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SCOPE

NZ METAL ROOFING MANUFACTURERS INC.

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Visit our website at: www.metalroofing.org.nz

Below is a brief introduction to the 2021 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.

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PROJECTS

ARTICLES

FALCON BRAE VILLA

Set on 350 acres of private forest and native bush, Falcon Brae Villa is located on the ridge of the property at near 200m elevation with expansive views to the river and the Kahurangi National Park. The villa complex is an architecturally designed, contemporary residence being marketed as an exclusive use package. It is completely off the grid with a 24kw solar array, its own water collection and wastewater system.

The development of Falcon Brae involved the master planning of a 50-hectare block of existing farm and scrub land including restoration of an existing farmhouse villa, planting of over 50,000 manuka (to be used for honey production) and creation of walking and biking tracks around the property.

Architect, Simon Hall, of Jerram Tocker Barron Architects Ltd says the owners were keen to reflect New Zealand but also the Pacific in their creation of this offering of holiday paradise. Under a 1,000m2 roof, the building has three suites and everything

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Throughout the build keas took an active interest in equipment on site, so contractors had to ensure bird interference was avoided

one could wish for including a games room, media room, heated pool and spa, a secluded hot tub and golfing greens.

“The feature curved roofs soar over the main living areas and allow generous volume spaces to the villa with high level day lighting and ventilation, reflecting the wings of a falcon and the surrounding landscape”, he says.

“The building was carefully located on the hill side over many levels to accommodate the contours of the site and maximise the sweeping views of the Motueka river and the Kahurangi National Park which opened in 1996.

“The main architectural feature is the series of soaring curved roofs which are not only curved in one plane but are also included for a curved elliptical arc on the fascia creating a wing edge to the curved roofs. Secret membrane gutters were formed which include a curved mesh cover to the gutters to protect these from keas.”

Throughout the build keas took an active interest in equipment on site so contractors had to ensure bird interference was avoided. A 1km long access road with a 200m elevation was carefully cut into the granite hillside while existing native vegetation was maintained around the site which was windy and exposed. The grade on the road was chosen to minimise its extent but ensuring access for construction.

The main contractor was Gardner Building Contractors and at the height of construction there were 22 carpenters on site, plus sub-contractors and landscapers over an 18-month period.

Innovation in roof installation was a feature of this project, Iconic Cladding installers overcoming such obstacles as shifting the rollformer to site and operating on the hillside site in two different locations. No crane could be deployed on this terrain so additional manpower was needed to manually carry long sheet lengths up a scaffold ramp to be walked onto the roof. Iconic Cladding provided a generator on site to power the Eurostyle machine and the accuracy of the curved sheets was paramount. The longest sheet was 17m so it was manual labour holding the sheets square as they went through the curving machine. Roofing Industries Marlborough branch manager David Austin said once they had the correct radius for the roof the installation progressed well. The balance of

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roofing work was done on what is now the helipad and progress was always subject to weather – wind being a factor on this exposed site.

Simon Hall continues: “The curved roofs are supported by large curved exposed glulam beams and timber throughout provides a sustainable but natural finish and warmth to the building including floors, walls and ceiling linings. The cedar is finished with a grey oil to blend and complement the manuka forest.

“Waxed mild steel was featured in the chimney linings and without doubt the most impressive design feature of this complex is the curved metal roofs which soar above the main buildings and create a beautifully dynamic roof element which allows daylight into the building while providing brim to avoid direct sunlight”.

Roofing Industries’ Zinacore .55, prepainted aluminium and zinc coated steel material was selected for Falcon Brae Villas with its profiles Eurostyle epic angle seam 450mm pan – for the curves and Eurostyle Spanlok 450 pan – for the gable roofs and vertical cladding.

Jerram Tocker Barron Architects

Award winning NZIA Registered Architects, with studios in Auckland, Wellington, Nelson and Christchurch, Jerram Tocker Barron Architects design beautiful, contemporary buildings of all sizes and across a broad range of project types.

Architect:
simon@jtbarchitects.co.nz
https://www.jtbarchitects.co.nz

Main Contractor:
Gardner Building Contractors

Roofing Manufacturer:
Roofing Industries Ltd
Material:
ColorCote® ZinaCore™
Profiles:
Eurostyle epic™ angle seam 450mm pan
Eurostyle spanlok™ 450mm pan
www.roof.co.nz
Colour:
Lancewood

Roofing Installer:
Joe Wild, Iconic Cladding

Photography
Jason Mann Photography
www.jasonmann.co.nz

Falcon Brae Villa resort

50 minutes south west of Nelson and 45 minutes south of Abel Tasman National Park, Falcon Brae Villas, 720sqm in size, is a high spec retreat, suitable for those seeking exclusive use, five star service accommodation in a luxurious private setting with spectacular views of the mountains and river below. The resort provides easy access to all the major activities in the Nelson-Tasman region – a part of New Zealand the American owners have embraced by creating the Falcon Brae Villa.

Falcon Brae Villa provides the option of three individual suites and an additional bunk room for groups of up to 10 guests (6 adults and up to four children). It is ideal for multigenerational families seeking total privacy. The entire villa can be booked as exclusive use with a private chef and house staff and for larger groups there's an option to rent both Falcon Brae Villas and Stonefly Lodge for a total capacity of 14 adults and four children. Stonefly Lodge is a traditional lodge complex where guests stay in individual deluxe rooms and dine together in the dining room.

