SCOPE

ISSUE 63

NZ METAL ROOFING MANUFACTURERS INC.

Welcome to the 63rd edition of Scope, where we showcase our members' and suppliers' innovative roofing and cladding projects. In this edition, you will find exceptional designs and concepts that enhance the use of our members' roll-formed products. Included in this edition is a brief overview of the history of the NZMRM Code of Practice. From small beginnings to ongoing enhancements and updates, the Code of Practice is recognised as the go-to for roofing, and in particular for cladding and flashing detail.

Tom Marshall, President, NZMRM

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

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Projects

Articles

Below is a brief introduction to the 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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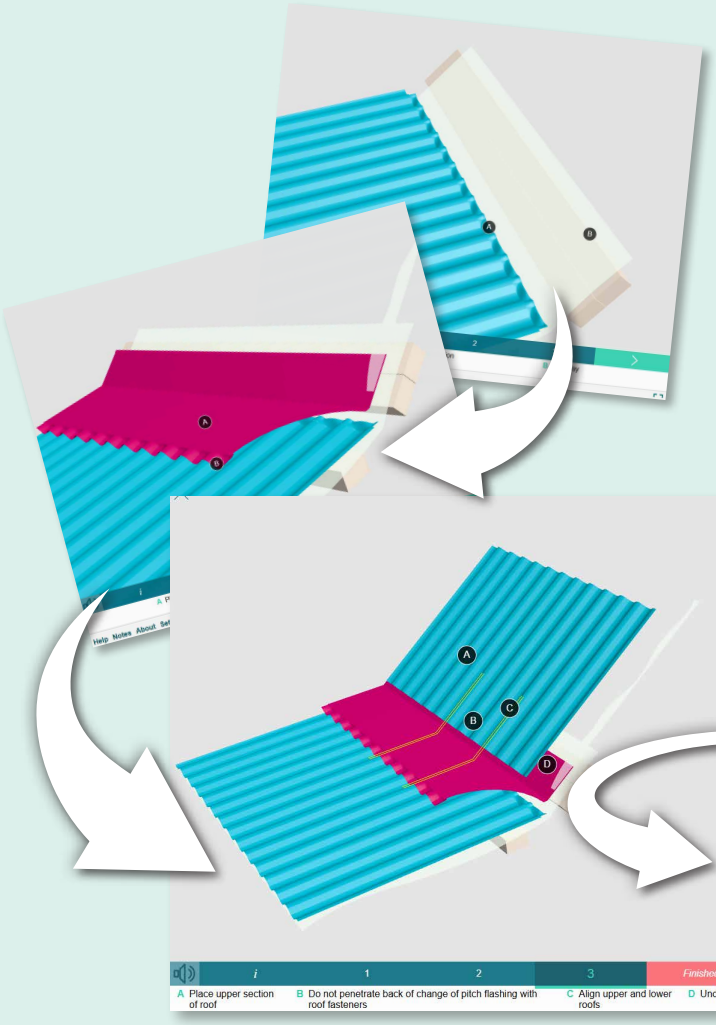

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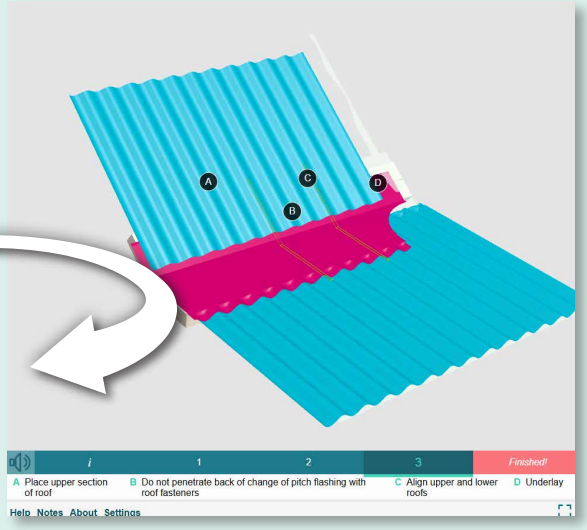


NZMRM Code of Practice at 25 years

As we approach the 25th anniversary of the genesis of the NZMRM Code of Practice for Metal Roof and Wall Cladding – and in the knowledge that many of the people using it, some frequently and in detail, some less so, will not really be aware of the origin of this now widely used and accepted document – it seems timely to produce the story.

The first long-run machine was installed in New Zealand in the mid-1960s; however, before that, the option was to import corrugated galvanised sheets. Until the early 1980s, the only formalised training for steel roofing was through a plumbing apprenticeship. The only documentation (with limited availability) was the Lysaght Referee.

The first Profiled Metal Design and Installation Handbook (by Stuart Thomson) was launched in 1981 and updated in 1988.

The late 1990s were a period of some upsets in the NZ building industry. Up to 1990, documents like the NZ Building Code (NZBC), NZS 3604 – the standard for timber-framed buildings for use in homes, and NZS 3602 – the specification for timber used in building, had been quite prescriptive about issues controlling the quality of building details, ventilation, waterproofness of cladding, etc.

It was then decided to be less prescriptive in demanding properties and more in describing the overall performance based on "quality". This was to be under the Ministry of Housing and implemented by the Building Industry Authority (BIA). Unfortunately, this reduction in detailed control led to the "leaky building crisis". Without going into details, this was caused by inappropriate cladding, leaking and rotting untreated (kiln-dried) timber.

This isn't specifically a metal roofing issue, except as a very widely used key element of the building envelope. However, NZMRM was obviously concerned and in 1995 published the third in the series of Profiled Metal Design and Installation

Handbooks. The 1995 version contains more details of how to prevent the cladding from leaking. All these were produced, more or less unaided, by the late Stuart Thomson, a self-created expert in all aspects of metal roofing, who was acknowledged as "the" NZ source of information about metal cladding.

At least two attempts were made to get away from leaky buildings. The first, in 1999/2000, was a significant update by Standards NZ to NZS 3604, in which NZMRM was involved. The second was for the BIA to seriously review the Acceptable Solutions to the NZBC (following which means compliance with the NZBC), and specifically E2/AS1 (Acceptable Solution 1 to Clause E2 – External Moisture).

NZMRM recognised that correct metal cladding installation could assist in preventing leaking buildings, and also that a new, larger E2/AS1, without guidance from NZMRM, could end up conflicting with our own best practices. We (NZMRM) discussed with Stuart Thomson a more all-encompassing version of the Profiled Metal Handbook (which ended up being called the NZMRM Metal Roof and Wall Cladding Code of Practice – COP), and that we should attempt to do this in communication with BIA to make sure both parties understood what the other was doing.

By mid-2002, the BIA had produced E2/AS1, and we were well on the way to the COP. The scope of E2/AS1 was limited to light timber-framed buildings built to NZS 3604, whereas the COP covered all building types.

This was complicated by the BIA being shut down in 2003 (as NZMRM was about to publish the COP v.1). In 2004, it was incorporated into the Department of Building and Housing (DBH), itself replaced in 2012 by MBIE, with a lot of new staff.

