ISSUE 26

SCOPE

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NZ METAL ROOFING MANUFACTURERS INC.

Below is a brief introduction to the 2011 executive of The Metal Roofing Manufacturers Inc.
It is intended that Scope be representative of the industry and therefore material of interest is welcomed from all sectors of the building industry be it design, research, manufacture or construction.

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SCOPE

CONTENT ISSUE 26

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

Scope is the official publication of
The NZ Metal Roofing Manufacturers Inc.
Executive Officer: Peter Atkinson
Private Bag 92 066, Auckland.
DDI Ph: 09 367 0934,
Ph: 09 367 0913
Managing Editors: Warren Oliver, Christine Wilkinson, Dean Lee, Dave Hall, Campbell Glennie. Gary McNamara.
Published by ICG Limited.
57 Glendhu Road, Glenfield, Auckland.
Telephone: 09 444 2424.
e-mail: conceptart@xtra.co.nz

North's residence designed by Helen Richards, Powered Living.

A HOME FOR ALL SEASONS

By Graham Hepburn

Dave North is the first to admit that he and wife Ali weren't "specifically looking for an eco house" when they built in Nelson but that's kind of what they ended up with.
Rather, he and Ali just wanted a warm, dry and healthy home for themselves and their two children, aged 5 and 8. As Dave explains, "I'm used to the UK where houses are brick and have central heating and you can walk around inside with a T-shirt on, and Ali doesn't like the cold."

After seeing a couple of houses designed along passive solar principles by Helen Richards, of Powered Living, they approached her to come up with a plan for a home on a section they had already bought.

Helen says, "Although the urban site adjacent to the Maitai River had some design challenges - small size and with four neighbours in close proximity - it had a clear advantage in shape and orientation facing due north and elongated in east-west direction, virtually ideal for the design of a passive solar house."
The home has opposing roof planes with the north-facing side being higher and more open to the sun with a moderate pitch on the roof, whereas the south-facing side of the house has a much steeper roof pitch.

The main body of the house, consisting of an open plan kitchen/living/dining room on the north side, acts as the solar collector with heat stored in and then released from the concrete floors. The heat then moves back through the house and upstairs. The floors are insulated with polystyrene underneath and at the edges so that heat does not escape but is instead radiated back into the house.
Deeper stud framing – 140mm as opposed to the standard 90mm - has been used to accommodate upgraded insulation: R3 Batts in the walls and R5 in the ceilings. All the glass windows and doors are double glazed with the aluminium framing thermally broken to prevent heat loss. Ribbed Colorcote® has been used on the roof and for cladding because of its light and durable nature. Baby Corrugate has also been used to break up the look of the home.

at the rear because they have neighbours right behind them so we used clerestory windows to allow light to the centre and also rear of the house'
A rooflight at the top of the stairwell also provides more light and a "ventilation chimney" for the house.
Helen says the aim of the design was to keep the home within a comfortable temperature range, not dropping below 16C in midwinter. At other times of the year a temperature of 19C is easily achieved.

Keeping the house warm is one thing, but care also has to be taken to make sure it doesn't overheat. With that in mind, there is less glass on the western walls, while clerestory windows above the central corridor serve to provide a source of ventilation, as well as light.

Helen says, "Dave and Ali were really keen on a light corridor and they didn't want too much glass

"Due to the well insulated structure of the house, as heat migrates to the rear parts of the house and warms the cooler ambient temperature in those areas the rear masonry in turn responds and stores this heat," says Helen. "This masonry includes a central feature spine concrete wall: ground aggregate concrete tilt panels which run right through the centre of the house."

To boost the home's capacity to collect and store solar heat, Helen included a Trombe wall. It consists of a sheet of double glazing mounted over a concrete panel that is fixed to the north face of the house and is 1.5 storeys tall so that it radiates heat into living area and the master bedroom upstairs.
"The idea of the Trombe wall is that a vertical surface will get more direct hits in winter and with the glass in front it amplifies the

heat. The glass also insulates the concrete a little," says Helen. "It's an exaggerated version of a solar collector and it feels hot to the touch in winter."

Helen has thermometers placed all over the house so she can monitor its performance throughout the year but how does it feel to live in? "Generally we're very happy with it," says Dave. "There's absolutely no heating in the house at all.

As long as there's sunshine the house is comfortable but if there's continual cloud cover for a few days the house does cool down and you might have to put a jumper on. "We've got a couple of oil-filled heaters in the cupboard but we've never dragged them out and plugged them in."

Not only do the family have no space heating, they also use only solar power for their hot water, which comes from a 300-litre cylinder. They had a back-up immersion heater but when it malfunctioned Dave unplugged it and it's never been reconnected. "We rely exclusively on solar water heating," says Dave. "There would be half a dozen days in the year that the water gets slightly cool; otherwise we have plenty of hot water. The added bonus is having a power bill that is $50-$60 a month." They also collect rainwater and that takes care of about 95 per cent of their water use – in the household and in the garden.

Dave says the clerestory windows help to stop the house overheating but they have to be opened and closed at the right times to maintain an optimum temperature. "You have to be a little bit careful to shut them when the outside temperature starts dropping," says Dave. "Living in the house is a process of learning to manage the house to keep the temperature just right."

Powered Living

Owned and directed by Nelson-based Helen Richards, Powered Living designs passive solar homes with innovative architectural form, combining style and performance. Helen works in conjunction with Duncan Firth and Milti Stefadouros (Northland-based). Powered Living, which also has an association with Roger Walker Architects (Wellington), is a small, specialised team that uses a number of selected contractors for advice on engineering, building, landscaping, lighting and alternative power. Helen Richards is a member of the Royal Institute of British Architects and in her 19 years of study and practice she has paid particular attention to energy efficiency. Powered Living is working on a variety of solar design projects and has its own concept house in Nelson to demonstrate the effectiveness of passive solar design.

Designer: Helen Richards,
Powered Living,
Telephone: 03 548 1680
www.poweredliving.co.nz

Builder: Philip Hay
Telephone: 021 314 092

Roofing Manufacture and installation:
Contour Roofing Nelson Ltd
Telephone: 03 538 0824

Baby Corrugate
Quin's Levin

Roofing: 5 Rib Longrun ColorCote®
Cladding: Standard ColorCote®
Corrugated Longrun
and Baby Corrugate

SAFETY FIRST

By Graham Hepburn

When people talk about products being sustainable, they usually focus on its carbon footprint or energy efficiency but the safety of a product is just as important.

