mana Paenga, spent 16 weeks on the reroof last winter and the owners praised their professional approach and expert craftsmanship on their large and complex home which had suffered badly in the two earthquakes.

RANZ member Town & Country Roofing Ltd was formed in March 2011 and as an installer for Metrotile NZ Ltd became involved in the free roof tile promotion for homeowners facing hardship following the earthquakes. Town & Country Roofing Ltd has since been contracted to Golden Homes which is building 400 new homes in Canterbury and Chris has also secured a contract with Generation Homes for projects in North and South Canterbury.

Trained as a roofer in the UK, Chris emigrated to New Zealand in 2001 and after a short stint in the dairy industry became a preferred installer for Gerard Roofs for nine years after which he went to Perth to consider future opportunities. Returning to Christchurch soon after the February 2011 earthquake Chris resumed contact with Te Mana Paenga and their company was registered the following month.

Expansion in the last two years has been rapid and the company employs 10 staff and has five self-employed two-man gangs, operating from a warehouse and offices in Burnside.

The RANZ Professionalism in Metal Tile Installation Award comes with a $1500 trip to the Gold Coast for winner Chris Meldrum. SH Roofing Ltd, Auckland and Roofing Systems Ltd, Mount Maunganui were highly commended.

For further information:
Jenny Bain, Roofing Association of New Zealand, 09-415 0278 or rooflink@roofingassn.org.nz

New Export Business Development Manager

In 2012 the Ross family (Metrotile) launched their new Tilcor business to target metal tile growth opportunities in Europe, the Middle East and Africa. Tilcor will source its metal tiles from the Metrotile manufacturing plant in Takanini, New Zealand.

To launch the Tilcor business Cameron Ross and his family moving to Dubai in August 2012.
Cameron will be returning to New Zealand in July 2012 and is pleased to announce the February 2013 appointment of Matthew Day, as Tilcor Export Business Development Manager, responsible for Africa and the Middle East.

Matthew and his wife Tracey, along with their 2 young children, have been living in Dubai for 2 years and will continue to reside there.
Matthew is a qualified Architectural Designer and has worked as a Pre-cut Frame and Truss Detailer, a Mitek Truss Designer and Software Trainer and a Pryda Regional Sales Manager. Prior to joining Tilcor, Matthew worked with Framecad for 7 years, where he was instrumental in setting up over 70 new Steel Frame and Truss manufacturing plants in Africa, South America and the Pacific.

The Metrotile and Tilcor metal roof tiles are now used in over 80 countries throughout the world.
With 70 years experience in Roofing the Ross family are focused on assuming a worldwide leadership role in the manufacture and distribution of metal roof tiles under their Metrotile and Tilcor brands.

Matthew’s appointment is a key component in achieving this objective.

SCOPE NEWS AND VIEWS

Erich is this year's Roofer of Excellence

A Swiss-trained craftsman, who was recruited in 1995 for installation of zinc panelling during construction of the Museum of New Zealand Te Papa, has won the prestigious 2013 New Zealand Roofing Association's Roofing Excellence Award.

Erich Stocker is the senior craftsman/ supervisor for the Classic Metal Division of Aquaheat New Zealand Ltd in Wellington where he has been involved in complex installation of specialist roofing and cladding systems on two unique buildings – the Supreme Court of New Zealand and The Rock, Wellington airport's international passenger terminal.

The leading spengler on these contracts (spengler is the German name for the trade and craftsperson specialising in the production of high quality architectural details utilising sheet materials), Erich is known for his innovative thinking which is critical when it comes to complex forms. His knowledge and ability to solve intricate details means architects frequently ask for his help with precise detailing. Erich, 47, joined Aquaheat in 2000 and in the opinion of the judges for this year's award, has excellent workmanship and leadership qualities, along with ensuring that all parties work efficiently on all issues relating to the design and installation of buildings with unique metal craftsmanship.

Awarded biannually, the RANZ Roofing Excellence Award recognises a high achiever in the industry involved in a practical or administrative role who has demonstrated commitment, personal development and achievement in their career. Of note with Erich were his leadership qualities, demonstrated through his mentoring of young apprentices who are inspired by his enthusiasm and positive attitude to learning their trade from a European trained craftsman.

Studio Pacific and Warren & Mahoney, in support of Erich's nomination said the demanding nature of the copper clad courtroom that sits at the centre of the Supreme Court "left no room for inaccuracy, and the faultless end result stands as testament to Erich's rigorous approach, attention to detail and absolute commitment to achieving an outstanding result". In addition to the engraved trophy, made by the award's benefactor Stuart Thomson, Erich received a framed certificate and a total prize package valued at $3000.

For more information: Jenny Bain, Roofing Association of New Zealand. Email: info@roofingassn.org.nz or Phone 09-415-0278

SUSTAINABLE STEEL COUNCIL

The Sustainable Steel Council (SSC) was formed in 2009 to promote the use of steel as a sustainable building material to the various stakeholders within New Zealand's building and property industries.

Once Metals NZ was formed, SSC became part of MNZ. NZ Metal Roofing Manufacturers Inc was a founder member of SSC and the Sustainability Sub-Committee of NZMRM is linked to SSC.

In 2012, SSC developed its own website, www.sustainablesteel.org.nz and this was launched at the Metals NZ 2013 Conference in May. While this has been a while in the making, we now have an attractive and useful website. We invite all readers of Scope/ Members of NZMRM to check it out.

One of the intentions is to publish case studies of sustainable building projects incorporating steel and to become a site which is referenced by those looking for sustainable design. If you have any suitable projects please contact SSC via the website. You can also sign up for regular newsletters.

Stuart Hayman
for NZMRM and SSC

Metalcraft Roofing support NZ architecture students to attend the 'Total Immersion' Architecture Student Summer School 2013

Richard Leplastrier, seminal architect, great teacher, old friend of Glenn Murcutt, talks about building architecture in the landscape, as "furnishing the greater room." The 'greater room' at the annual architecture student summer school at Morning Bay north of Sydney is bounded to the west and north by the sandstone escarpments of Kur-ing-gai National Park, and to the east by the wonderful marine inlet of Pittwater, with all its boats. Each year, since 2005, 32 students from all over Australia and New Zealand, with visitors from as far afield as Argentina, China, England, Ireland, India, Papua New Guinea, Samoa and Spain have spent a week at the boat-only-access YHA Hostel with Richard, with award winning architect Peter Stutchbury and, former Dean of Architecture at Newcastle (and interim Head of School at University of Auckland in 2006), Lindsay Johnston.