However, after meetings and discussions, the two documents were reconciled, and we were satisfied that E2 was promoted correctly by the Acceptable Solution, meaning roofs and walls that were installed complied with what we had in the COP, albeit with some wording differences. During this process, we did establish good working relationships with several DBH personnel, which helped with the subsequent versions of both the COP and E2/AS1. E2/AS1 quotes the COP in several places and has continued to do so, often expanding on a limited statement in E2/AS1 itself.

The first version of the COP was published in 2003 as a hard-cover, loose-leaf book/manual (to allow for new material to be added). This was sold for a price comparable to NZS 3604, from memory, $200 or more (which didn't cover the high cost of writing, maybe just production). The NZMRM covered the writing costs. Copying details, drawings, etc, was by permission only.

By 2008, COP v.2 was ready to be published and incorporated a number of updates relating to these DBH and BRANZ discussions, and E2/AS1 had also seen changes, so that the two documents didn't totally disagree on anything, and E2/AS1 sometimes referred to the COP for extensions of its sectional

details. This time, the COP was published as a CD-ROM, at a much lower price and with the ability to copy parts as PDFs.

In 2012, v.2.1 was published, now as a downloadable PDF and readable on the NZMRM website, metalroofing.org.nz, and this time it was free, but (as now) required users to register so that we had a list of users we could contact with updates. In 2014, v.2.2 was essentially a web version, and it was free to use.

In 2019, v.3 was released, and with it, the decision to issue quarterly updates. Work on this involved reviewing existing material, some of which was nearly 20 years old or based on even older sources, while also incorporating new material generated by recent changes to materials or legislation, including updates to Acceptable Solutions.

The editing process has evolved over time, with ongoing reviews and updates prompted by technical queries. We have now settled on an expert prime mover who generates material, several other members of the Technical Committee who review this and may suggest edits, a technical writer/editor who gets it into grammatical material consistent with the COP format and generates required diagrams and, last in the process, but not least, our internet expert and website manager who works his magic so that text and pictures become readable, downloadable and increasingly, interactive material on the website.

Notes about the quarterly revisions and new material are circulated to registered users, and details are included online.

The most recent improvements include bulletins about recent FAQs, so these can be used to resolve issues rather than laboriously repeating previous answers. All changes, along with the content, are reviewed by members of the Technical Committee prior to publication. A favourable comment regarding these bulletins was noted in a BRANZ bulletin.

COLORSTEEL® Awards 2025

Industry gathered in style this year for one of its most anticipated events - the COLORSTEEL® Awards 2025. Held at the Auckland Viaduct Events Centre, the awards evening brought together roofers, rollformers, architects, designers, builders and associated suppliers to recognise the very best projects and craftsmanship in the industry using COLORSTEEL.

More than just a night of celebration, the COLORSTEEL Awards have become a respected benchmark for quality, innovation, and craftsmanship. Taking home an award is a proud career moment, true recognition of the skill and workmanship behind every project.

Launched in 2019, the awards have grown over the years into a platform that celebrates residential & commercial projects for their vision, durability, and execution.

This year's event drew a record number of entries, reflecting both the diversity of projects across the country and the growing demand for roofing and cladding solutions that combine strength, style, and sustainability. The calibre of this year's submissions clearly shows an industry that continues to raise the standard.

The judging panel comprised experienced industry figures and design experts who evaluated entries against a strict set of criteria. These included technical excellence, aesthetic impact, environmental considerations, and the ability to push creative boundaries while working within the practical demands of construction.

This year's judging panel consisted of Ken Crosson, Director of Crosson Architects, Stacey Farrell, Architect, staceyfarrell.com, Matt McDougall, Future Proof Roofing (past winner of COLORSTEEL Roofer of the Year) and Rod Newbold, Product Applications Specialist, New Zealand Steel & Executive Committee Member of the Metal Roofing Manufacturers Association.

Finalists that impressed

From large-scale commercial developments to smaller but perfectly executed residential builds, the range of finalist projects highlighted COLORSTEEL's versatility as a building material. The 2025 Finalists were:

RESIDENTIAL BUILDING OF THE YEAR

— Three Gables, Guy Tarrant Architects
— Sar Street House, Parsonson Architects
— Pablo House, Kerr Ritchie Architects
— Pointy Flat House, Chaney & Norman Architects
— Scout Wanaka, Intuitive Architects
— Orokonui House, Gary Todd Architects

COMMERCIAL BUILDING OF THE YEAR

— Dockside, Pacific Environments Architects
— MacMurray Medical Centre, Wingates
— Roofing Industries Waikato, WCML
— Fitzgerald Head Office, Fitzgerald Construction Limited
— Gantleys' Brewhall, Yoke

LIFESTYLE BUILDING OF THE YEAR

— Kahikatea Home Workshop, Coresteel North Harbour
— The Glamis Project, SmartSteel
— A Central Otago Legacy, WideSpan Sheds NZ
— Simon James Lifestyle Shed, Waikato Shed Company

ROOFER OF THE YEAR - Tray Profile

— Argie Manuel, Metalhartt Roofing
— Euroclass Roofing
— Oliver Shirer, Norseclad
— Iconic Cladding Ltd

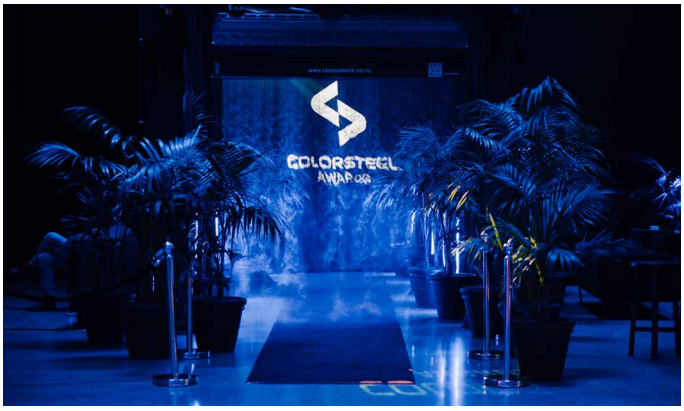
ROOFER OF THE YEAR - Corrugate Profile

— Artisans Roofing
— Stu Hampton, EziBuild Services
— Norseclad

ROOFER OF THE YEAR - Trapezoidal Profile

— Hebrew Tarapata, Roof Direct H.B Ltd
— Samuel Abraham, Northland Coastal Roofing
— Andrew Pospisil, Velvin Building Ltd
— Peak Roofing Otago Ltd

Each finalist project told its own story. Some demonstrated cutting-edge architectural thinking, others showcased the technical expertise required to meet the demands of New Zealand's rugged climate, and many highlighted the deep collaboration between designers, builders, and roofing specialists.



Pablo House, Kerr Ritchie Architects

Gantleys' Brewhall, Yoke

Celebrating the winners

While all finalists were deserving of recognition, the winners of the 2025 COLORSTEEL Awards set new standards for excellence.

RESIDENTIAL BUILDING OF THE YEAR

Pablo House, Kerr Ritchie Architects

COMMERCIAL BUILDING OF THE YEAR

Gantleys' Brewhall, Yoke

LIFESTYLE BUILDING OF THE YEAR

Kahikatea Home Workshop, Coresteel North Harbour

ROOFER OF THE YEAR - Corrugate Profile

Norseclad

ROOFER OF THE YEAR - Trapezoidal Profile

Samuel Abraham, Northland Coastal Roofing

ROOFER OF THE YEAR - Tray Profile

Argie Manuel, Metalhartt Roofing

Kahikatea Home Workshop, Coresteel North Harbour

Samuel Abraham, Northland Coastal Roofing

Building on their success in the Tray category, Argie Manuel went on to receive the prestigious title of Supreme Roofer of the Year. This recognition celebrates the highest standard of craftsmanship, precision, and professionalism across all roofing disciplines.