And product safety covers all sorts of facets: from the safety of the workers that make it to how safe the product is to use and recycle.
When you look at metal roofing, the safety of the product has improved in many areas to a level that not only meets all guidelines, regulatory requirements and standards but sets a benchmark for products and is based on continuous improvement.
At manufacturing workplaces such as New Zealand Steel there is a constant drive for improved safety. New Zealand Steel has a goal of Zero Harm as it believes all injuries can be prevented.

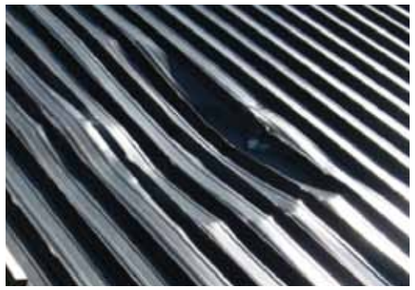
The process of manufacturing the roofing material involves cold forming the steel produced by the steel mills. The manufacturers all strive to achieve the same goals in manufacturing safety resulting in machinery being designed for safety as well as fabricating product. The safety culture continues to the installation of the roof. Lightweight metal roofing is inherently safer to install with less weight to be man handled. The industry has a high awareness of safety and the leading organisation in New Zealand representing the roofing installers, the Roofing Association of New Zealand (RANZ), has a safety-led culture which is reflected on the job site where safety is not to be compromised. RANZ has developed guidelines about working at height that encourage the use of harnesses and safety mesh to prevent falls.
Because steel is ductile and not brittle, metal roofing can withstand heavy impact loads from falling debris without breaking. Such debris can be as a result of storms

blowing branches onto roofs, earthquakes with chimneys falling onto them and hail from severe storms. In 1999, Sydney suffered a massive hailstorm resulting in hundreds of millions of dollars damage from broken roofs made of clay tiles, losing weathertightness and causing consequential water damage to properties. Steel roofs were dented (along with thousands of cars) but remained intact when the storm dropped an estimated 500,000 tonnes of hailstones causing damage calculated to cost more than $2 billion.

Light metal roofs also perform better in earthquakes as shown by a study conducted by Andrew Buchanan and Michael Newcombe, of the Department of Civil and Natural Resources Engineering, University of Canterbury, who looked at the after-effects of the major earthquake in Christchurch last September. Falling concrete or clay tiles are a danger in an earthquake but more damage was caused by chimneys collapsing on to roofs. Buchanan and Newcombe found: "Chimney collapse on to corrugated steel roofing often caused no further damage, depending on the height of the chimney, but some fell through the roof or caused rafter failure. Chimneys falling on to tile roofs (concrete or clay tiles, or slate roofs) more often fell through into the house, sometimes causing further structural damage and potential loss of life."

That finding is backed up by United States professor V.V. Bertero of the Department of Civil Engineering and Earthquake Engineering Research Center, who published a paper in 1997 designed to teach students of structural and architectural engineering about building earthquake-resistant structures.

One of his guidelines was that a structure "should be light [weight] and avoid unnecessary masses". Bertero looked at buildings hit by major earthquakes in Alaska, Argentina, Algeria, California,



Guatemala, Japan, Nicaragua and Venezuela. After a Californian earthquake, he observed that there was extensive damage to wooden houses from heavy tile roofs falling into the structures.

"All of these old buildings suffered significant damage and were subsequently demolished," Bertero said. "The lessons from such damage are clearly to avoid the use of unnecessarily heavy roofs and unreinforced masonry."

Metal roofing is also becoming safer to use in high-wind areas with the use of screws rather than nails and the advent of load spreading washers – or cyclone washers – which lessen the chances of the roof tearing off in high winds.
And Gerard Roofs has developed a system of interlocking metal tiles secured in place with a unique horizontal fastening system. The result is a very strong roof with superior wind resistance, which allows specification in very high wind zones. High winds blowing over a roof cause a difference in air pressure between the inside and outside of the roof, causing the roof to lift. The stronger the wind, the higher the pressure differential, the greater the uplift. Wind uplift can cause vertical fastenings to be simply pulled out whereas with the horizontal fastening method used on Gerard Roofs the fasteners must shear off for the roof to fail – and there are eight fasteners holding down each tile.

When it comes to using a metal roof, because it is lighter – about a sixth of the weight of concrete tiles – it is safer structurally as it isn't prone to settling or sagging which heavyweight roofs can be subject to over time, reducing the risk of doors or windows jamming or cracks in claddings occurring which could then be prone to water ingress. Families can rely on a metal roof to keep them and their possessions safe and dry.

When Whangarei Girls' High School was identified as needing remedial seismic work as part of a nationwide structural survey of all schools undertaken by the Ministry of Education, it opted to replace its clay tiles with a metal roof.
That's because modern earthquake standards demand that schools with concrete or clay tile roofs replace them with lighter metal roofs or face hefty costs to reinforce their buildings if they want to keep their heavyweight roofs.

In the case of Whangarei Girls' High School, engineers came to the conclusion that the walls mainly needed to be strengthened because they were supporting a heavy clay tile roof. By removing the clay tiles and replacing them with a metal roof, the required strengthening was limited and this significantly reduced costs. The school wanted to maintain the look of the clay tiles so they were replaced with Gerrard Roof's Tuffcoat Tile in Marseille Clay. The end result was a strong, light metal roof that was still in keeping with the original building.

The new roof – all 2800sq m of it – weighs 12.76 tonnes compared to the estimated weight of 70 tonnes for the clay tiles. Cutting the weight of the roof by 57 tonnes meant the building required much less reinforcing to meet modern earthquake standards and makes it safer in an earthquake.
Having to disassemble the old roof at the school highlighted another advantage that lightweight roofing has over heavyweight roofing: it's not only easy to install, it's much easier and safer to remove when the time comes.