Falcon Brae Villas' contemporary residence features a large central lounge with a five-metre ceiling, sunken bar, grand piano, media theatre, commercial kitchen, three dining areas and features a collection of New Zealand and local Maori art. Guests can enjoy the games den which has modern gym equipment, pool table, table tennis, darts and a games table. The large deck looks out to the mountains and features an outdoor heated pool and spa and a barbecue area with a shaded pergola.

The three suites are luxury plus, ranging in size from 124 to 135 sqm with a junior suite of 57sqm, all with private deck space, full cocktail bar, coffee and tea making facilities, luxurious bathrooms and a high-quality TV and audio system.

Marketing

Stonefly Lodge mainly attracts repeat clients, agent referrals and word of mouth clients. The business for Falcon Brae Villas, which has opened more recently, receives bookings from agents dealing with high-end travellers wanting a luxury product with five-star service.

Scope understands Falcon Brae Villa is currently offering a $5000.00 per night special which includes daily continental and full cooked country breakfast, pre-dinner drinks with canapes and a four-course gourmet dinner. A minimum stay of two nights is required. Until the borders reopen New Zealand residents can stay in a Villa Suite for $1,500.00 per night.

To learn more visit www.falconbraevilla.co.nz

Or email info@falconbraevilla.co.nz

BEAUTIFULLY BLENDED WITH ITS LANDSCAPE

The owners sought a place that reminded them of their former hilly and windy site, overlooking the sea in Wellington while connecting to their new home in Christchurch. The north facing site on the last recorded lava flow on Banks Peninsula gave them everything.

The design echoes a strong belief that shelter needs to be grounded in its setting to enable people to connect at the most basic emotional levels. This house was designed on multiple levels with the whenua. The form sits softly on the landscape, not fighting but softly bending with the shape of the land. Its colours are selected from those naturally occurring in the landscape; the roof form matches the slope of the land and the detailing, using Canterbury prickles reflects the broken form of the Port Hills. Over time the house is designed to disappear into its landscape as the native trees grow back around it.

One room wide

The brief was for a house for two people with a love of cooking with space for an extensive craft art and Pasifika collection and a classic car; the response is a linear form arranged from public to private along a 40m plus gallery space.

From the entrance the house offers a deceptively small façade with a simple and strong form, nestled in amongst large boulders that have been dug up on site. The house is entered through a compressed, cave-like space, designed to hold some of the owners' cast glass collection.

Service space and guest rooms are accessed via hidden doors off this one-room-wide gallery. At the end of the gallery, the cave opens to a lofty timber box, housing the kitchen, dining and living space in an open arrangement. The kitchen, with a 5.5m long prep bench, is designed to allow both owners to cook together. The emphasis of the living space is directed out to the 200-degree view of Whakaraupo, Lyttelton Harbour and this area holds the majority of the owners' artwork.

Beyond the living space, the plan blends gently through a library space to the main bedroom at the end of the house. Internally the material choice reflects the natural aspects of the design: all walls and ceilings are lined with birch ply offset by darker oak highlights for trusses and ceiling battens. All joinery and doors use the same birch ply as the walls and the flooring is a combination of rubber and carpet tiles reflecting the timber and the rich greens outside.

Sustainability

From the outset, the design was conceived as a low energy build. The building envelope is designed at over twice code for insulation and thermal efficiency.

The majority of the glazing is specifically designed to heat the floor slab between the equinoxes, lowering reliance on additional energy. The house is heated with an ULEB fire which is used as a cooktop (and phone charger). The internal forms are designed to allow good ventilation on hot, nor-wester days; spaces within the house can be sectioned off to allow smaller areas to be heated. There is no cooling.

Materials have been generally chosen for low embodied energy – except the concrete slab – with a strong use of sustainably sourced timber. The design module has enabled minimal waste of manufactured building materials and the house is designed to last and to be easily repairable.

The design of the building purposely has a 'soft and hard' nature with the street side using a metal cladding. Designer Dennis worked with the Metalcraft team to select a cladding that expressed the nature of the site and work well with the curved and straight walls. Together with the Metalcraft technical team, a 'Canterbury prickle' detail was developed to suit the site wind exposure. The resulting ridge detail is thus critical to the minimal design aesthetic.

A double winner at the 2020 Canterbury Architecture Awards (a Housing award and a Resene Colour Award), the Chippindale/Grinham house, designed by Dennis Chippindale, principal architect at Stephenson & Turner as his new home.

Simple design, perfectly executed

The long, slender residence with its 200-degree view of Whakaraupo/Lyttelton Harbour was designed to sit unobtrusively within the landscape rather than showing itself off.

"It isn't overly complex", says Dennis. "As time goes by I think I become more subtle. Every last panel joint in the house lines up, for instance, like a

piece of joinery. That was definitely extra work for the builders but you see it when you look for it – that apparent simplicity actually takes a lot of thinking."

A 40-metre-long corridor forms the spine of the house, showcasing the couple's art and books. "The house is really only one room wide. We wanted a single-level house in the hills, looking at the water – that's how we've lived most of our lives."

Unusual use of materials links the house with the land; some of the finishes are slightly unexpected like the carpet tiles in the living area and the full plywood interior. Each has been carefully chosen to reflect the landscape. The Canterbury prickle detail on the cladding was singled out for special attention by the NZIA judges who also cited the cladding as "a wonderful use of colour".