Argie's winning project stood out for its exceptional attention to detail, technical execution, and the seamless way COLORSTEEL was brought to life, a true reflection of mastery in metal roofing.

Beyond the Awards: The value of recognition

Winning a COLORSTEEL Award is not just about the prestige of a trophy – it represents validation of years of skill development, countless hours on the tools, and a relentless commitment to quality.

Judges noted that this year's entries reflected a strong sense of pride in New Zealand-made materials. COLORSTEEL, manufactured locally by New Zealand Steel for over 40 years, remains New Zealand's favourite roof, trusted for its durability, versatility, and proven performance in New Zealand's challenging climate.

The awards evening itself is a highlight on the industry calendar. Attendees enjoy not only the recognition of outstanding projects but also the opportunity to connect, share stories, and celebrate the industry's collective achievements. The night is more than just a competition – it's about acknowledging the shared values of craftsmanship, collaboration, and community that underpin New Zealand's construction sector.

Looking ahead

As the COLORSTEEL Awards continue to grow, their importance to the industry shows no sign of waning. Each year's entries raise the bar a little higher, challenging teams to find new ways of combining design, durability, and environmental responsibility.

The 2025 winners have set an inspiring example of what can be achieved when vision, skill, and material performance come together. Their projects will no doubt influence the next generation of roofers, architects, and homeowners, reinforcing COLORSTEEL's enduring role in shaping New Zealand's architectural identity.

Argie Manuel, Metalhartt Roofing

Richmond Club, Christchurch

Christchurch's Richmond Club began its life as a working man's club in the 1880s and has survived through two world wars, the Great Depression, and the first of Christchurch's two earthquakes, before damage sustained in the second quake made a new club building a necessity.

The club called on the services of Walker Architecture, and lead architect James Patterson says the club gave him a clear brief. "We engaged with the club and committee very early in the process to work out what they wanted in terms of interior spaces, sizes, functions and so on. We then looked at examples of similar public buildings and at what the club wanted to achieve with the aesthetics and exterior expression of the building," says James. "Through this process, it became clear that the club wanted a dynamic building that would be a landmark feature and a focal point for the area."

On a practical note, the building had to include spaces for the club's various functions – a large, multi-purpose hall suitable for concerts and other activities, a library, a pool area, a bar, a restaurant, and squash courts.

Walker Architects' design visualised the roof in several parts to recognise the Southern Alps in the background and to express the different volumes and functions in the spaces below. "With the volumes that we were working with, it made sense to play with the roofs and see what sort of dynamic and sculptural shapes we could create," says James. "The rationale behind the angular forms was that different sculptural angles would draw the eye to particular parts of the building."

The new roof form over the club's entrance creates a focal point for visitors and engagement with the streetscape; another section soars above the main function area, enhancing the internal volume; and the third section covers the squash courts. Between these sections is a small courtyard that serves as a circulation area and allows daylight into the offices.

To complement and highlight the forms, EURAMAX Premium Colour Coated aluminium in a rich bronze finish was chosen for the roof. The visual appeal of the complex results from a combination of the unique origami-shaped exterior and the shimmering Middle Bronze effects emitted by the roof as light changes throughout the day. The depth of the fine-mica metallic three-layer PVDF topcoat creates a range of tones that complement the project's varying hues. Full-height glazing and perforated bronze soffits add to the mix of materials and finishes, meeting the Club's brief for a dynamic landmark.

Soaring and sculptural roof forms ensure the Richmond Club in Richmond, Christchurch, is a strong and recognisable focal point in the area.

Adrian Ward, sales and marketing manager of importer and distributor Ambro Metals, says the performance of EURAMAX's multi-layered paint system is very advanced.

"The multilayer PVDF paint system and colour of the product will sustain for a very long term without premature fading or chalking. This is extremely important for such a high-end project on this scale. You don't want to install an exterior envelope using a high-end architectural profile and find the colour does not perform for a length of time," he says.

EURAMAX is manufactured in the Netherlands using paint systems tailored for the New Zealand environment. Ambro Metals offers a 30-year warranty on the product, which Adrian says is conservative, given the high quality of this coating system.

"What also makes EURAMAX stand out is the beautiful range of rich colours that's on offer," says Adrian.

Roofing installer The Architectural Roofing Company (TARC) says a significant advantage of the EURAMAX was its ability to be folded – without cracking or breaking – to create the very sharp, straight roof lines required by the architect.

To achieve these sharp geometrical forms, Walker Architecture worked closely with TARC on the material specification and technical detailing.

"This job was a huge technical challenge, with most of the work happening underneath the roof. The structure had to be set out with great accuracy to ensure the roof panels looked straight and sharp on the exterior. To do this, we manufactured special clips and brackets for this project, and the soffits had to be integrated with the roof, which also had to be achieved from the inside," says Jason van Wyk, operations manager for TARC.

Around the exterior of the building, perforated metalwork adds transparency to the form, and precast panels at its base act as a visual weight, supporting the roof, says James.

Within the building, timber-veneered panelled ceilings add a feeling of warmth to the interiors, and generous areas of glazing ensure spaces enjoy natural daylight, while high-level glazing in the main spaces of the hall and bar/restaurant provide additional sources of light that vary according to the time of day.

Internal ceilings are angled to follow the roof forms, adding intrigue and creating a feeling of spaciousness. Good acoustics were also carefully considered in the design, with acoustic panels installed above the timber ceiling. Perforations in the timber and surface variations were included to improve acoustic performance.

TARC specialises in challenging roofing and cladding projects, relying on its technical knowledge, passion for good design and team of skilled craftsmen. The company offers a range of profiled roofing and cladding from cost-effective long-run to tray products, manufacturing all its roofing and cladding products at its premises in Christchurch.

P

Richmond Club

CREDITS

Architect
James Patterson,
Walker Architecture

Roofing Installer
The Architectural Roofing
Company (TARC)

Product Supplier
Ambro Metals

Profile/Colour
EURAMAX Standing Seam
/ Middle Bronze

Photography
Clinton Lloyd

‘Red Barn’, Mangawhai

When architect Tim Daniel of Gel Architects and his partner, Sarah James, stumbled across a retired piece of farmland with pockets of regenerating native bush, located close to Mangawhai, they saw it as their opportunity to design a property entirely for themselves.

The pair collaborated on the design, primarily in the evenings after a day’s work.

They wanted a building with a minimal footprint that would blend into the 1.3-hectare site, rather than standing out, so the new home was designed to sit low among regenerating native bush and disused paddocks.

“We wanted something small and simple and multipurpose; we wanted to show it’s possible to do a small house well, without compromising or having spaces that need to be adapted and converted for different purposes every time you want to use them,” says Tim.

And while it is compact, the house offers all the features Tim and Sarah wanted to create a comfortable holiday home.