Whereas a metal roof can be replaced relatively safely and easily, removing the clay tile roof at Whangarei Girls' High School was a major project in itself, requiring a lot of labour and equipment. The job was done in stages over a ten-week period so as not to disrupt school activities and required an extensive screen of protective scaffolding, loading platforms and a rubbish chute.

Metal roofs also come out tops when homeowners are looking for a safe water supply. BRANZ says metal roofs are safe to collect rainwater from but a check should be made to ensure there is no lead, chromium or cadmium in the roof and its flashings or in any soldering or paint. The ease of collecting rainwater from a metal roof is safer for the environment as it cuts stormwater flows that lead to erosion or contamination of rivers and oceans.

And when a metal roof needs replacing, the old one can be safely melted down and re-used in other steel products.

Recycling steel is safer for the environment and scrap metal is a vital part of the process for New Zealand's two steel-makers. Pacific Steel, a division of Fletcher Building, makes all its steel from scrap. New Zealand produces about 500,000 tonnes of scrap metal a year. Pacific Steel uses about 300,000 tonnes of that to make products such as reinforcing steel and wire, with the rest of the scrap metal being exported.

While recycling steel reduces the amount of materials being dumped in landfills, the process also saves an enormous amount of energy: recycled steel can be made by using as little as 25 per cent of the energy it takes to make virgin steel and that doesn't take into account the knock-on effects of reductions in mining, transportation, and greenhouse gas emissions.
When it comes to product safety, metal roofing is improving its record from start to finish.

FRENCH INFLUENCE

John Killeen, a 5th generation New Zealander, has a dry sense of humour gleaned from years of experience. It is reasonable to say he has worked hard for what he has and has developed a knack of seeing through much of the information we are bombarded with.

His father was a carpenter and he worked with him on site from the age of 14 in Southland. This grounding provided John with a valuable insight into the building industry even before leaving school at 15 to find his own way in the world.

His rich and varied life story saw him employed as a Butcher, Shearer, Clerk, Sales Person and Administration Manager. He also worked on the Deep Cove tunnel and served as a Bombardier in Vietnam in 1967.

John relates with a chuckle, "You know I was of an era, when I started work, where it was "OK" for Whitcoulls to run an employment advertisement stating that 'Catholics need not apply'. Times have changed a bit since then!"

John married his wife Loma in 1970 and they purchased their first house in Papakura for $14,000.

John met builder, Gerald Muir, whilst he was doing alterations on a neighbour's property in Manurewa. "Gerald's high standard of craftsmanship impressed me at the time and I decided then, that if I ever built a new home, Gerald would be the person to do the job. This is a decision I have no regrets about as he has done an exceptional job for us. He has had considerable input into our new home from the planning to the final details. Brilliant!"

Gerald Muir then referred John to architectural designer Darren Chalmers, to help him design his

"dream home" in the Karaka Harbourside Estate. The site is situated at the end of a cul-de-sac on the waterfront with fabulous inner harbour views.

John's architectural preferences were heavily influenced by his travels in the south of France, as a young man, and the design of the Portofino Point Harbourside property reflects this. He was originally planning to build a French Chateaux style house however after considerable consultation with Darren they settled on an Italian "Tuscan style" as a result of council height restrictions. Having settled on a design and a list of "must haves", the main requirement was that the house was to have classic and ageless aesthetic appeal and the views of the inner harbour were to be maximized. The French influence was a given.

As the house was orientated towards the harbour views it effectively turns its back to its closest neighbour. The two-storied family home, clad in plastered brickwork, consists of a series of simple, dedicated spaces that enclose rooms and covered terraces. The kitchen, dining, family, formal lounge, guest accommodation and utilities occupy the lower level. Upstairs has dual master bedrooms with individual ensuites. Generous glazing on the sunny northwestern side positions living areas and bedrooms to maximise views of the sea and sunshine.

Due to limited vehicle manoeuvrability on site a drive through garage was provided for additional onsite parking. The eastern side of the house that faces the street features a mix of hip and high gable roofs, long narrow windows, painted timber detailing to soffits and plastered bell towers give an authentic European appearance. Complementing this is the Metrotile Roman roof that forms a significant part of the overall character of the home. A circular window highlighted by red brick defines the entryway that leads into a double storied light filled entrance gallery with a tower staircase and wrought iron balcony. Access to the first floor can also be via a Magic Carpet Lift. The entrance gallery leads into an area that accommodates the family room, kitchen and dining. A modern gas fire adds warmth. To maximize views the family room and the kitchen are located towards the sea. Wide sliding doors provide access to a covered terrace that features overhead glazing and opens to the distinctive landscaping features. An additional covered terrace accessed from the dining room provides a location to shelter from occasional sharp westerly winds from the inner harbour. A separate formal lounge creates a private retreat.

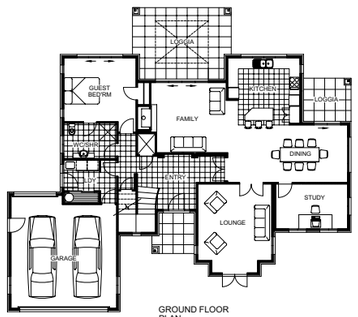
The irregular shaped site presented some challenging design issues with positioning of the house due to height in relation to boundary controls, and the coastal setback requirement. These issues where all resolved through the Resource Consent process.

Having settled upon the design of the house John and Gerald undertook a review of a wide range of tile roofing products. Due to the location of the house, which overlooks the Pahurehure Inlet, John was advised by Gerald to specify a lightweight roof due to structural cost savings and reduced maintenance concerns.

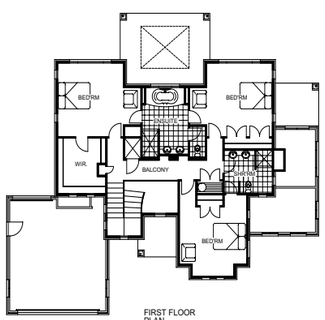
John undertook an internet search and after considerable research, on all products available, chose the Metrotile Roman tile profile from the range of alternatives due to its authentic “clay tile” look and marine warranty performance. John then visited the Metrotile factory and was provided with samples and a list of addresses by Ian Ross, a then Director and owner of the Company, to undertake a drive-by prior to specifying the Metrotile Roman tile on his Portofino Point Harbourside property.