Dennis used some of the rocks unearthed on the site to match the house colours to the environment. The volcanic boulders finally made themselves useful after proving a bit of a challenge during the build.

The low-profile home is exactly what Dennis wanted: "It's thoroughly modern and efficient while also being ruthlessly simple. It's about home, comfort and simplicity – and an idea clearly expressed."

Architect:
Dennis Chippindale
Stephenson & Turner
Email: dchippindale@stephensonturner.com

Main Contractor:
Ian Mayer
Proceed Building Ltd

Roofing Manufacturer:
Metalcraft Roofing
Material: COLORSTEEL® MAXX 0.55bmt
Profile: espan® 340 in Ironsand

Roofing Installer:
Metalcraft Roofing

Photography:
Simon Devitt Photography

RECLADDING 2.5KM OF NOISE PROTECTION WALLS

Back in 2011, when the Hobsonville motorway opened – part of a $220 million roading project – its bright orange noise protection walls caused a bit of a stir.

People thought the stark orange was an undercoat for a more acceptable colour. Some locals even took to social media to voice their objections to the colour scheme – described as “an absolute eyesore”, “hideous” and “cheap”.

Part of the north western motorway passes through residential areas so sound walls were erected to absorb noise and for a time the orange walls met their objective, having been chosen by the New Zealand Transport Agency (NZTAS) and approved by the previous Waitakere City Council.

At the time the walls were the country’s largest public artwork, artist Jeff Thomson having created tyre trails and tread pattern graphics on the walls for added aesthetics.

Turns out the orange walls did not go the distance.

The plywood swiftly deteriorated, mould took hold and the blistering paint fell off the wall panels in chunks. When the NZTA monitored the noise wall in 2019, two needed to be removed and the remaining five needed re-cladding.

ColorCote AlumiGard was chosen for the re-cladding of five wall panels – chosen for its longevity and resistance to corrosion. The baked-on paint system is the same marine grade alloy that boats are made from so it won't rust.

Work began in June 2020, one of ColorCote's key customers, Roofing Industries supplying their Eurostyle SpanLok™ profile, Swift Roofing chosen to install the new cladding. Over 15,000 lineal metres of product was required on the project with a re-cladding budget of $2.1 million. The project was completed last October.

The revised colour scheme is intended to simulate driving through a forest and to blend with other noise walls along the north western corridor. Local mana whenua, Te Kawerau a Maki, endorsed the new colour scheme and blessed the land and construction workers as the re-cladding project got under way.

Steve Haines, New Zealand Sales and Marketing Manager for ColorCote was a fan of the bright orange walls back in 2011 but they have deteriorated quickly and the re-clad exercise is a definite improvement.

AlumiGard panels in Roofing Industries Eurostyle SpanLok™ profile have been installed over the top of the existing old walls meaning sound reduction should be at least as good if not better than the original orange ones.

Cladding Manufacturer:
Roofing Industries
Material: ColorCote® AlumiGard™
Profile: Eurostyle SpanLok™

Installer:
Swift Roofing

THE BACH THAT JOHN KIRWAN BUILT

For Sir John Kirwan, the beachside town of Waihi is akin to a spiritual home. The sporting great and keen surfer spent countless holidays and weekends in the town since his parents bought their Waihi bach when he was just 8 years old.

Kirwan and his wife Fiorella originally built a holiday home there in 1991 but it didn't age well and, by 2019, it needed replacing. It was this that drove their desire to build with materials that could withstand the coastal elements and house the family for generations to come. The previous house had been fairly large but when thinking about the replacement, the couple decided to aim for practicality and longevity.

Kirwan has a long-standing relationship with architectural designer Chris Tate, who he engaged to design the new bach. It was decided, during a meeting with Tate, that the Waihi bach would be clad in COLORSTEEL® FlaxPod® Matte. For Tate, the use of COLORSTEEL® helped to ensure this was a durable, low maintenance and quintessentially New Zealand home that met his clients brief. "It's cladding that represents New Zealand - very much a New Zealand look. "It's bulletproof and it looks sharp", says Tate.

The new COLORSTEEL® Matte finish comprises of a micro-wrinkle paint technology that evenly diffuses light. The innovative paint finish allows the building to merge with its natural surroundings, giving it a low profile when seen from the beach, a key priority for the homeowners. The home was constructed using NZ Steel Axxis® Steel framing, which contributes to the bach's longevity and allowed for easy construction.

The Metrib 760 profile of the COLORSTEEL® lends crisp, clean lines and a timeless yet modern look to the bach. To provide some visual warmth and a sense of contrast against the horizontal lines of the COLORSTEEL® cladding, Tate specified Abodo Vulcan Rhombus Clip Screening around the baseboards and decking balustrades. Chunky fascias lend a contemporary look to the design. A boardwalk runs alongside the house, accessing the rear deck and providing a reference to the beach access points over the dunes.

A boardwalk runs alongside the house, accessing the rear deck and providing a reference to the beach access points over the dunes.

Inside, the house features a full wet room where Kirwan can come in from the surf and easily hang up his board, shower off and throw his wet clothing into the laundry, before heading up the hall to the living area.

“The laundry is there, surfboards can be stored, it’s quite a functional entry with a big utility space to walk through,” says Tate. “And then it's like a villa with a hallway down the middle and rooms spilling off, then living, kitchen and dining at the end.”