It has a footprint of 36 square metres, with a bedroom, bathroom, kitchen and living area on ground level, although a nearby space, originally designed as a garage, now functions as a home office, studio and workshop. Upstairs, above the main house, is a six-square-metre sleeping loft for visitors, and a pergola extending from the living area creates additional space in an outdoor room.

The metal cladding is low maintenance and well-priced; it's a simple material that is robust and easy to look after.

The building design features an asymmetrical gabled shape that reflects Christchurch-born Tim's memories of the historical settlers' homes and goldminers' cottages of central Otago, with their simple forms, corrugated iron cladding and chimneys jutting out from one end of the building. The farm shed-style design also harks back to the traditional red barn forms of Madison County, in Iowa, where Sarah's father lived.

To achieve the desired look, Tim specified Scoria-Red 0.55 gauge corrugate, with its rustic and rural appearance, for both the exterior walls and roof of the home.

"The metal cladding is low maintenance and well-priced; it's a simple material that is robust and easy to look after. Plus, it's made in NZ, and it's nice to know that at the end of its life it is recyclable," Tim says.

Roofing contractor Simon Carter of Carter Roofing, in Mangawhai, says the design of the roof itself, with its steep double pitch and barge flashings at each end, made from .55 gauge corrugate with a ColorCote® ZinaCore finish, was reasonably straightforward. The solar panels were added after the roof was completed.

However, the bigger challenge of the project was to realise the architect's brief to create evenly spaced negative details on either side of the windows and chimney. To achieve this, the windows were recessed, allowing the flashings to stand proud of the glazing on the side and top edges.

"To create even flashings that lined up exactly from top to bottom on either side of the windows, we needed to work closely with the builder, Nick Smith of Smith Construction, to ensure the windows were dead straight and plumb when they were installed. It was very intricate and exacting work – both for the builder and for us," he says.

The flashings had to appear as symmetrical as possible on the sides of both the chimney and the windows. Simon says that to achieve the required level of accuracy, his team set out the sheets of corrugate in advance of installing them to make sure the negative details would be as even as possible. If the detailing had been wrong, the builder would have had to remove and reinstall the windows.

"The 0.55 gauge corrugate is a lot stiffer and harder to tweak into place to get it straight than, for example, timber cladding. It's much more difficult to work with this particular material to achieve the degree of accuracy that the architect was looking for. However, we got there, and the result is great," says Simon.

Carter Roofing fitted gutters onto custom-made flashings, where accuracy was again essential. So, to ensure the flashings were folded exactly as required, Simon supplied the manufacturer with working drawings.

For this project, the architect specified a corrugated profile, which is a classic-style metal roofing material finished with a ColorCote ZinaCore, a durable, corrosion-resistant aluminium/zinc alloy core with a baked-on acrylic or polyester top coat. The combination of the classic corrugate profile and the ZinaCore finish creates a roofing material that is well-suited to a wide range of architectural styles and can be used for both roofing and cladding applications.

To complete the interior, Tim and Sarah have chosen natural, sustainable local materials throughout, with every detail carefully considered to maximise the potential of the whole space.

The house is entirely off-grid, powered by rooftop solar panels and a battery bank. The photovoltaic panels on the roof generate nearly 8 MWh a year, stored in a bank of lithium batteries. It also features an efficient hot-water heat pump, energy-conscious appliances, and a wood fire for heating on cold winter days and evenings. Waste water is processed on site using a worm-based system that mimics a forest floor, and rainwater is collected and stored in underground tanks.

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Red Barn

CREDITS

Architect
Tim Daniel, GEL Architects

Roofing Installer
Simon Carter, Carter Roofing

Builder
Smith Construction

Roofing Manufacturer
Roofing Industries

Profile/Colour
0.55 gauge corrugate with a
ColorCote® ZinaCore coating/Scoria

Photography
John Williams

Contemporary connections

A dated 1980s brick bungalow in Christchurch now looks better than new, with a major renovation that has updated the exterior appearance and modernised the interior.

The home featured all the details of its original decade – a red brick façade, a glazed conservatory at the back, and a closed-in layout that lacked connection with the garden. But because the owners loved the location and the garden they had planted and established over many years, they decided to renovate rather than move.

"The brief was to dissolve the separation of internal space, infuse a cohesive, modern layout, and establish a secluded, private courtyard garden aesthetic," says architectural designer Barry Connor of Barry Connor Design.

"Our challenge was to consider the transformation of the entire plan while embracing access to natural sunlight throughout the year, and create a functional, relaxed home for our clients."

On the exterior, the tired look of the red brick has been replaced by a palette of pale grey timber. Barry selected pale-toned Abodo Wood cladding for the exterior walls, and COLORSTEEL® Espan® 470 Gull Grey roofing completes the rejuvenation.

Espan, from Metalcraft Roofing, has been designed for style and performance, and features a standing seam roof profile. The high ribs of the seam create strong, defined shadow lines and, combined with concealed fixings, ensure it offers good weather performance.

For this project, the Espan profile was specifically chosen for its clean-cut, modern lines to fit with the contemporary style of the renovation design. "It has a smart, modern appearance and, because the roofing profile is visible from the street, we wanted a product that complemented the overall redesign of the house."

He also extended the existing hip roof over the garage into a contemporary gable form, and this is echoed by a second gable to the right, which houses the new open-plan, modern living space.

"These two main gable forms engage with the street elevation, creating a dynamic, symmetrical, bold and striking architectural aesthetic," says the architect.

From the street, the new roof is a key feature, leading the eye towards the home's front entrance and providing a contrast to the garden with its beautiful plantings and the terracotta-toned wall. The silvered timber cladding merges aesthetically with the soft tones of the Gull Grey COLORSTEEL, creating a cohesive exterior colour scheme, and at the same time ensuring the garage door is invisible.

"These two main gable forms engage with the street elevation, creating a dynamic, symmetrical, bold and striking architectural aesthetic,"

One feature of the new roof is a 4.5-metre skylight well over the master ensuite bathroom, which extends the full height of the house and creates a flat area in the middle of the roof. "To build a skylight that high and with complex flashings added a challenge to the job for the roofers, CS Roofing Canterbury, and the builders. All credit goes to both teams, who did an excellent job on a part of the roof that can't be seen," says Barry.

Part of the design brief for this renovation was to create better links within the house and between the house and the garden. The existing layout is centred around an open foyer space with living areas and bedrooms opening off it, set between a grass terrace at the front of the property and a private rear courtyard garden, but with limited connection between house and garden. Under the new design, an open-plan living space connects on two sides to the courtyard gardens, with privacy provided by a brick side wall that offers a reminder of the home's original red brick. A new master suite also opens onto a courtyard space, and a guest suite connects to the rear garden.

Sustainability was also addressed in the renovation by leveraging existing spaces, employing low-maintenance materials, reducing construction waste, and implementing conscious management to minimise demolition of the existing structure. Strategically designed roof overhangs were incorporated to mitigate overheating in summer, lower cooling costs, and enhance energy efficiency.

"This is a truly transformative renovation that presents clean lines and a refined, contemporary palette to the street, while the cosy, sleek interiors celebrate and connect to the verdant garden outside," says Barry. "With a raft of low-maintenance, lasting materials, including the fresh new COLORSTEEL roof, the home is now also durable and easy to care for as the owners enter their retirement years."