Gerald Muir has been building for some 40 years and has built up a boutique building company that specializes in quality of its workmanship, industry expertise and client relationships.

Gerald spent some 18 months working with John on a range of Design and Resource Consent



GROUND FLOOR PLAN



FIRST FLOOR PLAN

issues prior to commencing construction of the Portofino Point Harbourside property. Gerald noted that in some projects Resource Consent issues can account for up to 30% of the cost of a build.

Rob McMahon from Lightweight Roofing, who undertook the installation of the Metrotile Roman roof, was recommended to John by Gerald Muir. Gerald had a longstanding relationship with Rob McMahon and was very thorough in his management of each of the sub-trades, including Lightweight Roofing. John noted that Gerald had an apprentice spend a half-day spraying water on the roof, to check for leaks – and we are pleased to report that there were none.

TopLine Trade Services offer a wide range of plumbing, drainage, roofing and maintenance services and through the appointment of Rob McMahon, who has over 25 years of roofing experience and is responsible for their Residential Roofing division, are looking to offer homeowners, builders and commercial operators a complete roofing and maintenance "one stop shop" package in the greater Auckland area.

Darren L Chalmers Architectural Ltd

Darren established his practice in 1994 and is a professional member of the ADNZ (Architectural Designers of New Zealand Inc.) and is a Licensed Building Practitioner. He provides his clients with a range of architectural services from the initial consultation, through the design stages to consent application. He has been involved in a variety of developments including new residential houses, extensions, alterations, industrial and educational buildings. As can be seen by the Portofino Point property Darren is focused on interpreting client's ideas, and developing designs that maximize the client's investment. He does this by using appropriate design approaches towards style, orientation, insulation levels, day lighting and material selection.

Architectural Designer:
Darren L Chalmers
Darren L Chalmers Architectural Ltd
Telephone: (09) 294 6263
Mobile: (0274) 755 117
darren@chalmersarch.co.nz

Roofing Manufacturer;
Metrotile NZ Ltd.Telephone: 09 299 9498
email: info@metrotile.com
www.metrotile.com
Product: Metrotile Roman
Finish: Textured
Colour: Tuscany

Main contractor:
Builder: Gerald Muir
GJ Muir Builders
Telephone: 0274 764 508

Roofing installation:
Roofing Company: TopLine Trade Services
Contact: Rob McMahon
Telephone: 027 222 8576
E-mail: rob@toplinetradeservices.co.nz

BUCKLING OF ROOF FLASHINGS

Rod Newbold (Commercial Manager, Steel & Tubing Roofing Products),
John Turner (Wood Technologist, SCION)

THE PROBLEM.

There has been a spate of compression buckling of transverse roof flashings, such as ridges, aprons, and apex barges, over recent years. The buckling can be seen in a number of forms, from a series of ripples along the length of the flashing, to a total collapse where the material is pleated and one face overlaps the other (Figure 1 and 2).

Figure 1 Buckled ridging

Figure 2 Buckled change of pitch flashing

Buckling of transverse flashings has certainly become more common over recent years. So what has changed? The following have been considered as possible causes:

(a) Thermal Expansion

Although thermal expansion still has to be considered for long runs of flashings, it is not considered the prime cause of the problem. Thermal expansion of a dark roof experiencing normal temperature differentials is less than 1mm/m, the buckling has occurred in both long and short runs of flashing, and does not reverse in cold weather.

b) Material thickness

The problem occurs with .40mm and .55mm ridging, also .55mm barges, aprons, fascias and change-of-pitch flashings. Although testing at SCION has confirmed that .40mm material is more susceptible to this problem, it is not considered the primary cause.

(c) Changes in Building or Roofing Installation Practice.

A change in roofing installation practice has been the swing towards substitution of nails with screws. Possibly because nails are more forgiving of any movement by bending at the shank more than a screw, the problem appears more common with screwed roofs rather than nailed roofs, but both are susceptible. Changes in roofing installation practice cannot be identified as the primary cause.

(d) Changes in Materials

Although profiled metal has changed from Galvanised to Zinc/Aluminium coated, the iron substrate has not altered, and the physical properties of expansion and contraction remain the same. Material change cannot be the primary cause.

(e) Change in the timber purlins?
The answer could well be yes! Changes in forestry management have focussed on getting trees to grow quicker to maximise return on investment, and to produce timber that is primarily free of defects such as knots. In achieving this there has been an increase in the tree stem of something called Compression Wood.

Compression Wood was formerly associated with trees growing with a lean, that developed the ability to expand along the grain while being formed, thus slowly bending the stem back to a vertical position. With recent plantation growing techniques this wood type appears more common, which due to wider spaced planting and high pruning, can be subject to wind stress from all sides. Consequently Compression Wood can appear all round the cross-section of the trunk not just the under-side of leaning trees. Figures 3

Figure 3 Compression wood all round the stem cross-section.

Figure 4 : Compression wood in leaning stems, severe,.

Compression wood has a darker appearance in the early wood (summer) growth rings (Figure 4&5) and a different cell shape to normal wood (Figure 6). It is not easy to accurately visually distinguish such severity levels in sawn timber, microscopic identification is required.

Figure 4.1 : Compression wood in leaning stems, moderate.

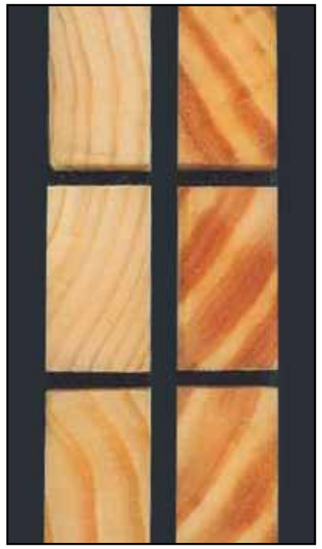
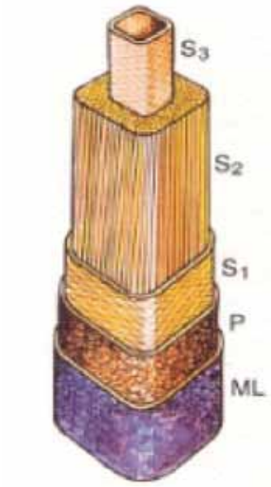