The living space extends outdoors to a large deck with stadium style steps down to the lawn. A built-in barbecue and spacious outdoor dining area provide for easy summer living.

Designer statement: Chris Tate designs buildings of outstanding and unique modernity.

Each of his designs is as individual and daring as his imagination will go, statements that create a lasting impression on the world. He aims to create an experience in his buildings, maximising beauty by discovering the potential in a site. Taking an unconventional approach to architecture where function follows form, he aims to allow for adaptation for the building’s occupants.

Project Details
Completion date: 2020

Architect:
Chris Tate
https://christatearchitecture.com/

Main Contractor:
Barrett Homes
https://barretthomes.co.nz/

Roofing/cladding Manufacturer:
Metalcraft Roofing
Material: COLORSTEEL® FlaxPod® Matte
Profile: Metalcraft Metrib 760

NZ METAL ROOFING MANUFACTURERS, SUSTAINABILITY, AND THE NZ GREEN BUILDING COUNCIL RATING TOOLS

People have been talking about "sustainability" for a long time without really defining what is sustainable other than something that can continue. In 1987, the General Assembly of the United Nations set up the World Commission on Environment and Development, with the objective of proposing long-term environmental strategies for achieving sustainable development by the year 2000 and beyond. They generated a huge report of which a key message was the definition of sustainable development by the Chair, Gro Harlem Brundtland, as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". There have been other definitions, but probably nothing better.

Buildings are serious consumers of materials and energy and generators of waste and pollution and so need serious mitigation of these factors in order to comply in any way with the definition of "sustainable development".

Following shortly after the WCED report the Building Research Establishment (BRE) in the UK developed methods of measuring and controlling the environmental effects of buildings and created the programme called BREEAM (Building Research Establishment Environmental Assessment Method), first published in 1990. This is the world's longest established method of assessing, rating, and certifying the sustainability of buildings, and is used in a number of countries worldwide.

Other countries have developed their own programmes and in 2003 the Green Building Council of Australia (GBCA) was created and set up its own programme, a building certification scheme called "Green Star". Shortly after, New Zealand set up the NZ Green Building Council (NZGBC) which adopted the Green Star programme more or less completely from Australia. South Africa also adopted the programme. Subsequently NZGBC has also developed the Homestar programme for residential buildings.

Green Star

The Green Star rating tool is a method of assessing the sustainability of a building in terms of (in short) what it is made of, what goes into and out of it, and the effect of its use on the environment. Clearly what the building is made of is a one-off "cost" which effectively declines per annum over its life, while the effects of its use, however mitigated during its life, accumulate over this life. Green Star (as do other schemes) emphasises the performance of the building during its life – energy, water, internal environment, pollution, user comfort – rather than the upfront effect of the materials. In fact the Materials category accounts for only 14% of the total points obtainable.
In the case of the building materials, which as supplier of roof and wall cladding is the connection with NZ Metal Roofing Manufacturers Inc (NZMRM), there is an initial "cost" determined by the sustainability of the materials (inherent by manufacture and by waste) and a final "cost" determined at the end of life of the building and the eventual destination of the materials (reuse, recycle or waste). In the case of most products supplied by NZMRM members this consists of :

Manufacture of the steel (before NZMRM) and delivery to MRM member

Manufacture from this steel of the cladding products (NZMRM) and waste during manufacture

Waste during the building process and recovery of this waste (after NZMRM)

Recovery of cladding after building demolition and scrap, reuse, or recycle.

The path of these steps have been called - Steps 1 and 2 a) Cradle to Gate (i.e. before use); 1 to 4 b) Cradle to Grave; and 1 back to 1 is c) Cradle to Cradle. The environmental effects of the path depends on which of these it is. In the case of steel which is infinitely recyclable there is a big sustainability difference between paths b) and c), which is not always recognised.

The programme started with Building Design only and has evolved to cover the entire building process as carried out, the interior and refits.

The Green Star programme is defined on the NZGBC website, but essentially it has been evolving stepwise since the beginning when it copied the Australian programme directly. The specific tool related to our purposes is “Green Star Design & As Built NZ”. Details are available on the NZGBC website so there is no need to repeat it all here, but in summary Green Star assesses the sustainability attributes of a project through impact categories. Each category groups a number of issues related to a certain sustainability impact; these are known as ‘credits’. Credits are weighted in relation to their assumed relevance to sustainability in the building, and to each other, by varying the number of points available. Each credit defines a clear aim along with specific criteria that a project must meet. Where the outcome is verified to have met the relevant criteria, available points will be awarded.

Once all credits are assessed, the total number of points achieved is compared against the available points in the rating tool and a certified rating is awarded.

Under the Design & As Built Tool, projects are rated by Stars as follows -

Note: Projects are only awarded a formal Green Star rating if they achieve 4 Stars or greater.

So the realistic sustainability aim is for 4 or 5 Star performance. At one time (although no longer!) Government buildings in urban areas had to be 5 Star and in non-urban 4 Star. Could come back.

The programme started with Building Design only and has evolved to cover the entire building process as carried out, the interior and refits.

So, how has NZMRM been involved in the ongoing development of the NZGBC programmes for Green Star and more recently Homestar?