This home has won several awards, including the Regional Award for Alterations and Additions at the 2024 Resene Architectural Design Awards and an ADNZ Regional Award.


BEFORE


AFTER

“With a raft of low-maintenance, lasting materials, including the fresh new COLORSTEEL roof, the home is now also durable and easy to care for as the owners enter their retirement years.”

P

Rugby Street

CREDITS

Architectural Designer
Barry Connor Architectural Design, Christchurch

Installer
CS Roofing Canterbury, Rolleston

Rollformer
Metalcraft Roofing, Christchurch

Builder
Frost Architectural Building Specialists, Christchurch

Product
COLORSTEEL® Endura®

Profile/Colour
Espan 470/Gull Grey

Photography
Hazel Redmond

Basilica Timaru

Timaru's historic Sacred Heart Basilica is now restored to its former glory, with its distinctive dome and architectural detailing once again dominating the town's skyline.

Architect Alec Bruce of Christchurch-based Wilkie and Bruce Architects says the Basilica, built in 1911 and holding Category 1 Heritage building status, is among the most pre-eminent buildings in the country.

"Nationally, it's in the top handful of its type and one of the best neo-classical designs for a church in the country, and the best church NZ architect Francis Petre designed," says Alec Bruce. "And the stained glass windows in the nave are world-class."

However, the roofs of the main dome, two smaller bell tower roofs and the apse of the Basilica were severely damaged by a destructive hailstorm and needed to be completely replaced.

Bruce says the idea was to replace the copper on the damaged domes and to replicate the craftsmanship of the original roofs. New copper was imported from Europe for the project.

"The new copper was pre-patinated to make it a distinctive pale green colour instead of looking like new copper," says Bruce.

The Architectural Roofing Company Ltd (TARC) won the contract to replace the damaged roofing on the domes and apse, working with the architect from the early design stages to develop a solution for the roof replacements. Work began after extensive scaffolding was erected and a tent-like plastic cover was spread over the main dome to weatherproof the church while the roofs were replaced.

The project began with the removal of the damaged panels, and the order was placed for the copper required to manufacture the more than 900 Flatlock Panels for the new dome and custom-made Standing Seam Trays for the new apse. Carpenters completed maintenance work on the original roof framing and sarking.

Operations manager for TARC, Jason van Wyk, says the most complex part of the

project is its heritage building status.

"Every detail had to be remade to be the same as the pieces that were removed. We had to record the details of each panel and remake them as closely as possible.

"When it was originally built, nails had been used for fixing – there were no stainless steel screws, brackets or clips, so we did use new technology, and we added a new underlay to provide for moisture evaporation to stop damage to the structure, but we had to be very careful to recreate what had been there as closely as possible."

Jason says working 45 metres above ground level added to the project's complexity.

Adrian Ward, sales and marketing manager of Ambro Metals, which supplied the copper for the Basilica, says the Nordic Blue copper roofing was imported on behalf of TARC from a Finnish company that specialises in pre-treating its products. For this project, the metal was pre-treated to create a patinated green finish that echoes the natural ageing of copper over time.

"The original Basilica had a copper dome which was around a hundred years old, and part of the brief for this heritage project was to install a new roof, but using a product that had the same aged aesthetic, so the new would blend seamlessly with the local area and the building's historic past," he says.

"We have worked with Nordic Copper in Finland before, and knew their pre-treated product would provide the required aesthetic. The company takes standard bright copper and treats it organically to get it to various stages of life, depending on the appearance the client is looking for. The copper can then be supplied at the stage of patina that is required for the project, and it will continue to age as if it had always been in place," says Adrian.

The copper for the Basilica was imported as a pre-patinated 0.70mm-thick coil, specified to provide the right amount of malleability to handle the processes the copper would undergo to form the dome – too thick and it would not form easily or close up, too thin and canning could occur. Cut sheets were then curved and seamed by TARC into the many pieces required to reconstruct the dome shape.

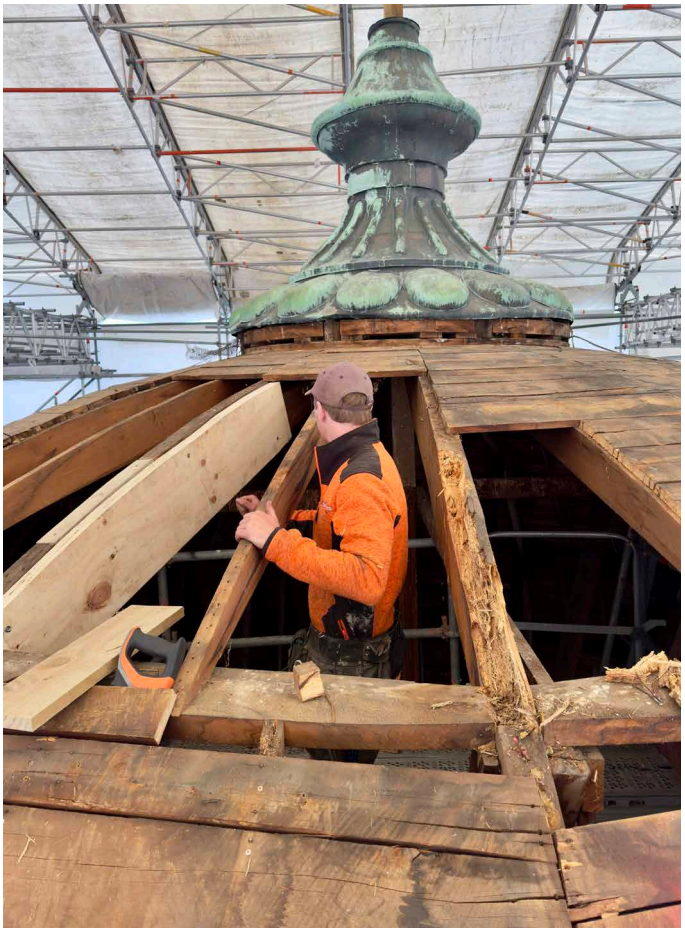
Each panel was unique, tapered, folded and customised to suit the radial geometry of the domes, with no straight lines to rely on. Panel tops were pre-folded at TARC's Christchurch facility, with final adjustments made on site to ensure a perfect fit.