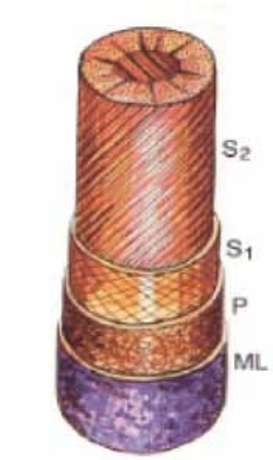
Figure 5 :Normal wood (Left) and Compression Wood (right)

Compression Wood is not as strong as normal timber but, most relevant to our case, it has vastly different shrinkage characteristics. Normal timber will shrink upon drying from green (30% moisture content (mc)) to air dry (12%mc) longitudinally by about 0.1% of its length. Juvenile wood, which is becoming more common, will shrink somewhat more than that but not as much as Compression Wood. Compression Wood varies in its shrinkage potential, ranging from mild (0.4%)

Figure 6: Comparison of cell structure



Normal wood cell



Compression wood cell

to severe (1%) over the same mc range (figure 7). That means a 2.4 metre length of timber, with severe Compression Wood along its length, could shrink as much as 24mm upon air drying! This is ten times the expansion experienced by a dark steel roof.

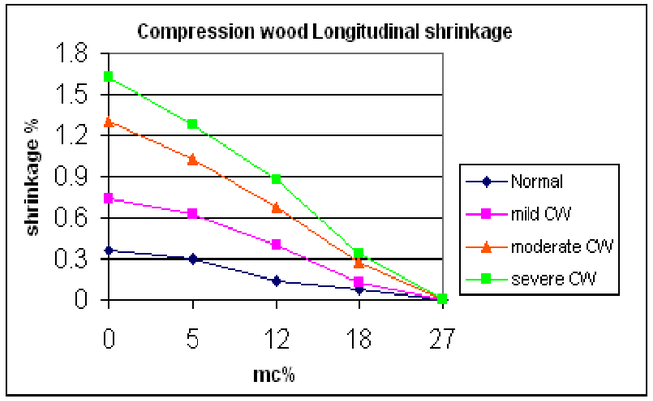


Figure 7 Graph showing longitudinal shrinkage, from 'green', of Compression Wood for different levels of severity, compared to normal timber.

Testing done at SCION in 2010 has indicated that shrinkage of as little as 6.5mm can result in the buckling of ridging. It is considered that compression wood with its associated shrinkage movement, is the most likely cause of the increased incidence of buckling of transverse flashings

THE CURE?

Three possibilities come to mind:
1. Avoid using purlins containing Compression Wood.
2. Use kiln dried timber, or use steel battens.
3. Allow timber to dry before attaching transverse flashings.

Avoid timber containing compression wood.

Although a professional can visually identify such timber to an extent, it is certainly not practical for timber graders, never mind a builder, to identify and eliminate it.

Use kiln dried purlins

Green timber starts to shrink once the moisture content dries below 30%. Kiln dried framing timber is usually dried to a target of 14%mc, but individual samples may have an mc of 21 or more which still allows for excessive shrinkage

Additionally, when dry Radiata timber is exposed to rain, it can very quickly re-wet above 30% moisture content but take considerably longer

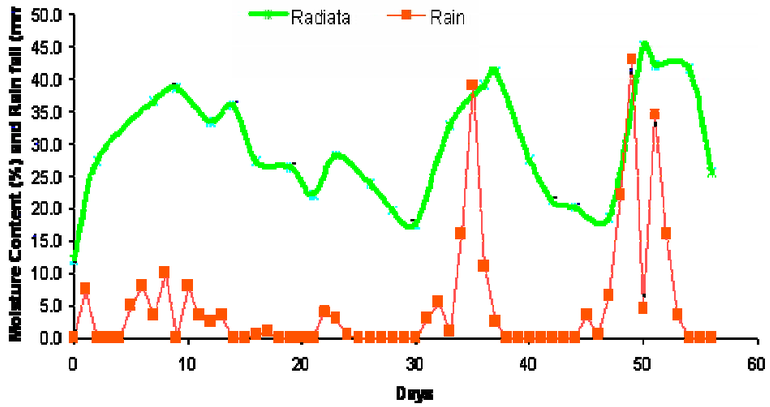


Figure 8 Graph showing average moisture content of exposed framing members (October-December 2003)

to dry back again (Figure 8). Using kiln-dried purlins is only a partial solution

RECOMMENDATION to CURE the PROBLEM

Allow Timber to dry before fastening transverse flashings
Do not fasten transverse flashings to timber members that have an mc in excess of 18%. A lower moisture content would be better but takes longer drying time. (BRANZ reports indicate a roof-space average emc of 9%),

Moisture meters are relatively cheap and portable, and this process of checking before fastening has been proven to work with roofers who have applied this process. Transverse flashings can be tacked in place to provide weather protection, and fastened when the support timber reaches an acceptable moisture content.

The Code of Practice states that timber should not be fastened to if then moisture content is above 18%. For roofing and flashings perpendicular to wet timber this is not considered mandatory, however for flashings that are transverse to the roof and are therefore fastened to timber members running in the same direction as the flashing, 18 % is the minimum and 12% is recommended to avoid the possibility of buckling. This must be done in conjunction with expansion joints where flashing runs exceed 12 metres.

LANGS BEACH HOUSE

David Jack and Elizabeth Thomas are no new comers to the beach as Liz has been involved in the family “bach” and holiday vacations at the seaside since her youth. When planning their new holiday home at Langs Beach David was adamant that the new home would be as maintenance free as possible as he recalls his father in law spending considerable “holiday time” working on the up-keep of the property. “When I come up to the beach I want to switch off and relax away from the pressures of work and enjoy the company of family and friends. The community at Langs beach is very special, as are many small communities, where the residents build a trust in one another and take time to share the pleasures of the day,” say David.” For me Langs Beach and the surrounding environment is perfect. There are no shops and as a result seldom any traffic beyond that which is just passing by on the way to Waipu cove or Mangawhai.”