Fletcher Building (who employed the author) was a founder member of the NZGBC. New Zealand Steel (NZS) followed shortly after, and during the 2000’s meetings between potential users and NZGBC to discuss the evolution of Green Star were attended regularly by people from MRM (as FB), NZS and HERA. NZMRM formed its own sustainability committee in 2005, which has met regularly since then. In 2009 NZMRM was a founder member of the first Sustainable Steel Council (associated with Metals NZ, and which was revitalised in 2019 after recess in 2015 and is now forging ahead). NZMRM is now a member of NZGBC in its own name, after being linked via some members and NZ Steel.

Once the Sustainable Steel Council was formed we have worked with this forum to interact with the NZGBC rather than directly.

For much of this time we were working on the Mat-6 then Mat-8 Steel material credit and rollformed steel cladding products qualified under the Mat-8 criteria, but this has been revised in 2019.

Homestar is a holistic tool to rate a home's performance and environmental impact. A 10 Homestar rating recognises world leading standards for design, construction and efficiency in operation.

Several Mat-8 criteria no longer apply and in terms of the specifics of the Green Star Design & As Built Tool, the "Materials" Category now has 4 "Credits". The credits where the use of products supplied by MRM members would apply are limited to :

Credit 19 Life Cycle Impacts: Two Alternative Pathways

- 19A Life Cycle Assessment (max 7 points)

Requires a whole of building, whole of life, Life Cycle Assessment to be conducted (MRM products may contribute but have little influence on this process)

- 19B.2 Life Cycle Impacts - Steel (max 1 point)

Requires the use of minimum strength grades – use of G550 to allow 0.40 mm vs 0.55 mm steel

Credit 21 Sustainable Products

- Up to 3 points are available when a proportion of all materials used in a project meet some specified transparency and sustainability requirements.

A Reused materials - Items that have been previously used and are incorporated in the project without significant changes to the structure or function of the item

B Recycled materials - Items produced with recovered materials

C Environmental Product Declaration EPD - For product specific EPD it must be issued in conformance with ISO 14025 or EN15804;must be independently-audited; and must be based on a cradle-to-gate scope as a minimum.

D Third Party Certification - Several certification schemes have been assessed against the NZGBC Framework for Product Certification Scheme and meet the requirements for the Third Party Certification requirement in this credit.

E Stewardship Programmes - Product Stewardship Contract – Leased and purchased items. The supplier must agree to collect the item at the lease end for re-lease, re-use or recycling.

Credit 20 Responsible Building Materials

- Note that supply from a responsible steel maker is no longer eligible for credits for steel cladding, and this now applies to structural steel and reinforcing only.

  Over the whole Green Star NZ programme it has been difficult for metal cladding made from steel produced in New Zealand to comply with the criteria. The most recent Design and Build criteria make compliance no more likely.

Homestar

Green Star has always been aimed at the use of environmental principles in the larger units of building – offices, commercial buildings, schools etc (and has been successful in creating many sustainable buildings). This tool is not suitable for the more humble residential buildings – homes.

"Homestar is a holistic tool to rate a home's performance and environmental impact. A 10 Homestar rating recognises world leading standards for design, construction and efficiency in operation. A 6 Homestar rating recognises a home that has been built at or above the current standards set by the New Zealand building code, dependent on location across Aotearoa".

Through continuous interaction with the NZ Green Building Council since its inception, NZMRM has been able to create recognition of this benefit to the entire construction.

Homestar was launched in 2010 as a fairly simple programme which had little or no reference to the materials used in the home. This meant that NZMRM was not able to gain any recognition for using steel or for its performance as a roofing material. It also meant that NZMRM was not as able to contribute as usefully in discussing the earlier versions as we were to Green Star.

However, Homestar has evolved quite rapidly through version 2,3 and now 4, with Version 5 due in mid 2021.

As in the above description, Homestar emphasises and recognises the effect of the home environment and construction on the health and comfort of the occupants, rather than the effect on the environment, which is where NZMRM products can have an effect.

In the current version 4, there is recognition for materials and specifically metal roofing in 4 areas and with 4 credits. These were covered in detail in the Scope 47 article in June 2018, but in summary the opportunities are in –

MAT-1 Sustainable Materials up to 10 points
– To encourage and recognise the specification and use of responsibly sourced materials that have lower environmental impacts over their lifetime. Points are available for both Wall Cladding and Roof Cladding as long as at least 50% of the material carries an approved eco-label. (Environmental Choice, Global Green Tag, EPD, etc.)

WST-1 Construction Waste Minimisation up to 5 points -

– To encourage and recognise effective waste management practices by having a waste minimisation plan in place during construction and/or major refurbishment. To encourage and recognise a reduction in the amount of waste generated onsite during construction and/or major refurbishment. Metal cladding has minimal onsite waste compared to virtually all other materials. If any is generated it is usually separated and sent for recycling due to its high monetary value.

WAT-2 Sustainable Water Supply up to 4 points –

- To encourage and recognise reducing a dwelling's demand on water supplies through the collection and use of rainwater on and around the dwelling. Collection of rainwater from a metal roof qualifies.

STE-1 Stormwater Management up to 4 points

- To encourage and recognise houses/sites that reduce stormwater run-off from buildings and hard surfaces, in order to mitigate flooding, pollution and stream erosion. Collection of rainwater from a metal roof qualifies.

The suggested upcoming version 5 is looking to simplify the categories into Energy Efficiency, Healthy and Warm, Designed for People, and Caring for Nature. The emphasis however in terms of points allocation is still heavily weighted towards the Healthy and Warm aspects.