It has been called 'Total Immersion' in architecture. Participants eat, sleep, walk and talk architecture. It all started with the annual two-week Glenn Murcutt Master Class in 2001, which is now in its 13th year, and the same model was adopted for the one-week student event. Bringing senior students together to undertake a design project on a selected site within walking distance of the hostel. Participants, which now include some recent graduates, work in groups of four and are encouraged to study the landscape and topography with guided walks with the 'masters', and a landscape architect and geotechnical expert. As an antidote to the ubiquitous use of computers in architecture schools, hand sketching as a mode of observation is demanded. "To draw – to draw out, to draw a thorn from your finger, to draw out insights through observation" – Richard tells us. Any rush to design a building is resisted until the greater room has been thoroughly investigated.

Progress to a design is a journey with intensive tutorials, evening lectures, and recurring visits to the project site, conducted in a collaborative and confidence building spirit – and a degree of joviality with good 'tucker' and a few beers and wine along the way. The last work night is usually a late one, model making on the floor, drawing on tables out under the verandah, possums and goannas walking through. Final group presentations take all of the last day, with some guest critics, commentary and feedback is always generous

and constructive. The program is supported by privileged visits to hard to see, award winning or published buildings by Richard and Peter.

Tony van Raat, 'Head' at Unitec in Auckland has been a great supporter of the event over the years, often contributing to participants fees, and has written;

"The value the students derive from attending the program is unquestioned and they're almost incoherent with enthusiasm when they come back. We give our support because the job of education is just that – to provide opportunities for people to get enthusiastic about architecture".

The support, in the form of scholarships for New Zealand architecture students to attend the Summer School, made available by Metalcraft Roofing in 2013, is to be applauded and is enlightened and very much appreciated. Lindsay Johnston, Master Class Convener.

For details see : www.ozetecture.org

A WINNING COMBINATION

Unfortunately Doug and Gill Price's Halswell property was one of the many that had been seriously effected by the September 2010 and February 2011 Christchurch earthquakes, and they had to call upon their Insurance Company to remedy the damage.

The list of rectification work included replacement of their heavy weight concrete roof, which was leaking in a number of areas, and which had ripples and undulations across many of the roof faces, which are prominent feature of Doug and Gill's home.

Having been given the "OK" to replace their roof, by their Insurance company, the Price's began looking for a low profile, light weight roofing product that would compliment the existing look and feel of their home. Following a comprehensive internet search of local and offshore roofing products Doug Price contacted Metrotile Roofing Systems for further information on its Shingle profile.

In the end three key factors influenced their decision to use the Metrotile Shingle profile. The first being, that the replacement product had to compliment the original style of the house, and the low profile of the existing concrete roof tile. The Metrotile Shingle profile is unique in the New Zealand market, and it is the lowest profile pressed metal tile available. The Metrotile Shingle tile was originally developed by Metrotile in the United States to target Asphalt Shingle re-roof opportunities and utilizes a unique "clip lock" installation system. As a result there are no exposed fastenings and the nose of the Metrotile Shingle tile is only 10mm's high, which results in a very flat profile. The flat profile of the Metrotile Shingle tile is complimented by its Low Profile Ridge Trim and was in keeping with the original design of the house.

The second key factor was that the replacement product had to be robust enough to perform well if Christchurch was to experience any further earthquakes. The Metrotile Shingle tile "fit the bill", as the Shingle roof tiles are individually fixed to the roof, and provide for a strong interlocking roof system, that is less likely to fall through the ceiling during an earthquake and supports the sub-structure of the house.

The final key factor was that the replacement product had to be installed by a competent and experienced roofing company and during their evaluation process Doug and Gill Price were introduced to two of Metrotile's Christchurch Distributor customers by Harry Boxall, from Metrotile Roofing Systems.

The decision to specify the Metrotile Shingle tile and contract Town & Country to undertake the work was supported by the fact that the tile is manufactured in New Zealand by an established family owned business, is low maintenance, performs well in high UV environments, has an excellent warranty and has been tested in extreme weather conditions.

Though Chris Meldrum and TeMana Paenga, the principals of Town & Country, had worked alongside each other for many years there business had only been operating since January 2011. As a result Doug took the time to ensure that Chris and TeMana were fully conversant with the re-roof and renovation process and the size and magnitude of the project that they were undertaking. With this in mind Chris and TeMana undertook a number of site visits to ensure that nothing was missed and that their measurements and drawings were accurate.

Though Town & Country are a new business, they have already clearly identified their value proposition, and set themselves the goal of "getting it right first time, no excuses" regardless of the physical or technical challenges presented by a given project. This "can do" attitude, coupled with their ability to deliver, has seen Town & Country Roofing grow into one of the largest installers of metal tiles in the Christchurch market over the last two years and they are now servicing an increasing number of Volume Builders and General Builders in addition to their re-roof customers.

The re-roof of the Price house was a relatively complex job that involved liaison with "torch on" and builder sub-trades, in addition to the installation of custom flashings on the multiple sky lights, which are a feature of the Price's high end life style home. In addition the reroof had to take place alongside the general renovation of the Price's earthquake damaged property. As a result the Insurance company appointed Hawkins Construction to manage the entire project.

The Hawkins Construction team was well led by their Project Manager Nick O'Neil, and Doug is pleased to report that the project ran smoothly. He also noted that all of the Trades were professional, knowledgeable and accommodating and everyone was able to enjoy a Friday afternoon beer.

Town & Country used Bramwell Scaffolding to set up a 4 boards wide working platform at gutter height to handle the removal of the heavy weight concrete tiles. Town & Country's "plan of attack" involved starting with the 2nd storey bedrooms on the main house, and stripping and covering with tarpaulins as they worked their way down the roof. The Builders would then lift the tarpaulins and undertake any remedial work that was required before Town & Country Roofing would return to the work area and paper, batten and shingle the open roof, before moving on to the next area. All this was being undertaken in the middle of winter whilst the Price's were still living on site.

The Dinning room had a separate lounge next to it, which had a 15 degree pitch veranda around its exterior walls. The Metrotile Shingle could not be installed directly on to this area of the roof, as it has a minimum pitch of 20 degrees. As a result Town & Country Roofing developed a Butynol "ponding board" over the entire veranda area. They then used a cavity batten system to install the Metrotile Shingles on this area of the roof.

