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SCOPE

NZ METAL ROOFING MANUFACTURERS INC.

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Below is a brief introduction to the 2020 executive of The Metal Roofing Manufacturers Inc. It is intended that Scope be representative of the Metal Roofing and Cladding Industry in both commercial and residential sectors. Your submission of material you consider is of interest is welcomed be it design, research, manufacture or construction.

PROJECTS

ARTICLES

DOMAINE THOMSON WINES

The architecture, reminiscent of the back country huts of Central Otago, is clad in weathered galvanised corrugated iron.

Just as Domaine Thomson Wines showcases the best of the Central Otago and Burgundy terroir, the company's new cellar and tasting room takes design cues from these two distinct regions.

On the outside, the architecture is reminiscent of the back country huts of Central Otago, and references honest structures that were modestly clad in various materials including weathered galvanised corrugated iron. On the inside, there are elegant French references such as the herringbone wooden floor, wooden cobbled floor, whitewashed walls and metal chandeliers.

The building ties together the company's Cromwell origins and its French connections, with Domaine Thomson making wine from its pinot noir vineyards in Central Otago and from parcels of pinot noir and chardonnay vines it owns in Burgundy.
It planted its 14ha vineyard in Central Otago in 2000, and more recently acquired the parcels of French vines.

The new building – housing a cellar door, tasting room, library, cellar, staff facilities and an office – now allows Domaine Thomson to tell its story and promote its products to wine enthusiasts, something it has been keen to do for a long time. It also provides visitors with stunning views over Cromwell Basin and Lake Dunstan.

Domaine Thomson Wines Manager Kate Barnett said, "We are an established brand so we have been looking forward to building a 'home' to showcase our wines from France and Central Otago.

"With our background as an organic certified and bio dynamic vineyard, we wanted the building to have a more natural feel."

To that end, architect Noel Lane explored the back-blocks of the Central Otago countryside with vineyard owner David Hall-Jones, researching back country hut typology.

The family-owned vineyard has a close affinity with the history of the area and John Turnbull Thomson, chief surveyor of Otago in the mid-1800 and David Hall-Jones' great-great-grandfather. He named well-known landmarks such as Mt Aspiring, Mt Earnslaw, Lindis Pass and the Pisa Range – the latter overlooks the new building.

Noel Lane's concept design was a building with corrugated iron roofs and walls, a lean-to porch and galvanised sheet chimneys. The design has two 'huts' connected by a glazed entry and corridor – one hut contains the cellar door, tasting room, gallery and library; the other has the cellar, office and staff amenities. The two huts are set at a slight angle to each other to welcome visitors into the heart of the building.

Architects Noel Lane and Tom Rowe (of R B Studio) have successfully collaborated together for many years and completed a number of award-winning projects. After the initial concept was approved, both architects worked together to refine and deliver the project. To execute the design effectively, they continued to research images and archives of back country huts. As a result, the detailing evolved with a careful balance between concealing material junctions and expressing the structural junctions in a way that reflected the deliberate manner these buildings were put together.

“The fact that it was an organic product ties in with our organic, bio dynamic approach to wine making.” Domaine Thomson Wines Manager Kate Barnett

“Each section on the chimney consists of three panels and they all had to be folded precisely.” Roofing Industries Cromwell Manager Dave Hansen

The process involved developing an understanding of how historically back country huts were put together and then, correspondingly, how this could be replicated to comply with current regulations. Examples are illustrated in the chimney design and materiality, or corner junctions and in the notable absence of a spouting. All consistent with the typology used in back country huts.

Kate Barnett said using corrugate cladding and roofing meant an efficient and cost-effective build and they got the character look they were after by using Roofing Industries’ True Oak® Corrugate, a return to the original deeper, rounder corrugate roofing and cladding shape that dates back to the early 1800s.
However, they didn’t want coloured steel so they decided to use vegetable acid to age the True Oak® Corrugate’s 0.55 galvanised steel.

Breen Construction and RB Studio conducted trials on sheets of True Oak® Corrugate to get the aged look the client wanted.

Kate said, “We were really happy with the look and the fact that it was an organic product that was used to achieve it because that ties in with our organic, bio dynamic approach to wine making.”
Architect Tom Rowe said there were two factors at play when it came to the weathering of the corrugate: one of them was to make it look like an established back country hut in the South Island but the other was a resource consent requirement to reduce the reflectivity of the cladding.

While the acid-induced weathering of the True Oak® Corrugate compromises the material’s integrity, the client was comfortable with this on the basis that local buildings have endured over time. The application of the vegetable acid was controlled and superficial and was washed off within 24 hours. On the walls, the corrugate is effectively a rain screen with a cavity system and waterproof barrier behind it.

Roofing Industries Cromwell Manager Dave Hansen said that weathering the product for use in a coastal environment would not be recommended but was less of an issue in a non-corrosive environment like Central Otago.

“It’s a different look that showcases the True Oak® Corrugate product,” he said. “It’s not the first time I have seen it; there was a job in Queeenstown where they used spirits of salts on the product and played around with it to get the level of patina that they wanted.”
Dave said while the design of the building was going for a “basic, rustic look”, some of the detailing on the roofing and cladding was tricky to execute for Roofing Industries and the installer, Attention To Detail Roofing.

Dave said, “We spent hours and hours getting the 0.55 galvanised steel chimney panels all prefolded and ready for the installer. Each section on the chimney consists of three panels – a left, a right and a centre panel – and they all had to be folded precisely.”

Courtney McDowell, of Attention To Detail Roofing, said the whole team brought their expertise to bear when rising to the challenge of executing a tricky and technical job.

He said elements such as the chimney detailing, the roof folding over to form barge boards on the walls, crush fold detailing around windows, and the cladding folding around the corners of the building made for a challenging but enjoyable job.
“Because the owners wanted to get the look right, we had a bit of time to do trials of the chimney panels to get them to click together. There were six sections consisting of a number of panels on each of the three chimneys, and because they wanted a flat panel look – not a ribbed profile – we had to design a hook join to lock the panels together and make the joins waterproof.

“We also had to take into account internal gutters behind two chimneys and an external gutter on another chimney to stop water running down its front.”

He said the crush fold detail around the windows was tricky to execute and flash compared to a traditional flat surface, and detailing around the windows meant cutting with the grain rather than across the grain of the corrugate, which was also challenging.

And there were no corner flashings as the cladding folded around the corners of the buildings.
“That was the real tricky part, folding the wall around with a window either side of the corner because there was no square point to measure from, and the 0.55 gauge is much harder to fold than the 0.40.”
The effect of all this detailing is to make the buildings look softer and more organic.

As well as the corrugate cladding and roofing, there are other traditional elements to the building such as the timber post and beam construction, and exposed trusses.

As a material, end grain cobbles are something that might be seen in French historical buildings.

Architects Noel Lane and Tom Rowe
Noel and Tom share a studio and have collaborated for a number of years on a variety of projects. Many of these have received awards from the New Zealand Institute of Architects. They continue to design and deliver successful and unique buildings that have a sense of permanence and timelessness. R B studio is a design-focused and award-winning practice.

“Quality to us means a commitment to producing buildings that endure – physically, practically and aesthetically. After careful communication, we apply innovative thinking to create solutions that transcend the brief. The client-architect relationship is fundamental to this process.