Conclusion

While it is true that metal cladding is quite a small part of industrial buildings (somewhat more in residential), it does contribute to the overall sustainability of the building. This is recognised in the NZGBC rating tools; more so in Homestar than in Green Star.

Through continuous interaction with the NZ Green Building Council since its inception, NZMRM has been able to create recognition of this benefit to the entire construction. Now through Sustainable Steel Council Inc we will continue to do so.

Thanks to Stuart Smith of NZ Steel for his GSAP input

HAWKESHEAD

When Eric Dally, architect at Eric H Dally Architects Ltd and his wife Dawn designed their new home, they couldn't go past the clean lines and economy of Steel & Tube Plumbdek® in COLORSTEEL® ENDURA® FlaxPod® for the roof. Eric says "Plumbdek® is a very economical profile with attractive lines. I have used it extensively in past design work".

Eric's role as judge for Master Builder's House of the Year since early 2000's, has seen him travel all over New Zealand looking at the best in design and construction. Eric and Dawn had already built 2 houses for themselves and knew what products worked well and how they wanted their third home to integrate to the site and their lifestyle.

The design intention of the house was to create strong lines yet reduce the overall impact and visual dominance of the house. To that end, the house is cantilevered on the section facing the reserve and views, giving an impression of a reduced footprint and feeling of floating above the landscape. Eric and Dawn wanted to create a home that allowed them as much freedom and the least amount

of maintenance as possible. COLORSTEEL® is durable, low maintenance and a natural choice for roofing, guttering and cladding.

Improving on the design of their previous houses, the outdoor entertaining areas are cleverly located to have protection from all winds, especially the easterly wind, and are roofed in adjustable louvres.

Water tanks are hidden from view in the basement, which also provides storage, reducing visual clutter on the site. Solar panels are discretely fixed in line with the roof and the deep Steel & Tube Plumbline® 125 mm guttering effectively hides the solar panels and the roof from ground view, giving an impression of a flat roof design.

Drawing on 50 years design experience, Eric designed a home that feels luxurious in detail, maximises the orientation to the sun and the view of the reserve to the north of the house and beyond to the city, Pegasus Bay, and the Southern Alps. Clever rationalisation of views from the main rooms mean each room has a view through the house to the vista beyond.

The house is based on a traditional Victorian villa design with a wide central passage leading through to the Northern end of the house. This allowed Eric and Dawn to perfectly showcase their art collection which is a shared passion. Modern details such as a 200kg, extra wide, voice-activated front door on

▶>>>

a single pivot point, thermally broken windows with Low E Glass and plenty of insulation add to the comfort and contemporary feel.

Eric is particularly skilled in lighting layout and design for commercial and residential projects and Hawkshead Way is a showcase for his talent. The lighting is designed to fit the architecture of the home and is voice controlled, LED and economic to run. Eric's and Dawn's extensive art collection is carefully showcased with a comprehensive art gallery quality lighting plan to ensure the artwork is properly lit and displayed. Secret and hidden lighting discretely adds warmth and interest throughout the home. As night falls, the lit house appears to float when viewed from the reserve.

The team at JD Homes took great delight in implementing the very high standard of finish with beautiful negative detailing, fine joinery and modern features such as full Google connectivity and even rooms, such as the powder room, hidden behind secret panelling. Take a moment to see the video created by Jesse of JD Homes that shows the craftsmanship in design and build of Hawkshead Way.

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ericdallyarchitecture@gmail.com

Builder:
JD Homes
Telephone: 021 701 265
jdhomes.co.nz

Roofing Manufacturer:
Steel & Tube
Material: COLORSTEEL® Endura®
Colour: Flaxpod®
Profile: Plumbdek®

Roof Installation:
Pete Reid

Rainwater Goods Installation:
Warren Best

https://bit.ly/3nynfju

A NEW INNOVATION FOR CONDENSATION MANAGEMENT AND QUICKER BUILDING ENCLOSURE.

As water vapour is lighter than air, it easily finds its way into the ceiling cavity increasing the risk of mould growth. Therefore, the first step to a dry and healthy home is to improve the air movement in the ceiling cavity.

With a strong and continued focus on product innovation, Colorsteel® offers a new design led solution that helps combat the growth of mould in New Zealand households – Colorsteel Dridex®.

Consisting of a unique absorbent layer of fleece adhered to the reverse side of the Colorsteel® sheet, Colorsteel Dridex® negates the need for underlay. Working on the same principles as traditional underlay, it absorbs moisture when the cavity space reaches dew point and releases it when ambient conditions improve.

By removing the natural air barrier created by roofing underlay, Colorsteel Dridex® increases the free vent area available in the ceiling space by about double.

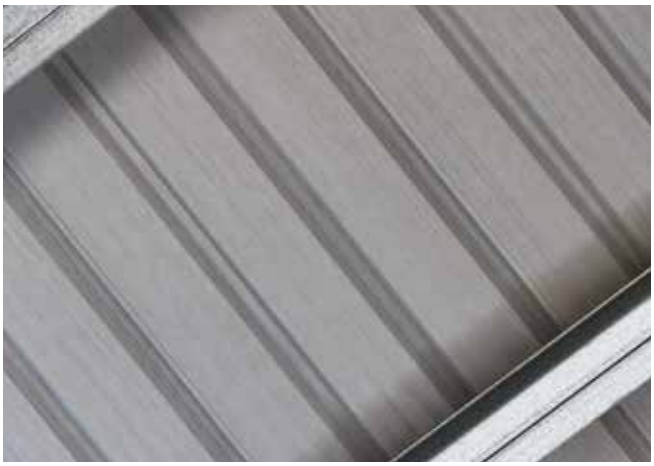
The increased free vent space allows for greater movement of air in the roof cavity and ultimately a drier healthier internal environment.