Another frustrating challenge was the different gable heights on each of the roof faces caused by a combination of both the earthquake and the settling of the heavy weight concrete roof over time. In order to create a common roof plane the driveway gable was raised by 85mm at one end and 102mm at the other end on one of the faces.

The challenge, caused by the raising of the roof to create a uniform roof plane, was that each gable required custom made 2m flashings, which posed a challenge from both a manufacturing and installation perspective. However Town & Country are pleased to report that the custom flashings achieved the desired effect of hiding the difference in the raised roof height from the fascia level.

By the end of the project Town & Country pulled off 47 tonne of concrete tiles from Doug and Jill's home and filled 15 rubble skips with the broken land fill tiles. This represents a huge 40 tonne reduction in weight on the roof as the new Metrotile Shingle roof weighs approximately 7 metric tonnes.

Town & Country are also happy to report that not only are the Price's are very happy with their re-roof the project has won the Roofing Association of New Zealand Metal Tile 2013 Award program, which is a nationwide award that recognizes professionalism in the installation of metal tiles.

Roofer Details:
Town & Country Roofing
Roofers: Chris Meldrum
and TeMana Paenga
Telephone: 027 282 4520
e: info@townandcountryroofing.co.nz
www.townandcountryroofing.co.nz

Roofing Manufacturer:
Metrotile Roofing Systems
Telephone: 09 299 9498
e-mail: info@metrotile.com
www.metrotile.com

Product Details;
Tile: Metrotile Shingle
Finish: Textured
Colour: Charcoal

SMARTER SMALL HOMES

Based on modular construction, this Smarter Small Home (SSH) designed by the team at Creative Arch was the first of 8 designs to be built by Latitude Homes in Auckland.

Design principles fundamental to Creative Arch such as creative, innovative design, sustainable design and material selection while maximising client expectations were part of the competition brief and were happily taken on and achieved. Living spaces and bedrooms have been positioned to allow a northern and western aspect, in turn creating passive solar heating to the spaces used later in the day. This careful

planning, high quality insulation and glazing all contribute to a reduction in the overall heating and running costs of the home.

These designs were the winning entry from the 2011 James Hardie Smarter Small Home competition.

The SSH was born of the notion that every New Zealander should be able to build a family home, which is both extremely affordable and aesthetically beautiful. Aimed at first home buyers, the range has been designed to maximise efficiency, with the ability to be tailored to the needs of individual clients, through the inclusion of expansion pods.

The home addresses issues of affordability through smarter, sustainable material solutions, without detracting from the overall quality of the home. The volume and repetition of products allow for increased purchasing power, whilst the articulate selection of material finish and construction techniques influence the immaculate aesthetics. Fundamental repetition and regimented planning ensure reduced product wastage, while alternative roof types, claddings and end treatment allow for aesthetic variance, guaranteeing individuality.

The creation of an environmentally friendly, affordable home was paramount to Creative Arch, with a focus on reduced running costs through innovative use of products and design, minimising both the construction and on-going carbon footprint.

This double storey 3 bedroom home built by Latitude Homes is a total of 138m2 with a 70m2 footprint making it ideal for urban living and medium density developments. The central design principles applied throughout all the Smarter Small Homes and showcased well in this home include open plan living downstairs opening to a covered deck providing accessible outdoor living with ground floor joinery finishing at the ceiling to give the illusion of a high stud. The entrance opens into this space with open tread stairs and a large stairwell window to maximise light through the home. Upstairs are 3 double bedrooms, a full bathroom and ensuite. All the homes are designed to achieve a minimum 3 star Lifemark score ensuring the homes are livable for all ages and abilities.

As affordability is major factor in the Smarter Small home, material selection is paramount to reduce labour time and the number of trades on site. Latitude Homes chose to use Metalcraft Insulated Panel system, a prefinished product that allows the roof and ceiling to be completed in 1 day. The roof profile chosen is the Metalcraft MC760 painted in Dulux Iron Sand.

Creative Arch

Creative Arch is an award winning, multi- disciplined Architectural Design firm that was founded by Director and Architectural Designer Mark McLeay in 1998. Their range of work is as diverse as their clients and encompasses Residential homes, Renovations and Coastal Developments. It also extends through to Remedial work and Commercial Architectural Client service is paramount at Creative Arch and therefore working as a team is a priority for designers. The company is focussed on supporting their client's vision and helping them to perpetuate their dreams through creative architecture. Creative Arch take time to listen and to gain a full understanding of clients needs, offering ideas and working collaboratively with them to achieve the desired result. Creative Arch work closely with other professionals to ensure the project is within budget giving clients financial assurance.

They have strong company values, investing a great deal in systems and computer technology to ensure a consistent and high standard of service to clients. Visit our website to see the standards achieved consistently through award winning architecture and numerous publications.

Architectural Designers:
Mark McLeay Creative Arch
Telephone: 09 309 6032
www.creativearch.co.nz

Builders: Marc Hunter
Latitude Homes
Telephone: 09 298 5811
www.latitudehomes.co.nz

Roof cladding:
Metalcraft Insulated Panel Systems
139 Roscommon Road, Manukau
Telephone: 09 277 8844
Profile: ThermoSpan Insulated Panel
Colour: Iron Sand
www.metalcraftpanels.co.nz

GLARE, REFLECTIVITY AND REFLECTANCE

In Scope 32, Stuart Thomson wrote a technical article about Solar Reflectance and Thermal Emittance and the relationship between the apparent visual colour of a metal roof and its ability to absorb or not absorb heat. The way in these factors can be modified by the use of "cool pigments" to allow the use of darker visual colours while reducing heat gain was also covered. Recently I have been asked about the old favourite "Glare" from roofs, and its relationship to Cool Roofs. What follows is a less technical take on what is still seen as an issue in many locations in New Zealand (and elsewhere), and covers only domestic roofs, not larger commercial buildings. These are my views, and not necessarily the views of others.