The glazed entry with stone floor connects the two ‘huts’ and serves a traditional porch/breezeway function before guests enter the interior proper. The cellar door area has a wooden cobbled floor, made up of 3600 free-standing hardwood end grain cobbles for texture. The variation of material demarcates a threshold space, traditionally associated with back country huts for sheltering horses from harsh winter storms. As a material, end grain cobbles are something that might be seen in French historical buildings. This threshold space is located between the tasting room on one side and the gallery/library on the other, each with a large fireplace.

Indoor finishes include exposed Douglas fir, macrocarpa and slabs of Mt Somers limestone around the fireplace.

Along with the cobbled floor, there are other old-world French references such as metal chandeliers and the herringbone floors in the tasting room and library.

The overall feeling of the building is rustic yet refined, and reflects the history and unique character and connections of Domaine Thomson Wines.
As Kate Barnett said, “We are so happy with our new home, it looks like it has been here 100 years and sits so comfortably in the landscape.”

“Our work is characterised by clarity, tactile materiality and the dynamic interplay of volume, light and mass. These attributes are the building blocks of good design and are the real forces that shape good architecture. Through a process of continual critique and refinement, our aim is to develop individual design solutions that meet the needs of our clients. We maintain a specialist team that focuses on projects with a cultural and artistic dimension.”

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Chimneys: 0.55 galvanised flashings.
Roofing and cladding installer: Courtney McDowell, Attention To Detail Roofing
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Main Contractor: Breen Construction, Alexandra
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DELIVERING THE "WOW" FACTOR TO EARTHQUAKE-DAMAGED CENTRAL CHRISTCHURCH THE ENTX COMPLEX, WITH ITS SEVEN HOYTS CINEMAS, RESTAURANTS AND BARS, HAS PROVIDED A NEW SOCIAL HUB TO THE CITY'S CBD.

Located on Colombo Street across from the central bus exchange, the cinema and dining complex features a striking wall cladding on the triple height, 15m high atrium of the development in a mix of colours to represent the patchwork landscape of the Canterbury Plains.

Eurotray® Angle Seam, Dimond Roofing's premium architectural tray product was chosen to create the unique exterior in varying widths, lengths and colours posing some spectacular challenges – not the least of which was the sheer scale of the building – for Calder Stewart Construction and CS Roofing Canterbury.

Designed by Ignite Architects, the brief of the design for the building was very clear, says Jamie Irvine, Ignite's Associate and Registered Architect.

"The complex is an integrated entertainment and dining development connecting to the surrounding streetscapes.

"Given the city block length of the façade and the large cinema volumes the building would need to accommodate, it became clear that the architecture and cladding would need to be bold, distinctive and texturally relevant for the city of Christchurch".

The EntX Entertainment complex is composed of three forms, signified with material and shape. The dining concourse is a glass box and is sandwiched between the heavy concrete anchor of the cinema boxes with the "green box hedge" running the length of Colombo Street evoking the wind breaks all over the Canterbury Plains.
The designers choice of colour, structure, form and texture is inspired from the various themes from the Canterbury countryside – box hedges, field patterns and mountain ranges; material selections have come from local sustainable sources providing elements of low maintenance and environmental sensitivity.

Eurotray® is a lightweight material with the ability to be both vertically and horizontally run but it requires specialised, expertise in installation, the task on this project with its array of colours making precision and attention to detail of the highest quality. It was decided early on that metal cladding would be the best way to reinforce the architectural concept for the complex.

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The Hoyts' cinema component is boldly faced in concrete with the dining/atrium side of the building featuring vertical, variously toned metal strip cladding interspersed with vertical, slender glazing. Selection of the Eurotray® colours was made from different green and yellow hues derived from the plains environment. There are slender strips to represent the poplar tree wind belts and each panel on the façade has a random mix of colours, widths and lengths of metal tray material. Although each panel has the same base panel the different colours means each panel has a unique pattern.

Most of the elevations were clad in metal sheet products to achieve the crisp lines, durability and colour options, the Colombo Street elevation clad in all metal products - Eurotray® in Colorcote steel and feature elements in Alucobond aluminium cladding to provide street level interest. Alucobond popouts in a Champagne Bronze were selected because of the different colours and tones produced at different angles. The bronze colour in the tones complements the green and yellow patchwork quilt cladding. A ground floor awning was formed with a zig zagging eave feature.

The main innovation was how to replicate the concept of the Canterbury Plains and poplar wind breaks to the metal cladding systems. The cladding panels used three standard cladding panel lengths and widths - 305, 420 and 515mm in width and up to 6m in length. The colours came from the standard powder coating range with a good number of complimentary greens, yellows and greys. After much discussion and deliberation five colours were chosen; smooth cream, river gum, mist green, grey friars and karaka.

Says Ignite's Jamie Irvine: "On first impression these colours appear not to fit together, however the combination of pattern variation and colour mix created a balanced, harmonious whole. To ensure a high level of randomness on each cladding panel, a random colour and length generator was created. Each panel used the same combination of tray widths across a panel, but the colours and lengths were randomised. This ensured that the panels would not appear "designed" but rather purely natural with an organic pattern such as the leaves on a tree or the patchwork Canterbury Plains. "These colours and lengths were then overlaid onto the standardised cladding width dimensions. Panel drawings with dimensions were provided to the contractor to follow on site. The whole process from selection to installation was seamless and despite the apparent complexity, the contractor completed the installation perfectly".

Creating the cladding colour palette
CS Roofing Canterbury, with its team of highly skilled tray installers, was tasked with bringing this complex and challenging vision for the EntX complex to life. It required a lot of planning and attention to detail getting from the plans on paper to ordering sheets per bay in the specified colour. On site the facade sheets were processed on the ground floor of the building and then delivered out through the windows to be fitted to the exterior walls with the team working together along the scaffold to get the product out, positioned and fitted.

It was the scale of the complex with seven cinemas on the first and second levels and 18 restaurants and bars on the ground floor of a triple height, 15m high atrium that CS Roofing Canterbury installers were required to physically tackle each day on the job – having to scale eight tiers of scaffolding equivalent to 12-14km daily up and down the scaffold. Shane Johnstone, Project Manager for CS Roofing Canterbury and his team of six can feel proud of their efforts, the 15m high atrium being the largest Eurotray® cladding job that CSRC had undertaken with thousands of trays passing through their hands.

The central city location of the building also made the job challenging as traffic control had to swing into action each time there was a delivery; this could only happen at certain times of the day, so timing was crucial.

Sustainability of EntX build
Lifestyle costs: Materials were selected for high durability and simple recycling methods; concrete, steel, brick and recycled timbers can all be reinstated to their constituent parts quite easily compared to most composite materials.

Reuse of materials and embodied energy:
As a means to bring back the 'materiality' of post earthquake Christchurch and as a simple way to reuse, Ignite Architects had interior materials such as timbers and bricks handpicked from local demolition yards near the site which reduced their embodied energy. The original patina was retained with no energy spent on the production and transportation of the material than simply reinstalling. These materials now have a second life with no further energy required to re-purpose them.

Prefabrication: This system is where specific labour and effort go into forming parts offsite in specific factories to make installation quicker and easier. This is an efficient way of reducing the waste on site and the reduction of man hours spent on a project. The cladding panel frames and ply substrate were all prefabricated offsite and craned into place. Constructing this building in a traditional manner would have resulted in at least double the labour moving materials up and down the scaffolding alone.

EntX as a catalyst for sustainable development:
Building a building without car parking was a bold move for Christchurch. However the location alongside a number of new parking buildings in the central city, was deemed non-essential. We need to think of other means of transport using scooters, bikes or other modes of transportation to get to places within our city. This hopefully encourages other businesses to favour density and people-oriented design rather than a car-centric city.