Helping in the fight against mould, the value of Colorsteel Dridex® can be quickly appreciated. At the same time, with no requirement for underlay, the installation process will be less effected from variable weather conditions, resulting in a quicker enclosure.

Nils McGee, from McGee Roofing, lead the installation team using Colorsteel Dridex® on the recent re-roof of Tahuna Marae in Waiuku. “It was brilliant to work with. Without having to use underlay, the savings on labour were definitely noticeable. It’s really easy to install, especially once you’ve burnt-back the ends. You also don’t have to worry about sending the boys home when the wind picks up – you can work in a wider range of conditions. Cost wise, with no need for paper or netting, it’s amazing. We’ll be looking to use this product in the future.”

The ability to work in a greater range of weather conditions has a noticeable result for larger commercial projects required to meet tight build programmes and deadlines.

"It was brilliant to work with. Without having to use underlay, the savings on labour were definitely noticeable."



Mainfreight's new 18,200m2 distribution terminal in Tauranga made use of Colorsteel Dridex® for the roofing material. The removal of the building paper and foil helped the installation team to install in a greater range of weather conditions. "When you have long-term projects exposed to high winds it's quite difficult to install the roof and still meet the build programme. Not having to install building foil separately allowed us to continue installing even in higher wind loadings. The biggest advantage is time saving," explains Mainfreight's National Property Manager, Edward Creedy.

When working in larger unlined builds, Colorsteel Dridex® offers advantages beyond the quicker installation. Now warranted for use in certain wall cladding applications, Dridex® offers a clean, uniformed finish for unlined projects that frequently suffer from sags, rips, gaps or misalignment of underlay.

Above image: Mainfreight Building, Tauranga
Left images: Tahuna Marae, Waiuku

Available in all standard colours in the Colorsteel® range, and offered in two grades, Colorsteel Dridex® provides a valued and innovative roof & wall cladding solution for your next project.

AN EEL-LIKE LONG, SLIM SOUTHERN HOME

Two architects with complementary practices joined forces with a Dunedin client to achieve an enjoyable and collaborative solution for an ambitious design project on the Roseneath Peninsula.

The site provided significant challenges. The urban fringe location between Port Chalmers and Dunedin City was on a south-sloping, harbour's edge site with panoramic views from the south east to the south west over the Otago inner harbour from the end of the Roseneath Peninsula.

Key design constraints were consent and visual character, impact and excavation limitations along with the range of Otago climatic conditions over a season, the house's long design life, site access and circulation and settling a building on the site in the context of resource consent limitations.

Clients Norman Evans and Sharon Chappelow were explicit in their requirement for a "habitat", single level home or, as architect Mark Southcombe commented: "Their expansive everyday use was not to be compromised for visitors or 'conventional expectations' of house.

Architects

The concept for this collaborative project between an innovative Project Manager with a PhD in entrepreneurship and two architects with complementary practices was initiated at a weekend long workshop with the clients. Norman had provided the design team with a 28-page brief of what he wanted to achieve in the home including the request for the home not having any straight lines. When seen from the harbour, the long, low house tactic enables a low profile – a house that hunkers down into the site, minimising visual impact and easing a tricky resource consent.

Norman had bought the site for the home in 2012 and lived in a cabin on the land for six years so was familiar with many challenges that awaited the design team of Mark Southcombe and David Smith.

The planning celebrates domestic ritual and informality of use, blurring public and private spaces

"Our vision was of a sinuous line – an eel-like, long south facing house that reinforces a curving landscape contour at the specific moment the slope eases", they recall.

"The idea choreographs different views of the landscape panorama from within the house, allows unconventional room to room to room planning and creates exterior north and east facing courtyards. The planning celebrates domestic ritual and informality of use, blurring public and private spaces; it is highly functionally specific although its planning could not be more different to convention".

As a breeder of tropical fish, Norman's aquaria and central fish workroom are located in the middle of the house posing as a "rock" within a stream of enfilade spaces flowing together along the site. A library is included, a room serving as Sharon's private retreat and she has a conservatory for her plants. A small and intimate lounge opens into the conservatory so there is extra space available when there's a crowd.

Construction

Locally-sourced, simple, robust materials are combined to balance economy, architecture and sustainability. The house consists of a simple, cross-section of three narrow clerestories with flat roof sections varied across and along the contours to scoop the available sun, create light-filled, passively heated volumes and enable simple construction. Construction uses standard details such as an insulated ground concrete slab and 140 light timber with integral steel frames where required.

Organic double curvature has been resolved spatially and geometrically through a series of simple, curved walls with truncated radial roof planes to create the impression of double curvature at the ends of the "eel". The roof planes comprise Colorcote Alumigard in Dimond Roofing's Eurotray® Roll Cap to beautifully accommodate the unique radial design features.