Glare

Over the years there has been much talk of glare and "reflectivity" and "reflectance" with the two latter terms being used more or less interchangeably. Various dictionaries define glare as "To shine with or reflect a very harsh, bright, dazzling light". Motorists who drive in the morning or evening (like nearly all of us) will have at one time or another been nearly blinded by incoming or reflected sunlight straight into their eyes. This can be very dangerous and recently a train/truck crash in the South Island was attributed to this. The TipTop icecream factory

was notorious for creating blinding reflections on the Auckland Motorway at Mount Wellington, although this seems to have been mitigated by the use of different glazing.

The glare from house roofs has also long been an issue ranging from annoyance to serious eyesore and BCAs in New Zealand have been proactive in trying to prevent this, particularly in rural areas. Queenstown Lakes District Council specifies acceptable colours. In "Cool Roofs" Stuart Thomson shows a yellow hut and comments that DOC don't like it and would prefer it to be of a low visibility colour. I suggest that this would be even more so if it were clad with unpainted Zincalume®.

Heat Gain

More recently the emphasis internationally has shifted from glare reduction (minimum reflection of visible light) to "cool roofs" where the cost of air conditioning for cooling can be reduced by roofs which have minimum thermal gain (maximum reflection of IR radiation) and maximum thermal emissivity. Glare reduction and low heat gain can be seen as mutually incompatible. Things which reflect IR normally reflect visible light and so minimum heat gain/ maximum heat loss will probably result in higher glare.

The use of "cool pigments" can offset this to some extent by allowing reflection and emission at one level in the IR part of the light spectrum and to a lesser degree in the visible part of the spectrum. Many roof paints today claim to use "cool pigments", although such pigments have been used for decades without being called "Cool" because they are also more cost effective and durable.
In the New Zealand environment preventing thermal gain/maximising thermal emission is not seen as particularly important (at present). There is also a difference between a house with a space and then insulation separating the roof cladding from the inside and commercial buildings where typically the roof cladding (plus foil/ underlay etc) are directly exposed to the internal building space and can radiate heat into this space. If you believe advertisements for ventilation systems claiming to extract heat from the roof space,

Photo shows the reflected sunlight: Three satin colours to the left, unpainted Zincalume® centre and three textured metal tiles samples to the right.

it would seem that getting hot is useful, so domestic roofs more thermal gain may be beneficial in reducing heating costs, although the numbers derived from the thermodynamics don't really bear this out. When MRM have looked at potential benefits from heat gain into buildings from the roof, there seems little real movement either way.

"Glare" however continues to be undesirable in many visual environments.

In NZ while there are some attempts to promote "cool roofing" or White Roofs as environmentally friendly this is debateable in the current heating/cooling building environment, and avoiding glare is more important in many locations.

What is "low glare"?

This is to some extent this is in the eye of the beholder, but there is a test method for reflectivity which is used by PCC – ASTM E903-96. The Queenstown guideline implies "reflectance" of 0-20% as best, and 21-35% as acceptable and over 35% as unacceptable. The figures quoted in "Cool Roofs" are RV (Reflectivity Value) which is not necessarily the same (but are presumably related in that more is more and less is less). The Queenstown guide also says that materials with non-shiny, textured or matt/powder finish are preferable.

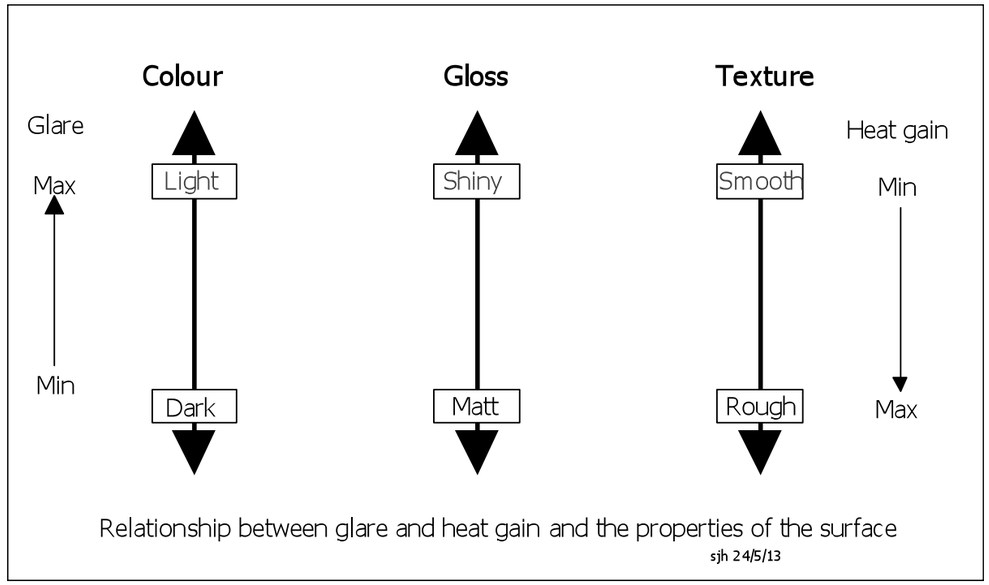
Another measurement that is applicable to visual glare (but not to thermal reflection) is gloss and a Sheen Gloss meter can be used to determine the "glossiness" of roofing materials
"Cool Roofs" considers only long run metal roofing, but in fact there are other roofing materials which need to be considered once we are looking at houses, not commercial buildings. Metal tiles are also part of NZMRM's range and concrete tiles, clay tiles and asphalt shingles/built up roofing all have their own properties.

The following qualitative diagram shows the relationship between the three properties of Colour, Gloss, and Texture and Glare/Heat gain.

Gloss (60° Sheen Gloss) figures for various products that I am aware of are –

- Textured tiles – zero
- Satin tiles (post painted) – 4-8%
- Low gloss coilcoated – 10-15%
- New Zincalume® 20-25%
- Standard coilcoated – 25-30%

Clearly where glare is seen to be an issue standard gloss coil-coated product of light colours are likely to be worse. Unpainted Zincalume® with its very light colour may be worse. Dark coloured textured tiles are likely to be the best with no glare at all.
New concrete tiles normally have a high gloss acrylic coating, and asphalt shingles use flat granules, which would be slightly less effective than textured tiles. Unglazed clay tiles should have



Relationship between glare and heat gain and the properties of the surface

sjh 24/5/13

low glare, but a noticeable colour. It would be necessary to do some testing to ASTM E903-96 and using Sheen Gloss of all materials in various colours to get a definitive quantitative statement, but in general – post-painted metal tiles (textured or satin) are better in reducing glare than roofing made from any prepainted coil. This is unrelated to colour from a gloss point of view, although darker prepainted colours should have less visual impact.