Having purchased a site David and Liz contacted Architects, Engineers & Planners Apcon Paterson who David had previously worked with. “They have some great ideas and think outside the square”, says David.’”We had a good working relationship and I was confident their skills would be well suited to the project,”

The brief was to design a distinctive new holiday house, to maximize sea views, to accommodate David, Liz and 2 university age children in separate spaces within a single house with a large back (seaward) yard for family activity with a double carport.

From draft sketches estimates were obtained from builders to ensure that the concept was within budget.

The site is in a new subdivision with few other houses. It is the fourth row of houses from the beach facing north-east with great views of the beach. The site had been engineered with a 6 degree fall to the rear (north) and 1m cross-fall to the west. There is a batter up to the road in the front yard area. A maximum height level plane covenant approximately 6m high protects views of sites across the road which was a real challenge to meet.

On the seaward side of the property there are established baches and the view paths were checked to ensure that future buildings were not able to impede the views to the beach. The location of the house was optimised between the two side boundaries to suit yard requirements and to maximize the overall height given the cross fall on the site. The recession angles were 55 and 35 degrees on the side boundaries. The northern corner had a small height to boundary infringement and David was able to get neighbour’s approval to avoid complicating this corner of the roof and compromising the design. The balance of this side of the roof descended substantially below the maximum (over the bathroom area). The resource consent used a pro-forma application & letter used by the Whangarei council which minimized red tape.

Design Development

The entry and drive was landscaped to the front with a reverse manoeuvring area with a comfortable gradient. The carport was sited up to the front yard site restriction which determined the position of the front of the house and size of the rear yard

.

The house was designed to maximize the view under the height covenant and the rear yard size. Consideration was given to siting the house further to the rear to avoid side views being potentially blocked by new neighbour's houses but it was decided the main view was to the rear and David wanted to retain the sunny rear yard size so future grandchildren had a reasonable space to play in safety.

Access to the top floor is via a 5 step stairway from a spacious front entry lobby. The upper floor is on a single level to cater for long term view of safety with elderly and children alike.

The house was designed with a bedroom and study/gallery on the top floor for David and Liz and two bedrooms downstairs for the family, both with living areas. Additional interfloor sound rating was provided to the floor to block out the children's music. The upper floor decks have frameless glass balustrades to preserve the view and give protection from the wind. The open plan kitchen, dining/living areas are deliberately flexible and designed to suit various configurations depending on the situation. The overall result gives an open feeling of light and space which capitalises on the views from every aspect of the upper level and a sense of spaciousness, height and drama.

Above all David wanted a distinctive house and did not want a flat roof.

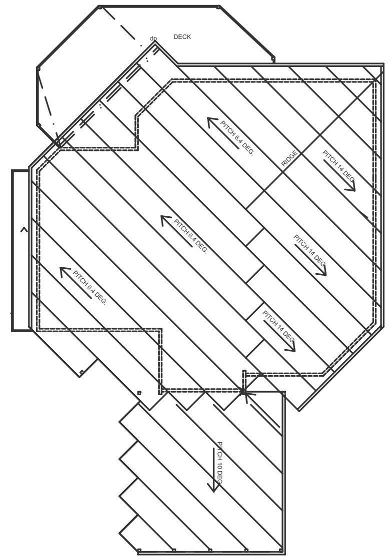
The resulting roofline gives an elegant distinction to the house design which David and Liz, understandably, are very pleased with.

The whole interior was developed as a creative space suitable to show family art works as part of the character.

The roof was ultimately pitched on 45 degree axis to the plan at 6.4 degrees to the northern corner. The eave took full advantage of the height to boundary envelope. To the south the roof was pitched at 14 degrees to the south to reduce the building height and volume over the service areas. The carport roof was with a regular 10 degree pitch to the front but the roofing was laid at 45 degrees to the beams so as to match the main roof.

The roof slopes at 45 degrees to the building axis. To retain simplicity the beams were laid out at 45 degrees so the roof beams would be flat. Although the roof was unusual, the structural design was rationalised so that the construction was standard.

A long span polystyrene panel roof was used to minimize roof thickness to maximize floor height & views. This gave an economical solution



with prefinished ceiling and a roofing profile upper and plenty of insulation.

As the panels were at 45 degrees to the walls the ends would normally be cut to waste and so a saw tooth edge of the uncut panels was retained for architectural effect. This simple decision gives the entire project a very distinctive appeal which sets it apart from the traditional single pitched roofs on surrounding properties.

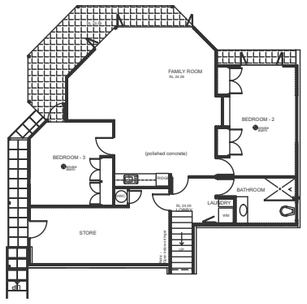
The house is in a very high wind zone and was clad in vertical corrugate Colorsteel (coated to suit marine environment) to provide a built in drainage cavity without battens for economy and contemporary expression. Feature fibre-cement panels were specified under the windows to provide interest & some contrast. These were simply screwed over the corrugate cladding so as to avoid risk matrix problems and further detailing & costs. The window glazing in the living areas raked with the roof again to highlight the roof & wall elements.

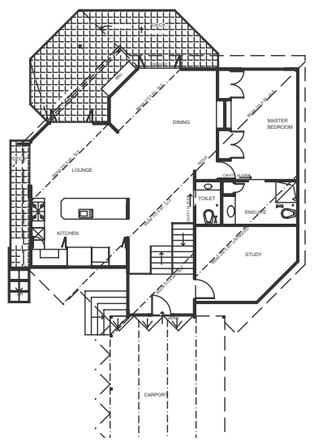
The basement retaining walls are concrete block to 150mm above the ground with a mowing strip. The bottom floor is polished concrete. The upper timber floor uses polyurethaned ply to good effect. This ply continues to form the deck areas and is protected by fibreglass matt.

The building was braced with braceline without portals. As the upper deck returns over the lounge below a custom designed and reinforced steel UC was required under the deck to support the upper wall without being exposed under the deck or ceiling to emphasize the flat floor element.
The walls were insulated to the new R values with excess roof insulation and single glazing.

From the outset Neville Paterson says,"The client having old world values and integrity we recommended obtaining an honest builder for an honest client.
David was managing the project and tendered the construction using our documentation and an appropriate builder was crucial to the success of the project."