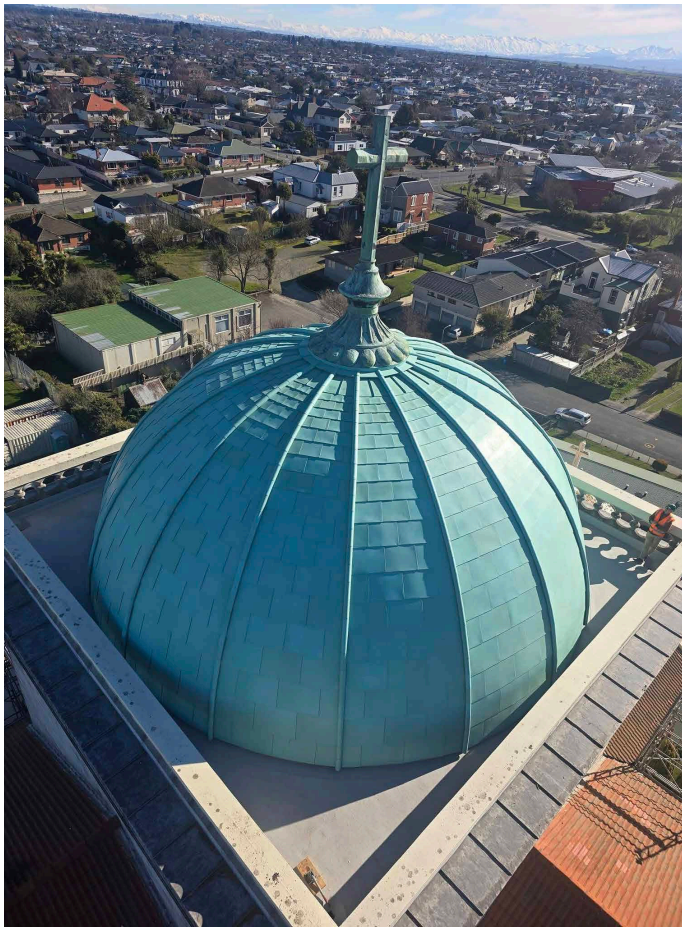
The project required a knowledge of the craftsmanship skills to replicate the centuries-old design and construction style used for the domes and apse of the Basilica.

Another advantage of copper for a project such as this, says Adrian, is that pre-treated, passivated copper rejuvenates itself over time if damage occurs.

And for the final piece of the puzzle, TARC had to remove and crane down the copper crosses that topped the domes so they could be refurbished before being craned back up and reinstalled. Again, heritage detailing was critical, and any holes or cracks had to be filled and soldered without compromising the historic integrity of the crosses.

"Every detail had to be remade to be the same as the pieces that were removed. We had to record the details of each panel and remake them as closely as possible."





P

Basilica Timaru

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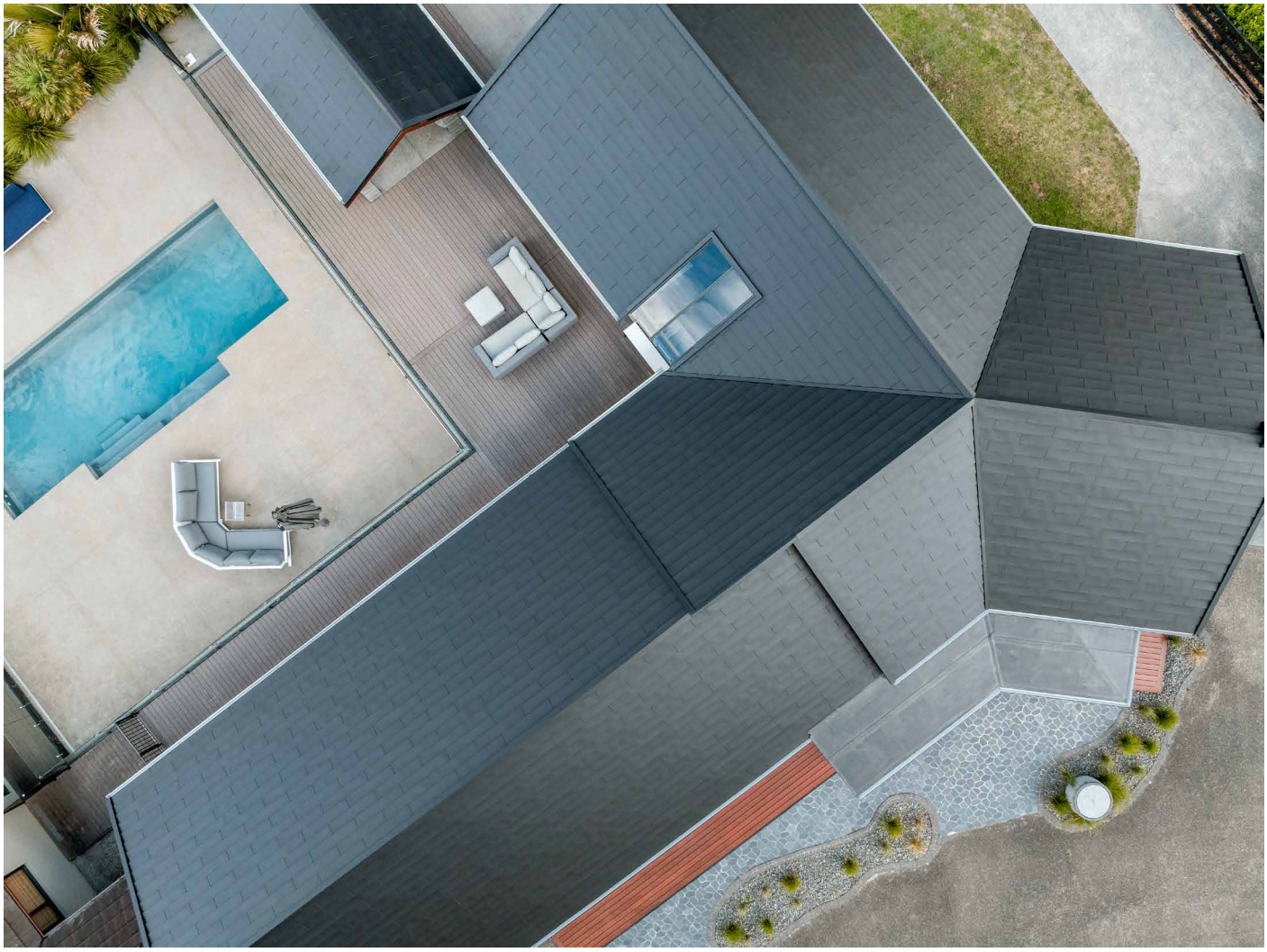
The Architectural Roofing Company

Product Supplier
Ambro Metals, Avondale, Auckland

Profile
Copper

Manufacturer
Nordic Copper



A roof of calibre

In May 1998, the last concrete roof tile was laid on a new, architecturally designed home among the bushlands in Coatesville. Homeowner Warren and his family planned for this to be their home for the coming decades, and each material choice was carefully considered. However, Warren didn't anticipate the drama that would unfold over the coming years, leading to a complete re-roof of his home. Fortunately, Gerard had the lightweight solution to give Warren a roof that would last.

The 285-square-metre house was designed to complement the breathtaking natural surroundings, utilising natural cedar and schist as a feature of the exterior cladding to add texture and warmth. Taking inspiration from a neighbouring property, flat concrete roof tiles were chosen, with their appearance mimicking a slate roof.

About 10 years after the roof was installed, the first issues began to arise. It started with the pointing coming out of the gable and bargeboard details, allowing birds to creep under the roof and

nest in the roof cavity. At extra cost, repairs were made to the roof to address these issues. Then the roof started leaking under wind-driven rain. In certain conditions, the roof window over the kitchen would leak, and water also appeared around a few other flashings. More repairs – with added costs – were undertaken until it became apparent that repairs were not going to solve the root cause: the tiles were no longer providing protection against water ingress. So, the decision was made to re-roof the property.

Warren says of the decision, "It's regretful – I never thought I'd have to replace the roof in my lifetime. I also own a property in Devonport, and its roof is 90 years old, and it's still ok. But that's an old metal roof, and to have a roof that I'd done in May '98 and replacing it already is a bit of a contrast."