Trade-off between glare and heat gain

The diagram shows clearly that for unmodified products the two properties are in opposition – highest glare has least heat gain, and vice versa. The heat gain factor for darker coloured finishes is claimed to be mitigated by the use of "cool pigments" which are said to be reflective in the IR (heat) more than in the visible part of the spectrum and so allow the use of darker colours (to reduce glare) without as much heat gain as using standard pigments. Stuart Thomson explains this in his technical Scope article "Cool Roofs". However this article covers only coil coated metal, and all these products have a relatively high gloss and are quite smooth. So the use of cool pigments only deals with one of the three properties.
From the above the most obvious way to minimise glare in sensitive locations is to use dark coloured textured chip metal tiles. Use of cool pigments could allow use of lighter coloured matt post-painted metal tiles.

Mitigation of glare (and heat gain).

Quite a lot of work has gone into this and I have uploaded several related documents to the MRM website.

Glare

1) Minimise by use of low-gloss, textured dark colours with lower "Reflectance". The Queenstown Lakes document "Reflection Brochure" covers this.

2) Reduction of visible glare by adjustment of the location/ screening. The Bluescope Technical Bulletin TB-28 deals with this method.

3) Use of cool pigments allowing darker colours. Stuart Thomson's article "Cool Roofs" deals with this.

4) Use of glass covered solar panels (either thermal or pv) or skylights may create spots of high glare in an otherwise low-glare roof.

Heat

1) Under roof (eave to ridge) ventilation.
a) Oak Ridge National Laboratory in the US has done work on under roof ventilation of concrete/clay tiles as reported in ASV NBNL report.
b) They have also done work on metal tiles as reported in the Decra Green Brochure.

These two reports show that under-roof ventilation for tiles is significantly better at reducing heat gain than any colour modification. This is logical.
c) As far as I can find, no work has been published on the effect of under roof ventilation with long run products.

2) Earlier research done by NZMRM was not able to show significant heat gain or loss from long-run metal roofs installed in the normal way.

Conclusion Minimum Glare from domestic roofs is obtained by using dark coloured textured metal tiles. A good result is from using medium to dark post-painted metal tiles.
Heat gain from using darker products on domestic roofs is likely to be minimal and not important in New Zealand houses. If heat gain is thought to be an issue the use of "cool pigments" may reduce it and under-roof ventilation has been shown to be effective.

Stuart Hayman June 2013

GOODMAN WAREHOUSE OTAHUHU

By Graham Hepburn

As part of its ongoing development programme at Savill Link industrial estate, Goodman has completed a new 23,000sq m warehouse, on a design-build basis, for Super Retail Group.
Savill Link is on land formerly occupied by the Otahuhu Railwork Workshops and Goodman, the manager of Goodman Property Trust, is developing it into a modern industrial estate with warehouse facilities. Tenants include major operations such as Toll Holdings, Furniture City and Holden.

Goodman's project manager Ben Shaw says the main considerations regarding the design of the building were size and ease of use for the customer - in this case Supercheap Auto, a car parts retailer.

"We also have to think about the building's marketability should it one day be vacated," says Ben. "So with that in mind, we went with a fairly straightforward footprint and fairly standard stud heights in line with many of our large warehouses."

Also straightforward was the choice of Maxispan® ColorCote® ZRX for the roofing, Multirib® ColorCote® ZRX for the wall cladding and Maxispan® for the smoke baffle ceiling.

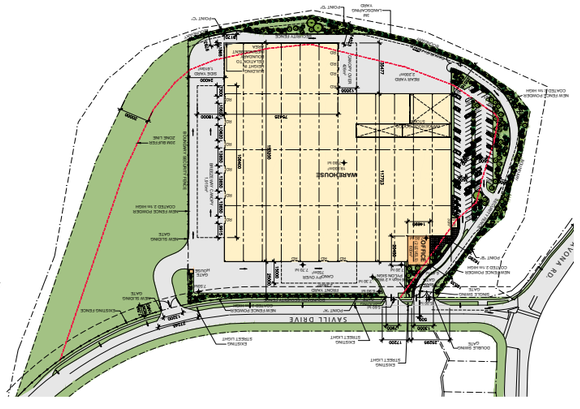
"The roof and cladding material is one of our easier items to decide on for any of our projects as we are driven largely by a need for cost effective materials that can be competitively priced that are still resilient enough for the location concerned," says Ben. "So with regards to responding to the needs of the business, we need something that performs first and foremost, but that is affordable. The Super Retail Group facility was located next to an estuary so the product needed to be fairly durable, so we went with ColorCote® ZRX."

The building, which is 13.95m high at its apex, comprises a 19,930sq m warehouse with 3000sq m of mezzanine storage, three canopies totalling more than 3000sq m of coverage and a 600sq m, two-storey office tucked in the northern corner.

Brent Botha, the managing director of Steel Roofing Ltd, said there was a tight five-month timeframe for the build, which meant trades had to be well coordinated.

"Haydn & Rollett Ltd and Steel Roofing worked collaboratively which enabled multiple work faces to be constructed simultaneously, this lead to the project being completed on time" says Brent.

Being in an industrial estate, site access was good although specialised Roofing Industries transport was required for the longest roof sheets of 34.60m.



Brent says " Regardless of the adverse weather conditions, particularly strong winds off the Manukau Harbour, the project was completed successfully with 23,500sq m of roofing installed as well as a unique 1300sq m smoke baffle ceiling and 6000sq m of wall cladding."

Project architect Joseph Bashouri, of Woodhams Meikle Zhan Architects, says a roof pitch of three degrees was used to limit the height of the warehouse. Construction materials are simple, easily available and low maintenance – as well as the profiled steel roofing and wall cladding, precast concrete panels, fibre cement cladding and glazed curtain walling were used.

Joseph says the key elements of the design by Mike Woodhams, the architectural concept designer, were efficient planning of the site (with greater than 50 per cent site coverage), having an open plan office orientated to the north with the façade facing the street and water view, placing warehouse yards out of the prevailing wind, and providing separate truck and car entry points off the street.