David took on board the advice and as a result the project was given to Brogan Builders and managed





by Grant Eagar who in David's words did "a superb job." The roof design was unusual, particularly the various roof pitches, and both Grant and Neville, the engineer, worked exceptionally well together interpreting the construction detail.

Neville assembled the site data, assessed the town planning and covenant controls to decide on the optimal location. He worked in collaboration with with Barrie Paterson on the sketch design, assessed budget costings and preliminary builder's estimates, supervised the majority of the drafting and completed the building consent and resource consent documentation, specification details and engineering, framing, plumbing & drainage, insulation, risk matrix calculation & weathertightness. Whilst not directly supervising construction Neville was available during construction to answer queries and consents during the building process.

The site has yet to mature with landscaping and occupation.

APCON PATERSON LTD

Architects Engineers and Planners are a 'one stop design shop' for anyone wanting a home or commercial premises built. The company provides integrated design solutions including architecture, resource management, structural, civil, fire, geotechnical and drainage engineering.
Over many years Apcon Paterson Ltd has completed a wide variety of projects. Most work is completed in the greater Auckland area.
Due to stricter building regulations it is now virtually impossible for the average person to ensure they have met all the correct requirements. Councils are requiring more detailed information and we aim to do things right the first time. We endeavour to keep up with the latest changes and have also checked consents for Auckland Council.

Clients:
David Jack and Elizabeth Thomas

Architect Apcon Paterson Ltd
Auckland 1041
Telephone: 09 620 9099
neville@apconpaterson.co.nz

Engineer : Apcon Paterson Ltd

Builder: Brogan Builders
Grant Eagar
Telephone: 09 431 8290
Email: broganbuilders@xtra.co.nz

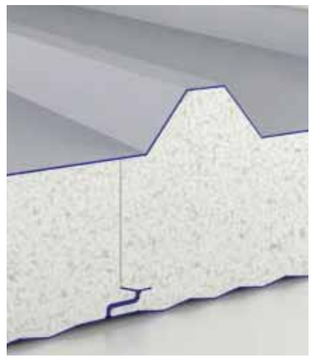
Cladding manufacturer:
Metalcraft Industries
Telephone: 09 470 0870
Cladding: Corrugate 0.04 Maxx®
Colours: Roof Smokey.
Cladding Indigo Blue
Roofing Manufacturer: Metecno NZ Ltd T/A Metalcraft Insulated Panel Systems
Metalcraft Thermospan FR
Telephone 09 277 8844
email: peter.z@metpanels.co.nz

ThermoSpan FR

Of particular interst on this building is the use of ThermoSpan from Metalcraft. This product forms both the external roof and internal ceilings.

ThermoSpan FR consists of a 0.59mm profiled roofing sheet bonded to a Phenolic Polystyrene, PPS core, with a ceiling panel sheet bonded to the underside. ThermoSpan FR is Fire Rated and has a Class 1 Fire Rated classification.

ThermoSpan FR panel can be used in a variety of residential and commercial, roof and wall cladding applications. ThermoSpan FR panel's are also available in a number of colour options from the Colorsteel range of colours.



Progress on the roof at the Colleen Dick's project.

SCOPE NEWS AND VIEWS

Dimond in the Community 'The Colleen Dick's project'

Dimond are showing their support for their local community by being a major contributor to the Colleen Dick's project in Hobsonville, Auckland.

Colleen Dick's is in her 70's and was one of the first people to successfully sue the council after finding that she had purchased a leaky building from some dubious builders. The majority of the money she won in her case was taken up by lawyer's fees.

Together with HOBANZ and a variety of other suppliers, Dimond provided the Roof and Rainwater system free of charge to help rebuild Colleen's house.

Darran Roberts, Dimond Auckland Branch Manager notes that 'we are happy to support the project at this time, and we are keen to be involved in our local community'.

The house was completed in mid February and attracted the attention of TVNZ's Close up program featuring in a reveal to Colleen. It was safe to say Colleen and her family were thrilled and very appreciative to all involved.

Metrotile concentrate on the New Zealand Market.

Metrotile is a privately owned company. The Ross family, who own and work within the Metrotile business, commenced manufacturing concrete tiles over 65 years ago and metal tiles over 20 years ago.

Metrotile has not previously targeted growth opportunities in the New Zealand market because the Ross family made a commercial decision to focus on the sale of concrete tiles in New Zealand and metal tiles in offshore markets. To this end Metrotile has built up a very successful export business and in addition to its New Zealand plant it commenced joint venture manufacturing operations in Belgium in 1998 and in the United States in 2000.

For the last ten years Metrotile, in conjunction with its United States and Belgium operations, has been the world's second largest manufacturer of metal roofing tiles.

In 2008, following the sale of the Ross Roofing Concrete Tile business to Monier, Metrotile made a strategic decision to develop a robust Domestic arm to their Export focused business. This decision was reinforced by the December 2010 sale of their Joint Venture share holdings in their United States and Belgium plants.

When the Ross family sold their concrete tile plant to Monier they were the market leaders in concrete tiles. The Ross family is now interested in assuming a leadership role in metal tiles and is actively investing in the following growth and development initiatives;