Ignite Architects
Ignite Architects embrace the creation of spaces for people; places to live, work and play that enhance quality of life. Renowned for delivering visually inspiring architecture and interior design, for over 30 years Ignite have been designing on an international scale from their six Australasian studios. Ignite deliver unique and memorable experiences for a variety of hospitality and entertainment operators; and by placing end-users at the centre of each project, Ignite create designs that entice, engage and encourage users to linger.

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Profile: Eurotray® in Colorcote steel
Installer: CS Roofing Canterbury Ltd

LONG RUN VS FIXED LENGTH SHORT SHEETS

The long and short of it, or why longer is not always better. Considerations about the length of long-run roofing.

Once upon a time, or in fact for most of the history of sheet metal roof and wall cladding, the stuff was not “long-run” at all. Metal roofing has of course been around for a very long time. The Romans used copper and lead sheet as roofing materials and copper roofing as shingles or seamed panels that are a familiar sight in many mediaeval European cities. Some roofs were made of iron or zinc.

What we now recognise as metal roofing took off in the UK for sheds and factories and for housing mostly in the Colonies of the British Empire rather than the home country in spite of being invented there.

What allowed this to happen was the invention of steel (stronger and harder than iron) which allowed the forming of thin sheets. This however was very prone to corrosion by any sort of marine atmosphere resulting in rather short life in most places. The next important invention was the use of a thin coating of zinc to protect the steel by preferential corrosion - the zinc corrodes away very slowly, compared to the base steel, until it is all gone the steel remains uncorroded). Then it was realised that while the thin sheets of coated metal might have been durable they were very weak and not able to span any useful length. An anonymous person in a flash of brilliance (there is a possibly apocryphal story about him seeing a creased sheet spanning a gap) came up with the idea that corrugating the sheet would allow it to span a significantly greater length between supports, and not laid on timber as was all sheet roofing up to then. And so was borne “wrinkly tin” - not really wrinkly and definitely not tin.

The corrugating was done by putting sheets of steel into a sort of mangle with corrugations in it. The galvanising was done by dipping the corrugated sheet into a bath of molten zinc and allowing the excess zinc to drain off, which meant the coating thickness was more or less self determined. These processes had two natural outcomes - the maximum length of the sheet was determined by the maximum width that could be corrugated evenly; and the zinc coating tended to be heavier at the bottom of the sheet as the molten zinc ran off. For what is really most of the history of sheet steel roofing this was the product - corrugated “iron” - in sheets of 10 feet (3m) long and somewhere around 600 g/m² zinc coating. This hit the world market around 1830 and was exported down under from the UK until the Lysaght factory was built in Sydney and Australian product was used there and in New Zealand with fairly minimal changes until the early 1950s.

For all this time the results were that we had 3 m maximum length sheets - which can still be seen on many houses in New Zealand, and with uneven zinc coating weight which could lead to bands of rusting on the thinner areas while the rest of the roof was fine. Stuart Thomson’s book shows a roof well over 100 years old, rusty, but still in one piece, somewhere in coastal Otago.

Long run development

Over the next 60 years huge changes in technology created the large range of “longrun” cladding products we have available today.

- Continuous rollforming instead of sheet corrugating, allowing sheets of any length, and so the ability to make specific length minimum-waste house-lots;
- Continuous galvanising with more even (and thinner) coating weights;
- New profiles leading to today’s main families of corrugate (still!) now in more shapes; trapezoidal shallow and deep; and tray roofing ;
- Higher strength steel allowing thinner (and cheaper) product - now in NZ 0.40 vs 0.55 mm;
- Pre-painted product, from the 1980s;
- Staged manufacture of coated steel in New Zealand; and
- Different metallic coatings to just plain zinc.

So we now have available protected and possibly pre-painted steel cladding in infinitely long sheets (or at least as long as you can design a roof for) Well, not quite. The theoretical ability to make sheets of any length does have some limitations.

Making it

In theory the maximum length of sheet that can be roll-formed is the length in one coil of steel. Depending on the profile, the thickness and the width a 5 tonne coil would make around 1 km of roll formed sheet. Not likely to happen. So what are the restrictions?

How long is the available space (including the area outside the building after the exit of the roll former? What is the weight capacity of the carrying/moving system? What is the ability to assemble into packs and lift onto transport? Can the product be roll-formed onto a truck bed and if so how long can this be?

In practice, unless the factory is very small, other external limitations will be determining the maximum length of sheet made for any particular application.

Transporting it

So, having made it, how will it get to its destination. According to NZTA the maximum allowable length of a truck is 12.6 m or 11.5 m if towing a trailer. Maximum for a truck and trailer is 23 m. Weight is not likely to be a limitation. So assuming the sheets go behind the cab the maximum is about 10m plus 4m overhang. So this looks like a limitation. There is however a get-around that can be and is used.

Rollforming on site/onto the roof

Clearly the limit to length at this point is how to get it to site (and onto the roof as a separate issue.) In the onsite process the rollformer is taken to the site and either left on the ground with a space beyond it at least equal to the length to be made, or left on the transporting truck. The product is roll formed and then lifted onto the roof usually by crane. A variation to this process is for the rollformer to be tilted to the same pitch as the roof and the product roll-formed directly onto the roof. Both of these processes require a day with minimum wind. A 50 m sheet of steel is both heavy and quite aerodynamic and creates its own difficulties.

Handling it

If the product arrives in a truck it will be in packs strapped up to be capable of being lifted by a crane or the truck’s own Hiab. The pack(s) will be placed on the ground, opened and the individual sheets again lifted onto the roof. The longer the sheets the more hazardous this is and a calm day is required for safe installation without damage to the sheets.

Problems caused by length of the roof in situ .
The issues are highlighted in Section 7.3. of the COP

The tables in 7.3.2S and B (COP) illustrate the sort of lengths that can be used when more or less favourable circumstances are in play.

Installing it
This is one process where the length doesn't make much difference provided the sheets are not wind blown, which can create difficulties with any roofing.

Problems caused by length of the roof in situ
Describing these issues is the main point of this article; the above is really an introduction to some length problems which are handled in various ways by different manufacturers/suppliers and installers. The issues are highlighted in Section 7.3. of the COP Here we will expand on these factors. Most of them are to do with expansion and contraction and its side-effects.

Residential and Industrial roofing have a number of differences - length is typically longer (sometimes much longer) for commercial (warehouses) or industrial (factories) buildings than for residential buildings although these may overlap. There are a number of other differences which affect behaviour on the roof.

Expansion.
All metal cladding and flashings are subject to expansion and contraction caused by changes in temperature, and the design of metal roofs needs to allow for this movement.

The COP provides an example of unimpeded expansion of a 30 m length of roofing as 22 mm, but a number of factors in the installation determine how much of this occurs on actual installations. The ribs of metal trapezoidal or corrugated roof and wall cladding absorb expansion across the width of the sheets, and the longitudinal expansion is taken up by the bowing of the sheet between fastened supports. The further apart the purlins are the more expansion between them is possible and the greater fastener spacing laterally there is also allows more bowing between them. Bending of the fasteners can also absorb some movement before damaging the surrounding sheet.

The temperature which the cladding reaches and the factors which determine this and how the resulting need to expand can be dealt with are covered in 7.3.2.