He says using a steel portal frame, which sits atop a post-tensioned concrete slab, allowed columns to be kept to a minimum within the warehouse to make the space more flexible.
The building also has multiple roller doors accessing three separate yards so it could be subdivided if necessary in the future. The front yard has a 750sq m canopy, the breezeway canopy is 1915sq m and the rear yard has a 426sq m canopy.

The office was designed as a simple rectangular form and is positioned in a corner of the warehouse to make it a focal point and to help minimise the bulk of the building. It also helps to bring some human scale to the building with the use of elements such as horizontal louvres, a glass canopy at the entrance, fencing and landscaping.

The horizontal aluminium louvres provide shading for the high performance glass as well as creating an architectural element along with the precast concrete panels.
Like the warehouse, the office was designed with a flexible layout – internal partition walls are non-load-bearing and demountable.

Woodhams Meikle Zhan Architects

Since its launch in 2001, Woodhams Meikle Zhan Architects (WMZA) has grown to become one of the largest architectural practices in New Zealand. It has an established track record with numerous major building projects completed, including the master planning and design of retail, commercial, industrial and large scale residential projects both in New Zealand and internationally. WMZA has a multilingual, multicultural team with staff from more than 10 countries. The practice believes that people are the key to its success, and pooling intuitive minds from different cultures helps to create unique design solutions.

Architect:
Woodhams Meikle Zhan Architects
www.wmza.co.nz
Telephone: 09 377 5215

Project manager: RDT Pacific
Telephone: 09 379 6600

Construction:
Haydn & Rollett Construction
Telephone: 09 444 7379

Structural/Civil engineer:
MSC Consulting Group
Telephone: 09 486 2210

Mechanical engineer :
Thurston Consulting
Telephone: 09 309 5408

Electrical engineer : ECS
Telephone: 09 309 0640

Roofing and cladding supplier:
Roofing Industries
Telephone: 09 414 4585
Roofing: 0.55g Maxispan® ColorCote® ZRX in Pacific White,
Wall Cladding: 0.40g Multirib® ColorCote® ZRX in Grey Flannel.
Smoke Baffle Ceiling: 0.55g Maxispan® ColorCote® ZRX in Pacific White.

Roofing installer: Steel Roofing
Telephone: 09 415 8060

U SHAPE GIVES HOME X FACTOR

In real estate speak, this 3-bedroom Nelson home ticks all the boxes. And yes, it has an X-factor too. Which is hardly surprising given that the owners have extensive real estate and property development experience.

But unlike the many properties they had built in a commercial capacity over the last almost 30 years, this was a home they designed for themselves.

"It was all quite unexpected," the owners recall. "About 12 years ago, we did an exclusive four home development in a very desirable area in Nelson and kept one of the homes for ourselves.

"Then one day last year, an agent knocked on the door and asked if we would consider selling. We hadn't thought about it, but on receiving an acceptable offer and with my wife now working in Richmond, we found ourselves having to look for somewhere to go."

Buy or build?

As the decision to move came suddenly, buying an existing house seemed like the most expedient option. But after looking around, they couldn't find anything that met their expectations.

"Most of the houses we looked at in the $500,000 to $600,000 range had been spoilt with cheap kitchens and cheap bathrooms. The reality was that if we paid that sort of money, and then had to spend more to renovate, we would have probably over capitalised.

"Also, in many cases, we found a lot of houses were very close together, cheek by jowl. We wanted reasonable separation and we wanted it to be private."

Having decided to build, they initially approached a group homebuilder, but were not comfortable with how the design process went.

"After deciding not to proceed with them, we approached David Todd, who I had worked with many years ago. We sketched an outline of the house, which probably took about 10 minutes. He came up with the goods first time, we tweaked a few things, and then we went for it."

"Because it was their home, they wanted to make it special and had thought about it a great deal.

The clients had worked out the layout, the room sizes, access to the courtyard ¬and virtually all of the key design features. I took their design and massaged it a bit to suit the site, and put my stamp on it. Given the aspect of the site and its location at the end of a cul de sac, the design naturally lead to a u-shaped house to provide maximum indoor-outdoor living and shelter from prevailing winds."

At 233 sqm, the home is modest in size but is sited on a full-sized 933 sqm section. The u-shaped design allows for direct access to the large, sheltered outdoor living court

Light and sunny

David recalls that the brief was "very clear and specific". "They wanted a simple home, completed to high standards, that had outdoor living areas to catch the sun at various times of the day and provide shelter from the south westerly wind.

through three sets of stacker doors. Access to the northern patio is from the family room and the southern patio access is via the entry. The master bedroom also has views and direct access to the courtyard.

An unusual feature of the third bedroom is that it has a full wall internal window between the hallway

and outside patio to take advantage of natural light and sunshine in the winter. Throughout the home, extra large windows and a 2.55m stud height enhance the sense of spaciousness in what is a relatively compact home.
"As we said to David, while we didn't need a whole lot of unused space, we wanted a sense of spaciousness," say the owners.

Fussy to the extreme

With their previous experience in property development, the owners decided to manage the project themselves.

"They took a pretty hard rein on the building process," says David, "and because of their background in development, the project went smoothly. The only difficult issue, as always, was council requirements."

When it came to choosing a builder, the husband had definite preferences.
"I had been working with John Kenmare on and off since 1984, and not only does he do excellent work, he knows how I think which is an advantage I find. I started my working life as a joiner which I suppose makes me a little fussier than most when it comes to building quality. He was joined by John McKenzie, another very competent tradesman who he had worked with many times before."

Nothing cheap

As well as having a strong hand in the design, the owners made most of the decisions about material choices.

David comments: "They wanted to go for a plaster finish, a metal shake tile roof and cedar garage doors. With the garage being beside the front door, I suggested schist would enhance the overall look, and then we decided to extend the schist stonework panels to the chimney, around the entry and inside the house with a feature wall within the entry space."

The exterior of the house is accentuated by feature accent trims around the windows, and topped off with a Gerard pressed steel roof. The owner had used a Corona Shake style roof in the development they did 12 years ago and liked the look so much, they decided to use it again for their own home.

"We chose it for its style mainly. We like the profile. We've used Gerard roofs many times before and it was natural to go with them." With their aversion to "basic kitchens and bathrooms", the owners paid special attention to these areas of their home. Even though they spared no expense with high quality fittings and finishes, the final building cost for the completed home came in under $500,000. So now that they've been in the home for seventeen months how do the owners feel about it?