Although homeowner Norman has been involved in house renovations and extensions of properties in the past, the Roseneath home is his first build and as project manager and contract administrator he has marvelled that the completed house is exactly what he envisaged.

The architectural combination comprised Southcombe Architects, responsible for feasibility, conceptual and developed design and David Smith Architects responsible for detail design, contract documentation and building consent.

Client Team
Norman Evans
Sharon Chappelow

Contractor Team
Streamline Construction
Nathan Faithful

Architectural Team
Southcombe Architects, Wellington
David Smith Architects, Christchurch
Mark Southcombe
David Smith
Jeremy Robinson
Greig Hill

Roofing Manufacturer
Dimond Roofing
Material: Colorcote® Alumigard™
Profile: Eurotray® Roll Cap
Colour: Black

Photographer
Fabricio Chicca

SYNERGETIC GRADUATION OF A SIMPLE FORM

The client purchased a section which was just over a 1000sqm in the middle of suburbia, surrounded by established homes being circa 1960-1970.

Close to Waikato Diocesan School for Girls and to the Fairfield Bridge, providing easy access to Hamilton City, his intention was to achieve better utilisation of the land by removal of the existing dwelling and replacing it with three separate parcels of land, each with its own title. The two-storey house was the centre focus of the development, allowing a visual connection between all three dwellings – the other two which were a duplex.

Murray Borland of Borland Architecture Group says consideration of the District Plan and the perfect orientation positions along with consultant support

in surveying and planning have been paramount in resolving the daylight to boundary angle failures within the overall development along with the creation of excellent outdoor recreational spaces.

The 454 sqm site faces north east which provides an extensive outdoor living space, designed especially for el fresco dining with a seamless transition. The stand-alone dwelling has a total floor area of 190 sqm which includes a double garage. The house has three bedrooms upstairs along with an office, two bathrooms and a walk-in wardrobe within the master suite.

Downstairs is an open plan combined living, dining and kitchen space with a separate powder room and a laundry within the garage.

Project challenges

- Restrictive day lighting angles, combined with height restrictions
- Little excavation required because the site was flat
- Capturing as much morning and afternoon sun for all three homes to allow for maximum outdoor living

Compliance

To achieve maximum utilisation of the sunlight from east to west, the design process – even though simplistic in nature – along with the site restrictions made it more complicated to comply with the district scheme.

Murray Borland says together with the planners, and especially the surveyor, they achieved the results they were looking for by stepping the design, allowing them to eliminate all the planning failures.

“Stepping the cubic linear structural form, and with the use of smart detailing of material junction, a tonal graduation of two basic materials has formed a powerful synergetic integration between the smooth black metal cladding and the warmth of cedar weatherboards.

"These connections of the sculptured clean-lined design have created a sharp, clean architectural addition that blends well with the standing mature environment.

"The simplistic form of the structure has been planned with a minimalistic approach, and sensitivity towards both sustainability and longevity. The selection of Roofing Industries' "multi rib" cladding, which is normally used as a roofing material, has in this instance been reversed with the intention of a visual illusion reduction of its perceived height. The garage was purposely clad in cedar to make a stronger connection with the vertically profiled metal, forming a physical continuity anchoring the cedar to the surrounding environment and the connection between the two.

"Extensive use of storm water collection has been undertaken by the introduction of detention slow-release tanks which also provide water for the use on gardens. Energy efficiency is addressed through solar orientation and sunlight control, cross flow ventilation and a high level of insulation and double glazing.

"Interlocking clean-line rectilinear forms have been grouped to provide privacy on three sides but the house opens to light on the north face, constrained from overlooking neighbours. From the street there are very few signs of habitation and this is deliberately done to prevent the scale being immediately seen and instead allows the form to culminate toward the southern rear end of the house. This is purposely achieved to connect with the other three duplex structures".

ARCHITECTURAL DESIGNER

Designer Murray Borland from the Borland Architecture Group Ltd has practised architecture for over 40 years, both in private practice and as a consultant, working in Hong Kong, England, UAE and the Pacific Islands. A specialist in the field of Polynesian and ethnic architecture, he has a huge and diverse knowledge base. He has also been instrumental internationally, in innovation architecture for the bloodstock and equestrian industry in New Zealand, Australia and Hong Kong, implementing design for breeding, racing and disabled riding for the wellbeing of horses.

Murray was a foundation professional member of ADNZ in 1976-77 and held leadership positions on the National Executive from then for over a decade. During that period he was appointed as the ADNZ advisor and spokesperson on Government select committees associated with the development,

education and qualification sector for the NZQA framework – these being directly related to architectural technicians.

In later years, his practice has channelled their professional skills into humanitarian architecture on an international platform for support in third world countries. This has been an opportunity to showcase examples of environmentally sustainable architecture to benefit both the poor and underdeveloped areas of mankind. In this role Murray has also provided speaking positions in Asia and the Pacific. His expertise is across an extremely broad and diverse range of sectors from military, hospitality and leisure to business space, residential and retail facilities.

The company believes “understanding, through analysis and a level of communication are the solutions to design problems, and with that comes the focus on achieving design excellence”.

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North Harbour
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David Eccles-Hall 027 222 5600
www.roof.co.nz
Cladding Profile:
Reverse run MULTIRIB®
.55 BMT COLORSTEEL®
Colour: Ebony

Roofing and Cladding Installer:
Turton Builders
Hamilton

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