Discussing these and seeing how they are affected by the type of building/roof cladding

Material.
Aluminium will expand about twice as much as steel, lead almost three times as much and other metals in this range, so an aluminium roof will need greater provision for expansion than steel.

Colour/Gloss
Regardless of all the other factors, darker colours will absorb more heat than lighter colours and less glossy surfaces absorb more heat than shiny ones. So a dark matt roof will absorb significantly more heat than a shiny light roof (or unpainted Zincalume ®).The use of "cool" pigments may ameliorate this effect to some extent.

Insulation and under-roof ventilation
The main difference here between a typical residential and typical industrial/commercial building is that the residential roof will have a closed space underneath it and the industrial building will have an open space underneath it (factory or warehouse) with air movement occurring.

The extremes are a factory with an uninsulated roof or foil immediately under the roof with no sealed air gap and a house with a shallow pitch skillion roof with minimal or no ventilation.

Where the roof cladding has insulation immediately below the roof material such as in a skillion roof or a warm roof, heat absorbed by the roofing cannot be radiated into the building, nor is it cooled by ventilation underneath it.

Fastening with what into what
Once upon a time all roofs were corrugate with small rib height and fastened with nails into timber purlins. Longitudinal expansion of the roof could only bend the nail slightly between the timber and the ridge, but the nail itself was quite thin and flexible. House roofs today still have typically low profile roofing but now we use screws or much thicker nails. Pan fixing of course is the ultimate no-movement fixing.

Today we can use in industrial buildings trapezoidal profiles with rib height more than double that of corrugate and C or Z section purlins which can flex as the roof expands - but screws which are very much less flexible than the old nails and in fact will break or bend permanently rather than move with the roof in both directions.

Time of installation
At some times of the year when the temperature changes greatly during the day sections fixed in early morning or in the shade will show greater expansion effects that those fixed in full sun or after midday.

Size of the building
While there is a continuum of roof lengths from small sheds to giant factories there tends to be a natural break between houses which do not normally have lengths much above those shown in section 7.3.2 and larger industrial buildings which may have roof lengths in excess of 50 metres.

What happens
We can see there are a number of factors which can increase or decrease expansion potential and other contradictory factors which can absorb expansion. However, at some point the expansion overcomes the ability of these factors to minimise the effect and we have thermal expansion failure.

This is normally manifested as fastener failure - breaking or permanent distortion, and/or tearing, buckling or breaking of the cladding. This can damage the roof to the point where it requires replacement. The other less destructive but potentially serious effect of expansion is roof noise, which can be heard in a range of ways, from occasional creaking to sleep-depriving banging.

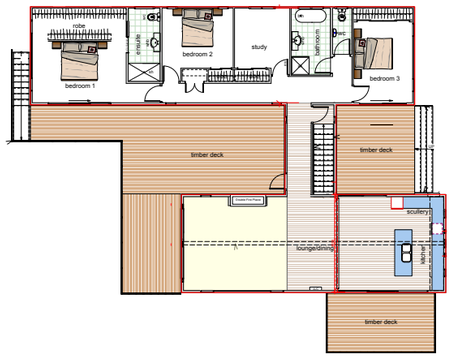
Different times of day for fixing different roof sections may result in different levels of noise in different areas.

Dealing with expansion.
It is necessary to understand that the roof cladding whatever it is made of and how it is fixed will expand and contract under normal diurnal temperature changes. The factors discussed above may be additive so that expansion problems occur at quite short lengths, or they may offset each other so that greater lengths can be achieved with no obvious issues. The tables in 7.3.2S and B (COP) illustrate the sort of lengths that can be used when more or less favourable circumstances are in play.
The steps to take to reduce the probability of damage at the lengths shown are also listed -
Oversize holes and washers in the overlength part;
Slots can be used but need to be sealed properly;
Step flashing as shown; and
The ultimate solution for very long roofs is to use secret or clip fixing. This is not without it's own problems, but does allow expansion and contraction in a reasonably unconstrained way.

So, in expansion of metal roofing we have an inevitable outcome from using metal as the base material. As we have made roofing in different shapes and sizes and finishes and fixed with different fasteners - all huge changes occurring in the last 50-60 years - we have learned to accommodate this outcome in a variety of ways so that damage caused by expansion only occurs very rarely, and is just another feature of our great roofing material we can manage without difficulty.

https://www.metalroofing.org.nz/cop

ARCLINE ARCHITECTURE ALDERTON PARK HOME

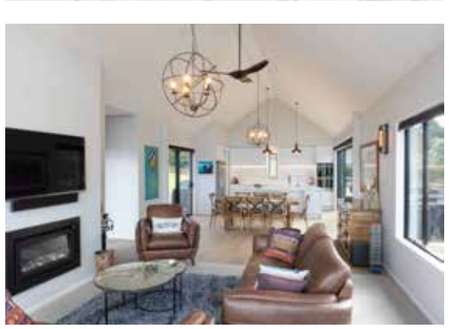


A retired Auckland couple's relocation to Kerikeri came with a brief to Arcline Architecture's principal Alan Simpkin for a home to blend with the Northland environment. It was to be in harmony with Kerikeri's cultural history – think Rewa Village, a pre-European replica Maori fishing village with its whare gable roof. On a sloping, elevated site offering stunning views to the Kerikeri inlet, the dual-pod home at Alderton Park captures the owner's requirements for sun, views, wind, access and usability. The fact that the clients were 100% firm in their design decisions helped move the project smoothly through the design process.

Some large rocks on the site initially involved some re-design of the retaining wall footings and a large trench proved a better solution than standard pile holes.

The H shape of the home meant the roof was fairly simple, comprising two gable roofs with a connecting ridge over the centre. An option for the centre roof was for membrane but in view of durability and looking for years of leak-free hassle it was agreed to pitch the centre roof and run a gutter line around which meant the interior ceilings could be simple.

Arcline Architecture's design also satisfied the owner's requirement for adequate wall space for the couple's art collection which extends to some interesting art works which feature within the external landscaping. Slot windows have enabled art to be displayed at its best in this new setting. The pod-style home provides both private spaces and those for busy communal gatherings. A drive-under garage takes one into the centre of the home's internal access and a light-filled gallery



connecting the sleeping pod of three bedrooms, bathroom, ensuite and study to the open-plan living area.

The lounge features two triangular-shaped windows at one gable end providing a large glass frontage offering views to the estuary beyond. Timber decking on three upper floors of the home also capture the sun and allow further appreciation for the Northland environment. James Hardie Linea Oblique vertical weatherboards match the T Rib roofing lines of the roof, a profile offering a more traditional finish.

Alan Simpkin says the pod layout worked particularly well with the slope of the site and the home relates to the traditional shapes of architecture in the area with similar pitched roofs both new and those of historical significance such as The Stone House, Kent House and the whare at Rewa Village.

Arcline Architecture

The early roots of Arcline Architecture were in building, Alan and Michelle Simpkin starting their design and build company in 1993. In 2003 the firm refocussed on designing homes – from North Cape to the Bluff. A building background has enabled Alan and the team to accurately design homes according to the range of budgets they are presented with, thereby breaking the cliché designers' habit of getting carried away with the style with little thought to the budget.