"There's no doubt that the living area is our favourite place. The large areas of glass throughout the home ensure that even in the middle of winter, the sun comes in at eight in the morning and it's there until five at night. And the courtyard works really well too. It's private and protected so you don't have to worry about the wind whether it's the southerly in winter or northerly in summer."

Turning dreams into reality

What sets David Todd apart is he treats each client as an individual, tailoring the design of the home to suit.
"I don't insist upon particular styles or materials and keep myself open to the different things people bring into the mix," he says. "When they come in with photos and ideas of what they want I incorporate these into the design. I find out what the clients want to achieve and look at aspects such as the style, materials, indoor-outdoor flow and overall design."

Director of David Todd Architectural Designers, David says he likes to spend time with each client to gain an understanding of what they envision and how the new home will fit in with their lifestyle. At the same time he works out how to create the most for them in accordance with their budget.

He has been in practice for 28 years and has enjoyed working with the newer trends for greener buildings and using improved material and products.

"Many people want their home to reflect their concerns for sustainability," David says. "A commonsense approach to the issue can certainly help make the savings they want. Extra insulation, careful window placement, installing LED bulbs, having thermal mass features to store and release heat energy, using specified products and paints, recycling grey water, and taking care with the landscaping all contribute."

He says he starts each design project "with his ears", listening carefully to what the clients are looking for and what the essential vision is for their new home, renovations, or industrial or commercial building.

A complete design service is offered for people wanting to build a new home, undertake renovations or refurbishments, or repair with flair. If required, David can also administer the building contract for clients and/or provide site observation.

For the stricter budget, a range of standardised house plans is available through Regency Homes, a division of David Todd Architectural Designers.

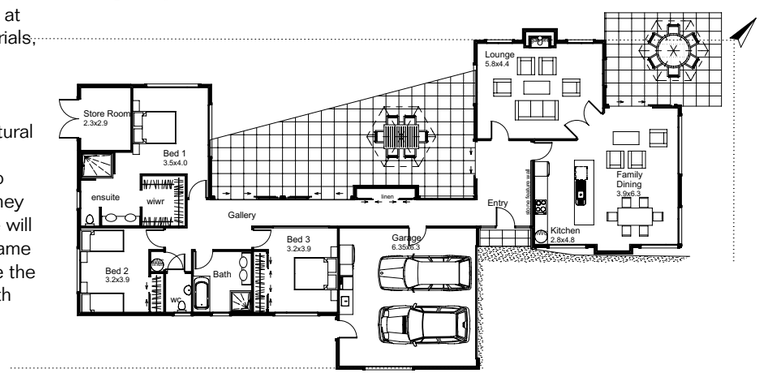
An active member of Architectural Designers NZ Inc. (ADNZ), David is both past president and a life member, is a Licensed Building Practitioner and has a Licence Class/Area of Practice Design D2.

Among his award-winning designs is the NIWA building at Port Nelson, the Hope Community Church, and Stihl Shop Nelson. David has also produced many outstanding, award-winning, innovative designs for residences.

Design: David Todd Architectural Designers
Telephone 03 547 8100
http://www.davidtodd.co.nz/

Roofing: Gerard Roofs
Telephone: 0800 244 737
www.gerardroofs.co.nz
Profile: Corona Shake
Colour: Charcoal

Roof Installer: Ultimate Roofing
Telephone: 03 544 4007
www.ultimateroofing.co.nz



CABLE BAY, WAIHEKE ISLAND

By Graham Hepburn

Being a Waiheke Island resident, architectural designer Bryce Ardern is well aware of the constraints and challenges of building on the island. Bryce, whose design firm Ardern UDB is based on the island, says building more sustainable homes is not just desirable on Waiheke, it is pretty much essential.

"Waiheke demands that in many ways; we're not on town supply water and you can't just hook up to services," says Bryce, who has also founded a sustainable building arm to his design business – Lite-House. "You've got to manage your own stormwater and wastewater and we quite often have power outages on the island."

So when it came to designing and building this Cable Bay residence – a job undertaken by Ardern UDB and Lite-House respectively - those considerations had to be taken into account as well as planning controls that meant the home had to merge with the landscape as much as possible because it was visible from the sea.

This meant cutting a building platform so the split-level home hunkered down into the landscape aided by its monopitch rooflines that were designed to mimic the contours of the site. Roofing it with Multidek® COLORSTEEL® Maxx® Sandstone Grey also helped to blend the building with the site and met the low-reflectivity values demanded by planning rules.

"It's a logical choice to go for a longrun roof product because we can tailor it to the exact lengths we need for our roof runs," says Bryce. "And it also makes collecting water off the roof easy."

He adds that Multidek® COLORSTEEL® Maxx®roofing was an ideal product because it could resist corrosion by salt spray as well as handle the "high wind and rain loads" on the island.
"The weather patterns are quite extreme on Waiheke," says Bryce. "We can get horizontal rain from the southwest."

Paul Ross, of Roofing Industries, says the popularity of Multidek® has grown dramatically since inception because it works well as both residential and commercial roofing and cladding. "The wide tray-type 500mm profile portrays design inspiration and provides that European feel," Paul says.

"Multidek® does not require a supporting ply substrate and utilises a hidden clip system and therefore has no fastener penetrations. It is excellent in high wind zones and areas of high-density rain fall and there is an extensive colour range available including metallics."

Making the home part of the landscape has been taken a step further with the use of a spine wall built from Waiheke Rock – quarried at Stoney Ridge. This wall seems to emerge from the ground at the front of the house, creating a garden wall on the eastern side before gaining height and presence as part of the home, including the chimney. The different colours of the rock are on display in this exposed wall in the open plan kitchen and living area. As Bryce says, "The very honest use of the structural materials in this home means everything is on show. Waiheke Rock and precast concrete walls with ply soffit and ceiling panels flow from the outside to inside in a simple seamless use concealing the detailed work including flashings and structural work underneath."

In line with geotech recommendations, 4m-deep short-bore concrete piles have been used and these support header beams that in turn support the wall panels, which are a concrete-XPS polystyrene-concrete sandwich. These panels have an R value of about 3.0 and provide great thermal mass for heat storage in winter, while moderating the interior temperature in summer. These panels go below the floor slabs to create a thermal break around them. No strapping and lining is needed, and the concrete remains exposed outside as well as inside many of the rooms. Electrical and plumbing conduits were cast into the wall panels and connected with those under the floor, which is made up of Ribraft floor pods and concrete.