The search began to find a roofing solution that not only fitted the aesthetic of the home, but also provided long-term performance so he wouldn't need to re-roof again in his lifetime.

Gerard's new roof profile, Calibre, with its horizontal panelling complementing the style of the existing cladding, caught Warren's eye. The lightweight steel panel system features Concealed Fastening (CF) technology, made up of an interlocking design which adds strength to the roof while hiding fasteners from view and providing clean lines without interruption. The staggered installation, CF design, and concealed weather channels culminate in a stylish and high-performing roof.

Warren was delighted with a solution that came in a wide variety of colours, backed by a well-known manufacturer.

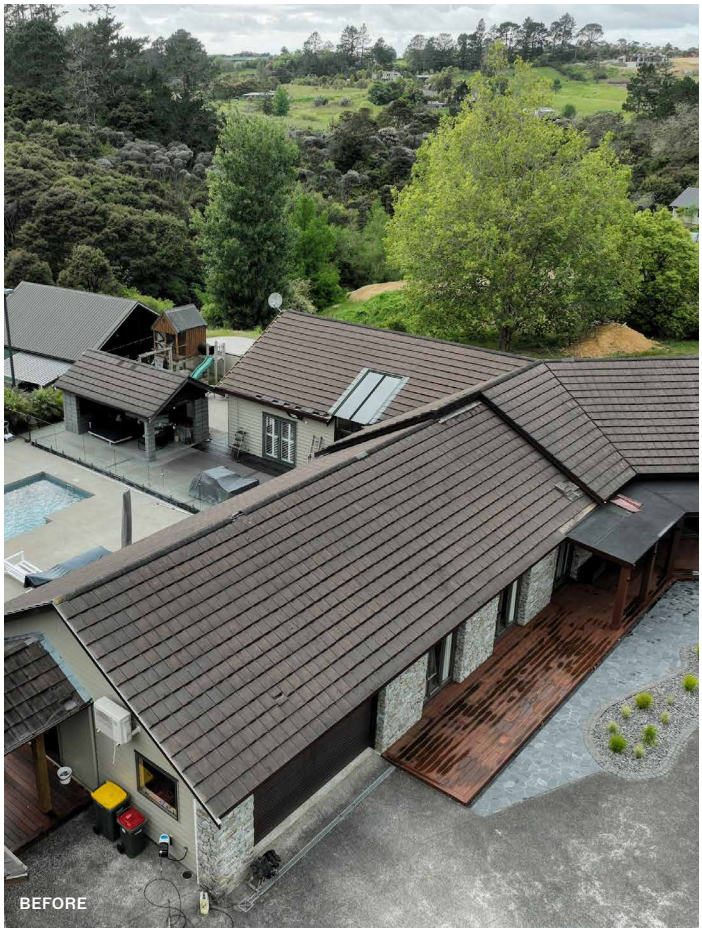
"Gerard products are known for their paint durability, and I was satisfied that Gerard has a long-established place in the roofing industry in New Zealand," Warren says.

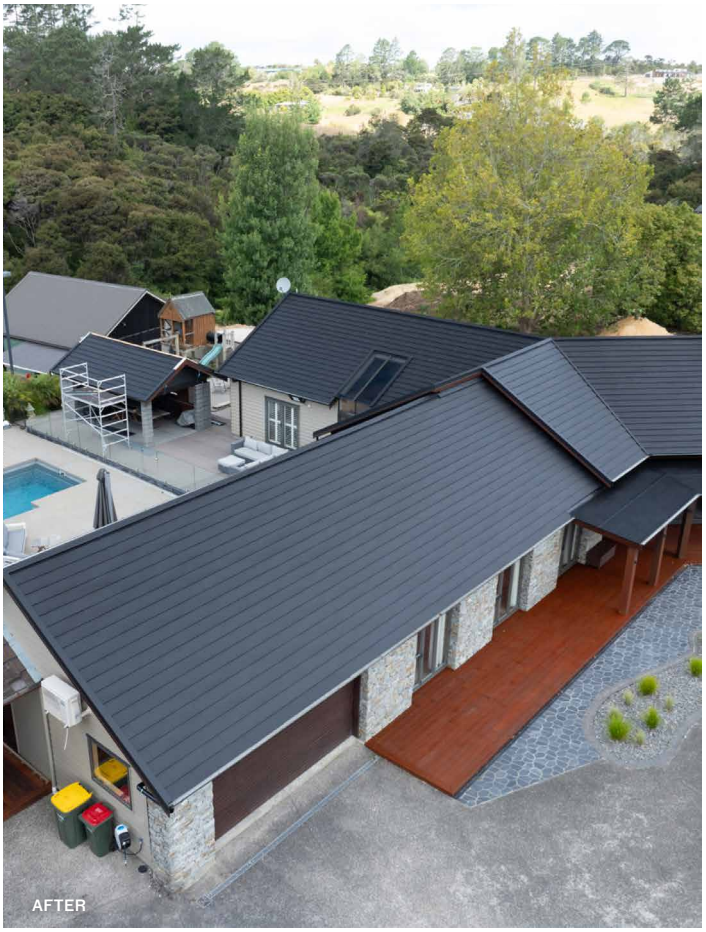
Aside from aesthetics, the durability and performance of the paint were critical, given the house's location on a rainwater tank, and the degradation of the concrete tiles had led to many issues.

Warren says, "The roof always looked wet, and it had a large amount of moss on it. In the off-season, when the moss dried up on the lower edge of the tiles, it would fill the spouting with sludge. Then the birds would come and eat the moss; it caused all sorts of problems."

Apart from clogging the spouting, the family also contracted Campylobacter from a dead bird in the roof system, which put them out of action for weeks. With Calibre, being on a rainwater tank is no issue, as testing on Gerard's roof coatings has proven the coatings to be aligned with Australian and New Zealand standards for rainwater collection (AS/NZS 4020).

“Gerard rose to all the challenges with this roof. They overcame these challenges after consulting with me and working through options and solutions.”





Switching from a concrete roof to a metal panel roof also offered additional benefits. The lightweight construction resulted in approximately seven times less weight above the family's heads, while still maintaining the longevity and durability Warren desired. The panel design results in a high strength-to-weight ratio, creating a robust matrix that can withstand challenging winds and heavy impacts.

Warren wanted to be very hands-on throughout the re-roof process, and, with his background in engineering and a thorough understanding of construction, it was important for him to work with a team and a manufacturer he could trust. And Gerard fitted the bill.

With his decision made, Warren contracted the Gerard Roofing Centre (GRC) to complete the re-roof on his home, using the new Calibre profile in the colour Ebony. The old concrete roof had a few more unpleasant surprises in store, though. When the GRC team began removing tiles from the roof, it quickly became apparent that the underlying structure wasn't in a suitable condition to remain in place. The heavy weight of the concrete tiles had caused the trusses to sag and become uneven, necessitating the erection of new trusses before the new roof could be installed. Once the new trusses were in place, the Calibre installation began. Warren worked closely with Scott Caskey, GRC manager, who was onsite throughout the re-roof process.

The difference between the old roof and the new roof is stark. Calibre's clean, sharp lines lend the illusion of a modern slate-type roof, while the UV-stable paint gives the roof a sleek aesthetic. Despite the challenges in re-roofing his home, Warren is thrilled with the results.