Architectural Design:
Arcline Architecture Ltd
Alan Simpkin
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www.arcline.co.nz
Main Contractor:
Circle D Construction
Roofing Manufacturer:
Metalcraft
Profile:
Colorsteel T-Rib
Colour: Ebony
Roofing Installer:
Slater Roofing
Telephone: 09 407 4036
E-mail: Slaterroofing@yahoo.co.nz
www.slaterroofing.co.nz/northland-roofing-spouting-kerikeri/
Exterior Cladding: James Hardie Linea Oblique vertical weatherboards

A New In-Line Solution for the End Treatment of COLORSTEEL DRIDEX®

Developed by Angus Robertson Mechanical, the new LaserDry® technology will speed up the installation process of COLORSTEEL Dridex®

A recent COLORSTEEL® innovation, COLORSTEEL Dridex® consists of a unique absorbent fleece continuously adhered to the reverse side of products. Eliminating the need for underlay, Dridex® delivers improved ceiling space ventilation, resulting in drier & healthier environments for the buildings occupants. In addition, COLORSTEEL Dridex® offers quicker installation and enclosure, saving time for both the installer and main contractor, while still looking great for projects with exposed undersides.

In order to avoid the wicking up of rainwater discharging over the sheet ends, the fleece at all drip edges must be treated before installation. Initially this could only be achieved through singeing the ends with a hot air gun. More recently, techniques using gas flames have been approved, speeding up the process, particularly in times of high winds or low temperatures.

Both techniques have their limitations, particularly when working with longer sheets. The standard process for commercial jobs is to lay the roof, before treating the sheet ends from the wall scaffolding. On jobs with a step in the roof, or where sheets discharge into an internal gutter, end treatment must be done prior to installation. This requires the installer to flip the sheet for easy access to the underside.

This was quickly identified as a pain point for the installer, particularly when handling long lengths at height and in windy conditions. A challenge was given to manufacturers of roll forming machines to create an in-line solution.

The approaches taken by the manufacturers were diverse, each expressing a different theory on how it might best be achieved. However, one manufacturer, not only came up with an extremely innovative solution using cutting-edge technology, but took it a step further developing a working prototype.

The ability to heat treat the fleece, without overly heating the COLORSTEEL® and damaging the paint, was a vital functional requirement. Angus Robertson Mechanical (ARM) investigated several options including hot air, gas burners and UV treatment, before coming up with a proven solution. ARM was already working with Callaghan Innovation on the potential use of laser technology in rollforming, ultimately leading to their winning solution of using lasers for the end treatment of Dridex®.

In their trials, ARM found that certain lasers would heat the metal quicker than the fleece. Through trial and error, an optimum solution was found – LaserDry®. The solution uses a laser beam traversing the line of cut, with an oscillating mirror used to reflect the beam and achieve the burn width required. The guillotine is programmed to cut through the centre of the treated strip, presenting cut sheets that are heat treated at both ends. The result allows the installer to crane up and lay in either direction.

Trialed and approved by NZ Steel, the concept was tested on rollformed Dridex® before an installed working version was created.

Eager not to miss out, Metalcraft Roofing in Christchurch was the first to adopt the new technology. With a laser installed on their Metcom 965 machine, they were recently able to utilise the technology for a large commercial build in Gore, which ran smoothly and without any hitches.

With COLORSTEEL Dridex® growing in market popularity, the innovative technology produced by ARM has removed the need for a critical stage in installation, further enhancing the value Dridex® delivers the installation team.

For more information on COLORSTEEL Dridex®, or the in-line treatment, contact the NZS team at **specifications@colorsteel.co.nz**

COLORSTEEL®

WEBER ARCHITECTURE'S CLASSIC ALPINE HOME

Thermal performance of the home was a key driver in many of the design elements for this home.

Structure Led Architecture is a theme to be found in all designs from Arrowtown-based Warrick Weber Architecture. This Otago home demonstrates the concept in all its forms.

Reflecting the peaks of its rugged, mountainous environment, the home in Bendemeer, near Lake Hayes, embodies classic, alpine region design.

The brief from the client was for the provision of significant indoor/outdoor flow to separate courtyards with different sun, views and shelter aspects.

The home was to have two separate living areas to accommodate a growing teenage family, but more intimate spaces as well – a study, wine cellar, underground cave, covered outside daybeds and mezzanine hangouts also being essential to the brief. A gym, sauna and fires – both internal and external – were also in the mix.

The undulating site influenced how Warrick Weber approached this design. The home features a series of gabled forms taking in different aspects of the alpine setting. They are arranged across the site with different views but also allowing for privacy and shelter. A central outdoor living zone within the two buildings provides space to enjoy the changing seasons.

"The undulating site lent itself to a split-level design with upper living areas and decks providing spectacular views", says Warrick.
"To harness the winter sun all living areas and most bedrooms have a due north aspect and are connected by a long southern hallway incorporating a grand staircase between the two levels.

"Internal construction materials include oak wall panelling, cedar ceilings, exposed gun metal structure and ground polished concrete floors. All the exposed rafters, portals, beams and columns are true structures.

"A COLORSTEEL Endura® Slate alpine tray roof with swage was chosen for the project based on its suitability for the harsh environment. The alpine tray provides strong form and fits the New Zealand vernacular for alpine-style houses", he adds.

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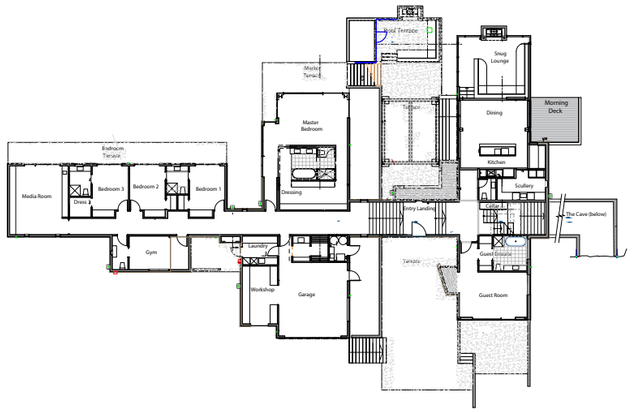

"The COLORSTEEL Endura® tray profile was integrated into a warm roof system with a solid make up. The roof system has resulted in slim and elegant soffits, superior thermal performance and the ability to expose true structure throughout the house."

Thermal performance of the home was a key driver in many of the design elements for this home. These included double-slab and a fully thermally broken foundation/slab system, a warm roof system, exposed internal thermal mass and north oriented living and bedroom spaces.

The roof was installed by Cal Freeman who was runner-up in last year's Young Roofer of the Year category at the COLORSTEEL® awards. Judge Rod Newbold, Product Launch Manager for New Zealand Steel says Cal's work involved many tricky intersection and design details as well as the need to integrate COLORSTEEL® with several features constructed from weathering steel. Of particular note is the attention to detail at the roof penetrations, particularly those welted into the pan of the standing seam profile.

Warrick Weber Architects
Structural engineer, Warrick Weber has 25 years of design experience, dedicated to the design of architecturally significant buildings. His concept of 'Structure Led Architecture" draws on his experience of structural design and appreciation of architectural form.

Warrick Weber Architects' team of designers provides quality design services and iconic architectural responses – the focus always being on quality. The firm is involved in residential, industrial, civic and major commercial projects.