The home has been designed in four main modules around three main outdoor living areas to provide options depending on weather and season. The sea views are to the west, meaning exposure to cold southwesterly winds so rooms are grouped around a protected northern court. There is also an enclosed, glass roofed inner court that enjoys the western views and has a custom-made indoor/outdoor kitchen complete with barbecue and range hood. This room, like the rest of the house, has in-floor hydro heating and is fully insulated for year-round use.

Along with the heat pump-powered heated floor and the insulation provided by the walls, the home has R5.0 ceiling insulation and argon-filled low emissivity double-glazed aluminium joinery. There is a woodburning fire in the living room and the solar water heating is gas boosted. The eaves of the home have been detailed so that winter sun hits the concrete floor for passive heating but the summer sun is excluded. The insulated walls and ceiling help to keep the summer heat out, while electronically controlled high-level windows provide further cooling. LED lighting also helps to cut energy usage.

The home was a national category winner, taking the Outdoor Living Award at the National Registered Master Builders 2012 House of the Year and was a category and gold medal winner in the Auckland competition.

While Bryce is proud of the awards, equally satisfying is the fact that the home meets Lite-House's ten-point sustainability plan:

1. Minimise CO2 emissions by building with locally sourced products.
2. Minimise energy demands with super insulation and super-efficient heating.
3. Respond to the local climate by careful design and siting.
4. Minimise use of materials and other resources.
5. Reduce and recycle building waste.
6. Collect, conserve and recycle water.
7. Select materials based on recycling analysis.
8. Demonstrate sustainable systems.
9. Respect vernacular design and building.
10. Create great architecture

Bryce said he decided to set up Lite-House in 2008 to ensure his designs were being fully implemented.

"I started off in building then went away from it but I just felt we weren't getting control of the design process and project management side of it," he says. "Now we've got total control of the job, from dealing with clients to the key in the door stage."

Ardern UDB

Established by Bryce Ardern in 2001, Ardern Unique Design and Build focuses on designing quality homes and commercial properties. Houses have been designed in a range of styles - Balinese, Italian, contemporary, French and early Kiwi styles of architecture. The company's philosophy is based on offering a personalised approach and making the business of designing and building homes an exciting journey for everyone involved. "We are proud that our business has been built on referral from satisfied clients and that the homes we have designed have been recognised with numerous awards."

Bryce Ardern started out as a quantity surveyor before moving on to manage divisions of Fletcher Building and then qualifying as an architectural designer.

Ardern UDB
Telephone: 09 372 5487

Main contractor: Lite-House
Telephone: 0800 372 100
Bryce Ardern
Mobile: 0272915882

Engineer: Wilton & Joubert
Telephone: 09 5791114

Geotechnical engineer:
Ormiston Associates
Telephone: 09 302 2193

Roofing supplier: Roofing Industries,
Telephone: 09 414 4585
Roofing: Multidek® COLORSTEEL® Maxx®
Sandstone Grey

Roofing installer: Matt McKinnon,
Eden Roofing
Telephone:021 487 256

For further information on Metal Roofing or Cladding or details of any of the articles which appear in this publication please contact any of the members listed below.

Members of the NZ Metal Roofing Manufacturers Inc.

A Ellery & Sons Ltd
PO Box 178
Greymouth
Telephone: 03 768 5029
Contact: Clark Ellery

AZKO Roofing Limited
41 Shakespeare Road
Christchurch
Telephone: 03 365 9808
Contact: Maurice O'Flaherty

Brockelsby Roofing Products Ltd
49 Rutherford Street
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Telephone: 04 566 1971
Contact: Malcolm Smith

B J Moss Ltd
PO Box 1007
Gisborne
Telephone: 06 867 1219
Contact: Roger Moss

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Contact: Phillip Fendall

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PO Box 1400
Invercargill
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Contact: John D'Arcy

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Takanini, Auckland
Telephone 09 268 1555
Contact: Richard Mabin

Contour Roofing Nelson Ltd
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Annesbrook, Nelson
Telephone: 03 546 4260
Contact: Dave Freeman

Dan Cosgrove Ltd
PO Box 211
Timaru
Telephone: 03 688 4169
Contact: Brian Cosgrove

Dimond
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Otahuhu, Auckland 1643
Telephone: 09 622 4625
Contact: Darren O'Brien

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Contact: Warren Oliver

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Roofline Marlborough, Blenheim
Canterbury Long Run Roofing, Timaru
Canterbury Long Run Roofing,
Ashburton
Roofing Solutions, Dunedin.
P.O. Box 2317
Stoke, Nelson
Telephone: 03 5443108
Contact: Shane Atherton

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Glen Innes, Auckland
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Contact: Grant Williams

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Napier
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Contact: Chris Patheyjohns

Marshall Industries Ltd
PO Box 846
Invercargill
Telephone: 03 218 2579
Contact: Tom Marshall

Megami Metal Roofing Systems
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Takanini, Auckland 2245
Telephone: 09 268 8959
Contact: David Moselen

Metalcraft Roofing
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Pakuranga, Auckland
Telephone: 09 274 0408
Contact: Tony Barbarich

Metal Design Solutions
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Drury, Auckland
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Contact: Jan Alberts

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Telephone: 09 299 9498
Contact: Gary McNamara

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PO Box 1087
Levin, 5540
Telephone: 06 3679480
Contact: Bruce Love

Roof Manufacturers Limited
PO Box 319
Tauranga
Telephone: 07 578 2650
Contact: Martin Smith

Roofing Industries Ltd
PO Box 302 385
North Harbour Post Centre 0751
Telephone: 09 414 4585
Contact: Paul Ross

Roofline Products Ltd
PO Box 16302,
Christchurch
Telephone: 03 349 8439
Contact: Colin Megaw

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: Rod Newbold

Stratco (NZ) Ltd
PO Box 8494
Christchurch
Telephone: 03 338 9063
Contact: Andrew Staff

Taranaki Steelformers Ltd
Wanganui Steelformers
King Country Longrun
PO Box 36 Stratford
Telephone: 06 765 5191
Contact: Darrell Back

The Architectural Roofing Company
PO Box 8052
Hornby, Christchurch
Telephone: 03-3445991
Contact: Bruce Gibson

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