"Gerard rose to all the challenges with this roof. They overcame these challenges after consulting with me and working through options and solutions. We got a great result, and the finished product speaks for itself."

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Coatesville House

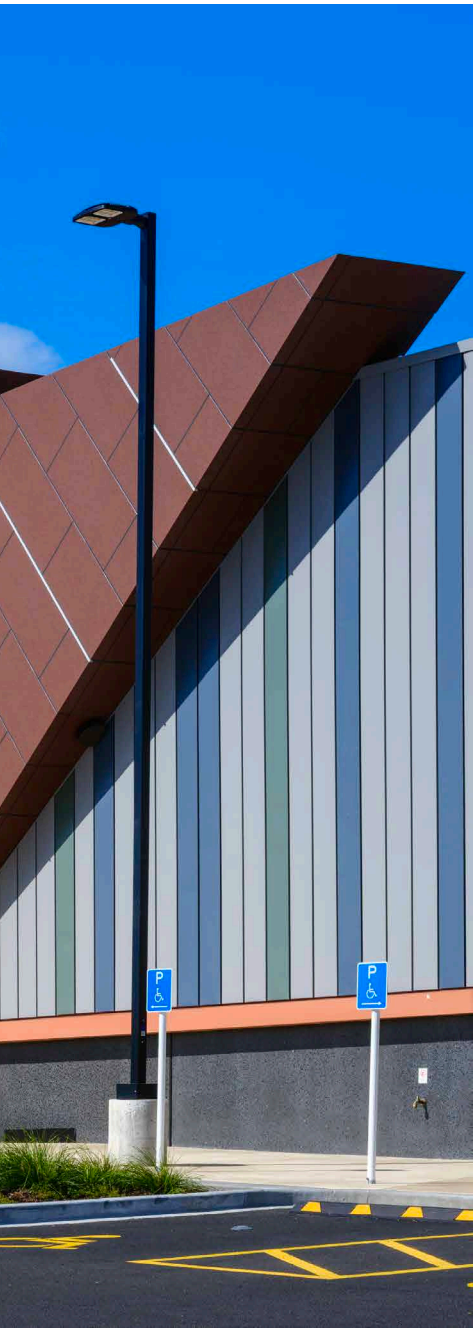
CREDITS

Roofing Installer
GRC

Manufacturer
Gerard

Profile/Colour
Calibre/Ebony


MĀNAWA BAY



Mānawa Bay

The new 35,000-square-metre outlet shopping centre at Mānawa Bay, close to Auckland Airport, pushes the boundaries of aesthetics and authenticity with a design that gives this retail precinct a distinct edge.

Mānawa Bay's architecture references the airport and the Manukau Harbour shoreline as an early site of Māori settlement, with a design that represents arrival, flight and movement. Its name, Mānawa Bay, is a Te Reo word for mangroves, which are abundant in local waterways. The building's overall massing takes inspiration from the form of the "waka" – a symbol of Māori arrival. This influence is reflected in its elongated, slender shape and integration with the coastal landscape.

The centre includes 117 retail tenancies, mainly fashion-led, as well as food and beverage outlets, and 1,400 car parks. Design elements include a figure-eight internal retail layout, indoor unobstructed views, multiple skylights, a textured façade with prominent, inviting entry points, and a dining terrace that merges interior and exterior environments.

Project architect Raymond Chung of Eclipse Architecture says the project aimed to connect the built form with its surroundings, "blending visually and physically with the park-like grounds and coastal shoreline landscape".

The main structure of the roof, designed by Eclipse Architecture, is a double-gable steel portal frame with a raised parapet to the entire exterior. As the main roof is largely unseen from ground level, the most economical method of covering the spaces below was employed, resulting in a simple, low-pitched double gable with a central internal gutter. This configuration keeps the roof height low, conceals all mechanical plant located on the roof, and supports approximately 11,000 square metres of solar panels.

For the roof construction, RoofLogic supplied the FiberthermX warm roof system. This is a high-performance solution engineered for exceptional thermal efficiency, weather protection, and long-term durability.

Through RoofLogic's close relationship with Steel Roofing and its connection with Savory Construction, the team became involved early in the project. This early engagement enabled delivery of a roofing system that not only met the project's design and performance requirements but also offered significant programme advantages through early close-in of the building.

The system incorporates a 150 mm Post and Rail structural assembly, forming an insulated cavity between the LinerDeck and TopDeck to create an Externally Insulated and Vapour-Controlled (EIVC)

roof. The system is proven to mitigate interstitial condensation, minimise thermal bridging, and maintain stable internal temperatures throughout the year, resulting in improved occupant comfort and reduced energy demand for heating and cooling.

The FiberthermX system integrates premium components, including NZ-manufactured TopDeck and LinerDeck, aluminium Post and Rail structural elements, and high-performance Mineral Glasswool insulation. The siliconised Mineral Glasswool, made from 80% recycled content, has excellent acoustic properties to minimise the nearby aircraft noise – a key consideration in an airport environment – while supporting sustainable design. An additional acoustic blanket installed as part of the RoofLogic system, directly beneath the LinerDeck in many areas of the building, provides reverberation control within interior spaces.

Sustainability was a key feature for the project, which is targeting a 6 Green Star rating. To achieve this, Mānawa Bay includes onsite power generation via one of the largest rooftop solar arrays in the country, says RoofLogic's Hedda Landreth.

A large portion of the roof is covered with photovoltaic panels mounted using RoofLogic Helios Brackets, which provide a secure interface between the PV frame and the roof. The design of the Helios brackets resolves the weathertightness issues, as the brackets are installed by the roofing contractor. At the same time, the PV frames are mechanically fixed to the brackets without penetrating the roofing profile. The FiberthermX system provides the necessary structural strength to support the panels safely.

"Combined with its high thermal efficiency, condensation management, and compatibility with renewable energy systems, the roof demonstrates how considered design can significantly assist environmental performance," says Hedda.

Rainwater is also harvested to reduce water demand, and an intensive planting scheme has replaced weeds and invasive species, and restored trees, grasses and shrubs to the area. Sustainable transport options have also been integrated into Mānawa Bay, including e-bike storage and recharge stations for vehicles.

In the food court, for example, the fully electric design is expected to deliver up to 37 per cent energy savings compared to a traditional food and beverage precinct powered by gas. This, combined with rooftop power generation, reduces network demand for power.

Internally, the basic roof structure is exposed throughout with mechanical, electrical and fire services above the ceiling line of retail frontages.

The primary materials are polished concrete throughout the walkway areas, with the food court featuring an extensive timber-patterned lowered ceiling extending to the outdoor area. The selection of materials reflects the site context, and this theme carries into the selection of soft furnishings.

Privately owned and operated, Roofing Industries has been in the metal roofing and cladding manufacturing business for more than 25 years, with 15 branches nationwide. Its staff of experienced roofing professionals delivers roll-formed solutions to the construction industry. Roofing Industries manufactures tailor-made, innovative, and visually appealing metal roofing, cladding, and rainwater products for large- and small-scale commercial, industrial, rural, and residential projects.

"Combined with its high thermal efficiency, condensation management, and compatibility with renewable energy systems, the roof demonstrates how considered design can significantly assist environmental performance."

P

Mānawa Bay

CREDITS

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