Architects
Warrick Weber Architects
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Arrowtown
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Website: www.warrickweber.com

Builder:
Bamford McLeod Construction
Queenstown
Email: build@bamfordmcleod.co.nz
www.bamfordmcleod.co.nz

Roof Supplier:
COLORSTEEL Endura® Slate

ANGUS A. J. ROBERTSON

OBITUARY

Rollforming Legend Passed Away but the Vision and Business Continues

Angus Robertson with his wife Valerie

Angus A. J. Robertson or Gus completed university with a BE in Mechanical Engineering in 1961. He always had a love for machines and how they worked, inspired by his uncle Jimmy on the Isle of Skye. He always wanted to complete a trade certificate before doing a degree but his father forbade him to do this as it was 'beneath him'. This developed within him a respect for tradespeople and a real affinity with engineers, both practical and academic.

He thoroughly enjoyed a year off from his studies at the University of Canterbury to go deer culling. The long periods of isolation built resilience and a strong character. He often talked about having to make the decision between continuing this life-style or returning to university. A coin was spun to decide if he would go back to university or continue culling. The decision was made for him and he returned to his University degree.

His first job after graduation was at Ward Engineering with Geoff Ward. Geoff was a demanding boss who expected all drawings to be backed up with detailed calculations. Angus enjoyed mechanical design and development and before long became their chief engineer. This was

Angus Robertson with his son's wife Thuong Nguyen

where he had his first experience in roll-forming and coil processing for various companies throughout New Zealand. Machine quality, performance, reliability, attention to detail and the importance of calculations in the design process all crystalised at this time. One of his major projects at Ward was designing an automated production line for Fisher and Paykel in Auckland in the late 1960s.

Eventually the many very long hours there saw him seeking a job that would allow him more family time and offer new opportunities. In 1971 he took up a position as a mechanical engineering scientist with the DSIR Christchurch Industrial Development Division. A lot of his successful projects there involved improvements to the meat processing industry. He was a key player in the development of a highly successful machine to mechanise the stripping of pelts off sheep.

In conjunction with the Forestry Research Institute (FRI) he designed and built an environmental wind tunnel that enabled advanced research into the growth rates of forest seedlings. This had unique properties that other countries had not managed to achieve. He talked proudly that they got it to work, when other countries had not managed to achieve the same results.

He always became deeply involved in the particular machines he was developing, often working long hours to achieve a thoroughly well-engineered final result. His philosophy was to satisfy the customer, to provide an end product that would endure and perform to a high standard.

In 1992 DSIR was split up to form Crown Research Institutes. This upheaval caused him to make a decision about his future. His wife made that decision for him and he left his government job and set up his own business based on his long held interest in roll-forming.
This new business was established on the farm where he lived in Eyrewell, an idyllic setting and is still the location of Angus Robertson Mechanical.

People are often astounded to find out what the company does in rural North Canterbury and are blown away with the quality of machinery and the dedication of the staff who enjoy a rural commute to the factories, held up by mobs of sheep rather than traffic.

Some of Angus's colleagues from DSIR days were called up to work alongside him in his new business. Dave, Ian and Phil, worked in those early days turning the roll-former profiles on manually operated lathes, now of course so efficiently done on CNC machines.

An early example he was proud of building was a machine for roll-forming vintage car rims for a local company (Veteran Car Rims). Both the first machine which is still in Christchurch and the second one built a few years later are still in production. Veteran Car Rims is now a global leader in quality spoked rim production for vehicles manufactured before World War II.

The business continued to grow and the team at Angus Robertson Mechanical Limited increased their capacity to make larger and more complex machines. The old implement shed became a factory and his wife got back the garage. Purpose built large fitting and fabrication workshops followed.

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Angus Robertson Mechanical have set the benchmark in the mechanical roll-forming and coil processing industry.

Angus training employees from Bluesope Noumea on the operation of the Decoiler

Training and up-skilling apprentices is a core function of the business and has created jobs for local young people who would otherwise have had to leave the district to find work. Angus boasted in the 1990s that he had three of the five mechanical engineering apprentices at the time in the South Island. While many have gone on to begin businesses of their own or to work elsewhere the training of apprentices will continue.

Automation of machines has led to increased safety for operators and fewer injuries. ARM developed hands-free coil feed-in and have developed their own safety fencing system and polycarbonate guards.

Another project has been designing and developing steel framing machines for the building industry, the initial machine being for FRAMECAD™ but eventually those owners shifted production off shore. ARM are now building similar machines for Bluescope Australia (ENDUROFRAME™.)

Angus enjoyed the challenge of forming heavy steel. Another success was to design and build a machine that forms a fully enclosed box purlin using a type of Pittsburgh seam. This was a world first.

He developed a slitting machine utilising a hollow shaft that is hydraulically expanded to lock the slitting knives into their required position. He also developed a re-coiling system for the slit coils.

Angus was the first in New Zealand to develop a trailer-mounted quarter-round roll-former, now commonly found around the country and in Australia, as are his fascia and gutter machines.

The team of mechatronics and industrial electricians work together to provide the often extremely complex control requirements for the machines. Other staff include a design team, service engineers, fitters, machinists and fabricators.

The ‘Angus Robertson Royal Blue’ and safety yellow of their machines has become well-recognised in the roll-forming community all across New Zealand, Australia, South Asia and the Pacific as far as Ghana and Algeria.

Clients in Australia and Pacific islands grew as did ARM’s reputation. Angus always wanted to keep production local and NZ based.

Angus Robertson Mechanical have set the benchmark in the mechanical roll-forming and coil processing industry. While Angus will be sadly missed by friends, family and colleagues his legacy of solidly built, long lasting and high performing machines will continue. His son, Seamus Robertson has taken over as Managing Director of the company and will ensure these high production standards are maintained.

Seamus Robertson and the team at ARM commit to providing quality engineered machines that focus on reliability, safety and technological innovation, especially for the roll-forming industry.
Angus would have expected nothing less.

NEWS AND VIEWS

Roofing Industries Launches - True Oak® Deep

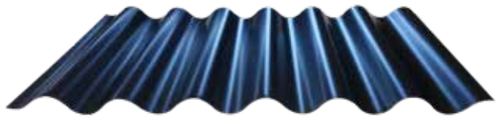
A bold and revolutionary new Commercial and Residential Corrugated profile arising from the respected True Oak range of roofing and cladding products. Aesthetically pleasing, functional and providing many design benefits, True Oak Deep will be viewed as a replacement for the “fibre cement” and asbestos products of yesteryear and providing design inspiration for new builds. True Oak Deep is manufactured in any length and is supplied from a wide selection of unpainted substrates or pre-painted Colorcote, Colorsteel and prepainted aluminium coatings

True Oak Deep is as an extremely difficult product to roll-form and required the very latest in advanced manufacturing technology in bringing the product to reality

Physical properties:

- 40.3mm Rib height and 152mm pitch
- 1040mm overall sheet width with 915mm effective cover per sheet
- Manufactured from .55 BMT (Standard) G550 and G300 Zincalume substrate plus .90 Aluminium. Other gauges, substrates , plus Colorcote, Colorsteel and other prepainted aluminium materials available
- 3 degree minimum roof pitch subject to sheet length
- Drape curving
- Manufactured to any length
- Translucent roof lighting is available to match

www.roof.co.nz



Cert.TM

Roofing Industries is proud to announce that they have achieved both the Global GreenTag® (Colorcote®) and the Environmental Choice® tick (Colorsteel®, Zincalume® and GalvSteel®).

Roofing Industries is the largest NZ owned and operated metal roof and cladding manufacturer in New Zealand. Committed to reducing their environmental impact, they have taken steps to operate with sustainability in mind.

The Global Greentag® Certification is an internationally recognised organisation dedicated to providing a trustworthy guide for eco-friendly and sustainable products, worldwide.

Roofing Industries recently achieved Global GreenTag Greenrate Level A certification for their roll-formed Metal Roofing, Cladding, Flashing, and Rainwater Systems using ColorCote coil products from their 14 branches throughout New Zealand.

The Environmental Choice® tick is a New Zealand Government endorsed initiative to recognise products which meet high eco-friendly and sustainability standards. Environmental Choice® operates to an internationally recognised level.

This means architects and designers are able to achieve two points towards their Homestar or Greenstar projects when using Roofing Industries Roofing/Cladding/Rainwater products made from NZ Steel at their Albany Auckland branch, and from both Waikato Branches – Sunshine Ave and Wintec.

In Addition, there has been a recent change to Homestar in that it now recognises the EPD’s (Environmental Product Declarations) as an acceptable means of compliance under MAT-1 Sustainable Materials Credit.

This allows architects and designers to achieve up to 1.5 points when using Roofing Industries roofing/ cladding products made from NZ Steel products under the ColorSteel EPD at all 14 Roofing Industries branches.

Contact Roofing Industries technical helpline on 0800 844822 to discuss how to achieve Homestar or Greenstar points for your project.

339: A PRIVATE, INNER CITY OASIS

Architect Dave Strachan was initially drawn to the site because of the design challenges that it presented

Located on a main arterial road and faced with high neighbours overlooking from the north and south, this small narrow site required a considered approach to create privacy within the house, whilst still maintaining ample light, sun and views. As the own home of Architect Dave Strachan and his wife Colleen, they were looking to downsize and spend less time maintaining their property and more time enjoying the environment and growing tribe of grandchildren on a site just an easy bus ride from the delights of the city and a 2-3 minute walk to Mount Eden village in which they have lived in for 30 years.

Concrete and steel present a solid face to the busy road, while within the fabric of the 230m2 house/ garage, solid and void create moments of introspection, juxtaposed with framed openings offering views to the surrounds; connecting to both the immediate site and the neighbourhood beyond. Dave was initially drawn to the site because of the design challenges that it presented, the strong presence of Mangawhau to the East and vistas to the west as the land falls away steeply to the gully below.

The exterior walls and roof are clad in Metalcraft Roofing's Espan 340 in COLORSTEEL® Ironsand

houses an expansive array of photovoltaic panels to harness the sun's energy, aiming for the house to become a net zero energy dwelling.

A bank of water tanks to the south accommodates water collection and storage for use within the house and gardens. The design encompasses many thermal moderating elements, including a double layer wrap system, high levels of insulation and thermal mass to contribute to internal comfort in both winter and summer. The adjacent pool provides additional passive cooling to the living area in the warmer months.

Facing the street is a covered entry courtyard, a transition between the public and the private. It provides relief in the form of an indoor garden lined with band-sawn Lawson Cypress and filled with native plants, including a living herb wall. Bleeding into this space, the dining and kitchen utilise the courtyard's glazed roof to allow light to penetrate deep into the southern part of the house. Above, emphasised through double height spaces within the living and kitchen areas, a timber clad cradle accommodates the first floor bedrooms and bathroom, amplifying the sense of verticality created by the large gable roof and full-length windows that permit visual access through the building to passers by.

This home utilises it's site and material selections to minimise maintenance and maximise sustainability. The exterior walls and roof are clad in Metalcraft Roofing's Espan 340 in COLORSTEEL® Ironsand. The concealed fixing and shadow play formed by the high ribs creates a clean and modern, yet robust envelope. The large north face of the gable roof

SGA (Strachan Group Architects)

SGA is a multiple award-winning Auckland practice. Grounded in a specific and detailed first-hand knowledge of construction the team brings a highly developed sense of craft to the task of creating sustainable buildings with precision and elegance.

Architect:
SGA (Strachan Group Architects www.sgaltd.co.nz)
Project Team: Dave Strachan, Ross Keane
Main contractor: Crate Innovation Ltd – Fraser Strachan and James Strachan
Roofing/cladding Manufacturer: Metalcraft
Roofing or cladding profile: Espan 340
Colour: Ironsand
Roofing Installer: Aspect Roofing
Cladding Installer: Fraser Strachan, Crate innovation Ltd
Landscape Architect: SGLA – Campbell Strachan
Photographer: Simon Devitt

HOUHERE HOUSE: RETURNING TO THE WILD OFF THE GRID

When the owners of Houhere bought a piece of land on Banks Peninsula six years ago, the intention was to return it to a natural setting and build a home that could transition from a weekender to a permanent residence.

They already had a cottage nearby so they left the land to ‘re-wild’ – the hillside grass paddocks changing back to tussock – while they considered what they might build on the Banks Peninsula site.
Before selling the cottage, they dug up small, self-seeded natives from that garden and, over time, transferred them to the new 4ha site, which was once part of an old farm.
Their home – Houhere – is named after the native lacebark and ribbonwood, species they have planted on the property along with other natives such as five-finger, ngaio and totara.

When they decided they wanted an architect-designed home, they approached Tim Nees, who they knew of through a mutual acquaintance, to ask him about the process.

The clients said, “In the meantime, we had a look at some of Tim’s work and really liked it. So we went from asking his advice to employing him.”
They met with Tim on the land, which is nestled in a valley facing north with beautiful views over the local bay toward the distant Kaikoura Ranges.

There was already a building site consented that had the best views, the best outlook and was comparatively flat, with a hill behind it and a drop below it before the land flattens out again.
Tim said, “The brief was for an informal and robust weekend retreat, to eventually become the clients’ retirement home.

“It was designed not only to be striking, but also to take advantage of water views and hillside vistas on each side, while letting in light and breezes. The living areas and extensive deck have been elevated above ground level, with cars, storage and service areas placed in the open ground floor area.”
Tim said his clients had a budget in mind but were open-minded about the design although they wanted to live off-grid.

“They had pretty modest requirements – two bedrooms and a bathroom and a study space that could also be a guest bedroom.”
He said that the saw tooth roof he designed looked “most appropriate” in the setting, the only problem being that it wasn’t ideal for the requisite solar panels.

“Part of the brief was an off-grid house but the roof forms that would have been good for having solar panels mounted on them didn’t suit the style of house that the clients wanted.”

The solution was to stick with the purity of the design and have solar panels frame-mounted on the ground.

Tim said the east-facing sawtooth roofline creates a series of clerestory windows that capture morning sun but shields the occupants from the heat of the afternoon sun.

“You also capture some beautiful sky views through those clerestory windows.”

The clients said, “Tim came up with the sawtooth design after we said we wanted something that made a statement yet also fitted into the landscape.”

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The NZIA also thought the design made a statement, earning it a Canterbury Award this year. The judges said: “This house was built with retirement in mind. It references the rural vernacular of DOC huts, resulting in an architecture that is unpretentious, functional and uplifting. The house is a celebration of sustainable construction and living, and expresses its integrity through its crafted timber construction and as a sustainable insertion into a powerful rural setting.”

Tim’s design has the ground floor area being open apart from a storage shed and an enclosed entrance way for the stairs up to the home proper. This open area also accommodates cars, two water tanks and a woodpile.

Tim said, “I came up with the idea of raising the house above-ground mainly because of the rainfall runoff from the adjacent hillsides. There’s a fair bit of rainwater that comes through there from time to time. From the ground floor, it’s a logical extension to bring the post and beam construction up through to the next floor. The whole idea was to create a home with as low a carbon footprint as possible so it didn’t make sense to pour a concrete pad. There’s a tiny bit of concrete and a little bit of steel that has been used but essentially it’s a wooden house.”

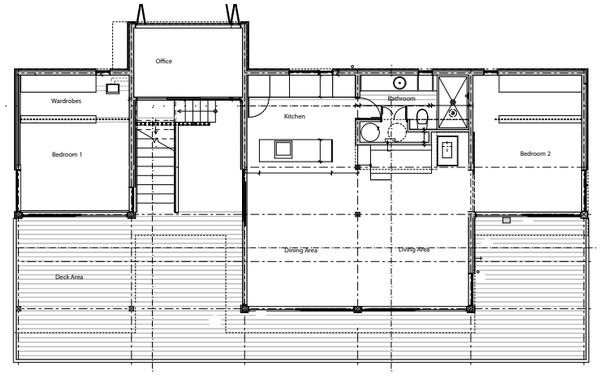
When it came to the roof colour for the COLORSTEEL® Corrugate, Tim chose to make a statement with the bright ‘Pioneer Red’.

The clients loved it and their neighbours did, too, using the same roof colour on their home.
Tim said ‘Pioneer Red’ was also a nod to the old local buildings, many of which feature that colour in various shades and states of repair.

The sawtooth roofline means internal trough gutters run the length of the house and collect rainwater for the two water tanks.

The clients said that although a relative, who is a retired engineer, was worried about flooding from internal gutters, that has never been an issue.
“The guttering is really broad – more than a foot across – and deep as well, and the water flows into rain-catching boxes before going into the water tanks.

“There is bird proofing mesh over the top of the troughs and when you get hail or snow, it sits on the top of the mesh and melts into the channel.”
The home is clad in vertically oriented larch weatherboards and has Purple Heart decking. Inside, a purposeful mix of non-treated timber features throughout the 135sqm home, including exposed beams of NZ Oregon and plywood linings. Some guests find that the interior reminds them of the pared back look of a DOC hut.
“But that was what we wanted: no plaster, no paint – just wood and plywood.”



Tim said the ambience is “tramping hut chic”.
“The whole focus for the owners is working on the property and re-wilding it – bringing the plants and insects back on the site – so they wanted a robust and rustic property that was suited to people tramping in and out of the house. They also have two big dogs.”

Self-sustaining and completely off the grid, the house also has bio-sewage treatment tanks and two woodburners, one with a wetback.

For the clients, going off-grid was a no-brainer as it was half the price to set up a solar system with panels, inverter and batteries, and back-up generator as it would have been to connect to the grid. They have never had to turn the generator on apart from giving it a run for maintenance.
Having Tim on board throughout the build was a total game-changer – managing a process that might otherwise have been highly stressful, the clients said. He was able to point them towards tried and proven systems for setting up a sustainable home.

“He along with our builder, HQ Construction, was fabulous to work with,” they said.
“Our home is an absolute dream to live in because it’s functional as well as being aesthetically pleasing.”

New Work Studio / Tim Nees Architects
Tim Nees has led New Work Studio / Tim Nees Architects for more than 20 years. Over that time, his practice has received twenty NZIA Architecture Awards, including the coveted National Award for Excellence in Architecture. He is also a Fellow of the NZ Institute of Architects.

Tim says: “As an experienced design architect, I am committed to working closely with individual clients. Together we develop designs that will enhance the quality of their lives, that respect the community they are a part of, and that engage positively with the local environment. Additionally, dialogue with the past and with architectural culture is an essential ingredient if I am to produce buildings that contain meaning, as well as serve a purpose.

“I prefer working in an open studio environment. My architecture practice has always emphasised the value of collaboration, with clients an integral element in that collaboration. Central to my philosophy of ‘thinking space, loving architecture’, great design happens when there are many minds at work around the table.”

Architect: Tim Nees Architects
Telephone: 021 846 333
www.timneesarchitect.com
Roofing: COLORSTEEL® Corrugate in ‘Pioneer Red’.
Roofing supplier and installer: Stratco, Christchurch,
Telephone: 03 338 9063
www.stratco.co.nz
Builder: HQ Construction Christchurch
Telephone: 03 940 7177
www.hqconstruction.co.nz
Solar: Esolar Ltd, Wakefield
Telephone:`027 544 3025
www.esolar.co.nz
Photography: Eddie Simon Media

KINGSLAND FIRE STATION RENOVATION

The Kingsland Fire Station occupies a prime location on the ridge overlooking Eden Park in on the Auckland city fringe in Kingsland, Auckland and has a varied past. According to Kingsland Heritage, the brick fire station was built in a Georgian Revival style in 1933 to replace an original timber station with a watch tower that was erected in 1906.

The Fire Station was fully renovated following a fire in 2008 and was recently used as an 18 room boarding house. As the site was not listed as a heritage site, Kingsland firm Context Architects were able to re-imagine the building's shell and the conversion of the spaces within, into 5 workable apartments.

A major part of the renovation of the shell was the replacement of the terracotta roof with a Steel & Tube Legacy® clad penthouse level apartment. "The project on New North Road is not your typical alteration and addition, but rather a revival of the old and integration of the best of now. The use of a modern, matte steel cladding played an integral role in respectfully treating and maintaining the old fire station's heritage charm," says project lead Hew Kenn Chew.

Steel & Tube Legacy® emulated the look of a traditional standing seam profile with a flat 215mm wide pan and 50mm high rib to create dramatic shadow effects. Unlike traditional standing seam, Legacy® does not require a plywood substrate and so was a cost effective choice of profile.

Both COLORSTEEL® Matte colours; Tidal Drift® and Flaxpod®, with their micro wrinkling technology, were employed to great effect with a very high standard of detailing emphasizing clean lines and hidden fastening details.

The original, red firehouse doors were also reinstated to further this heritage look. The building was given a fresh paint job in a crisp neutral white, which helps to make the doors and the COLORSTEEL Flaxpod® Matte upper level pop.

This building has seen a long history of uses, but its latest contemporary renovation would likely not have been predicted by those who stayed in the boarding house, or by its former firefighter residents.

Context Architects
We like to work in real partnerships, with our clients and the industry. Design magic happens when we come together at the beginning of the process and work as a team to solve problems —which is why we like to engage in real partnerships with our clients and the industry from the outset.

As an industry, we've traditionally worked in relatively siloed and often combative ways —but that's counterproductive, and we can (and should) change it. By leveraging new technologies such as 3D scanners and virtual reality and by sharing 3D models to bring everyone along on the design journey, we produce better, more accurate outcomes far more quickly. And that makes for stronger projects.

In the case of the Kingsland firehouse, we worked to a tight, non-negotiable TV production schedule. By closely collaborating with the consultants, builders, trades, and production team, we arrived swiftly at an excellent result everyone could be proud of. A true team effort, this project demonstrates the power of trusted partnerships and early collaboration to get quality built projects completed and to auction within the year.

Operating nationwide out of our Auckland and Christchurch studios, Context services government, property networks, developers, and corporate clients. We're a 60-plus team of urban designers, landscape architects, interior designers, digital experts, and brand and graphic designers providing an integrated design service to clients across housing, remediation, retail, workspace, tourism, and aged care.

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Material: COLORSTEEL® Endura® Matte
Colour: TidalDrift® and FlaxPod® Matte (Cladding and Roofing)
Profile: Steel & Tube Legacy® (Cladding and Roof)
Supplier: Riteline Roofing Ltd

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