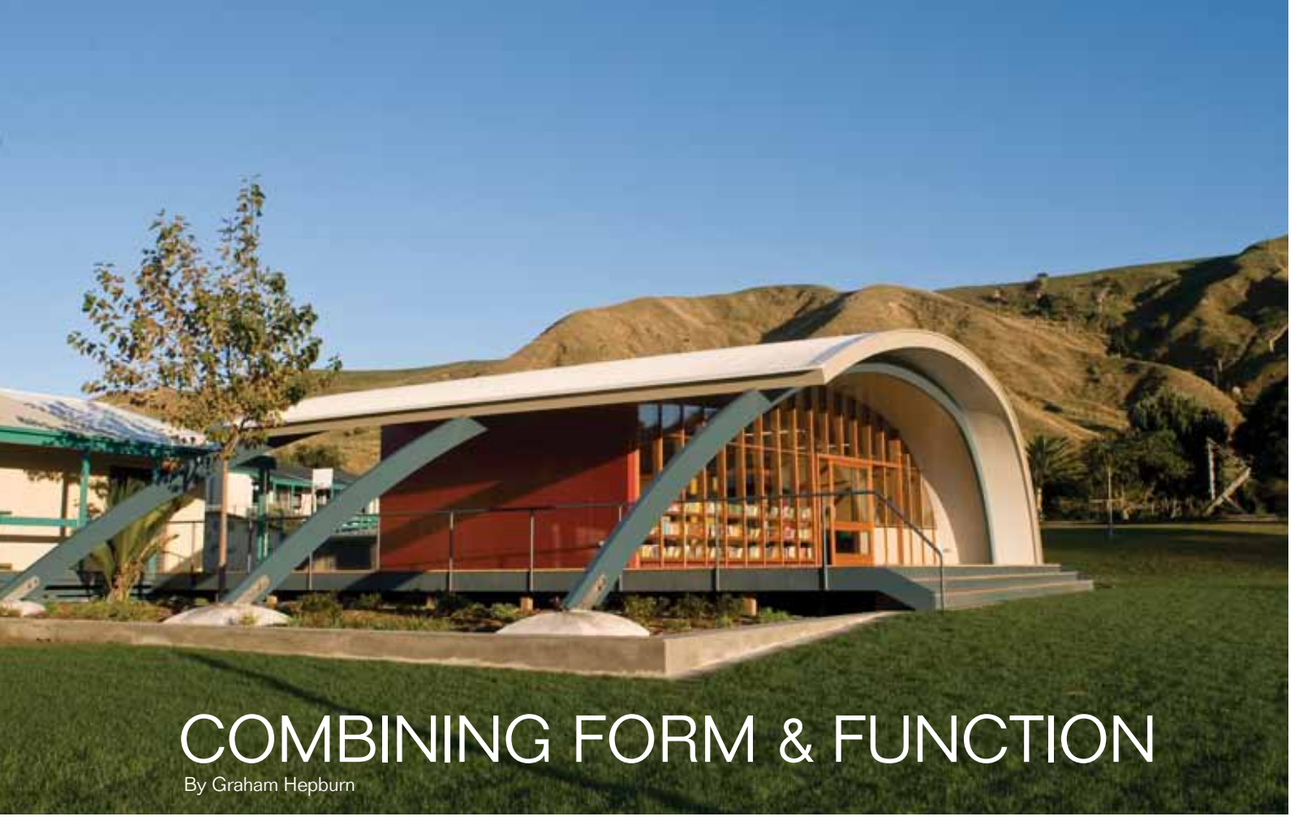
A new Shingle profile pitched at the same price point as the Metrotile Shake product. The design of a new Shingle profile is already underway and Metrotile would expect to release both this and a new mainstream tile profile on or around September 2011.

New robotic and coatings technology. Metrotile built the Belgium and United States plants and intends to introduce robotic technology into its New Zealand operation over the next 24 months.

Appropriate Industry and Consumer marketing initiatives will be progressively supported by updated printed and web based promotional material over the next 18 months.

Metrotile utilizes ZINCALUME® steel and acrylic coating technology to manufacture a comprehensive range of post painted satin and textured tiles that include the Bond, Classic, Shake, Roman and Shingle profiles. Metrotile is a family owned business that is staffed by a small, cohesive and high functioning team of "roofers". Competition is a healthy thing and if you want to be part of the Metrotile success story please do not hesitate to contact us directly.

Gary McNamara
Phone: 09 299 9498
e-Mail: info@metrotile.com



COMBINING FORM & FUNCTION

By Graham Hepburn

Architectural designer Chris Shaw gets a kick out of combining form and function in his projects and that's highly evident in the Wainui Beach School library.

The wave-shaped roof of the building references Wainui Beach's surf culture and its reputation as having one of the best surf breaks in the country. But the design also provides a "shop front" for the library to entice children into reading and creates a sheltered deck for school events such as speeches or musical performances. Children are encouraged to take books outside to read, and the full-width steps can also be used as seating for spectators at school sports days. Chris, who is a school parent and sits on Wainui Beach School's board of trustees, says the need for a new library arose when the original library, which occupied an old classroom, was "commandeered" so the school could meet the new national staffing requirements of one teacher to 15 pupils.

The school, just north of Gisborne, has a roll of around 220 pupils and because of its size was allowed a library with a maximum floor area of 78sq m under Ministry of Education guidelines.

Chris says the wave shape for the library emerged from his first sketches and was a natural fit for the school.

"Wainui beach is a community based around its renowned surf beach and the surf culture that informs day to day life," he says. "The beach is used as an outdoor classroom and the students are involved with surfing through the school surf club. The waves are the community playground and so the wave shape is used to represent that."

It also meant that he could give what was essentially a small building some volume by casting a large, curved roof over it that also provided covered outdoor areas. Using COLORSTEEL® Maxx® for the roof was a logical choice as it could withstand the coastal environment and easily be rolled to the curve of the roofline.

"Just the lines of the corrugations look good; it's another nod to the wave," says Chris, who says the roof was deliberately made a light colour to reflect as much heat as possible. Having the roof curve up from the ground on the western side also means it turns its back on the sun during summer, preventing overheating.

Underneath the roof are two layers of R2.2 Batts laid at right angles to each other.

Another feature of the roof that combines form and function is the lack of guttering on the eastern end. Water from the roof falls into the garden, providing vital watering for the plants in a community that has little water to spare for irrigation as it relies on collecting its own rainwater. "You also get rain cascading off the roof and that's a reference to the spray that comes off a wave," says Chris.

The main structure of the building is three curved glue laminated beams anchored to substantial concrete piles on the eastern side to prevent uplift if wind gets under the large

roof overhang. With the curved roof beams in place the structure was simply close-spaced purlins forming roof and walls.

To create the "shop front", the northern and southern end walls of the library are glass with tall macrocarpa mullions forming part of the shelving system for the books. "The shelving for the books also performs as part of the structure, providing lateral stiffening for the mullions," says Chris. "I like it when you can get a feature to do two jobs like that."

Books on these shelves face out to catch the attention of passing children, and the books are rotated so that they relate to whatever topics classes are studying.

'So many libraries are a tomb for books and librarians are wary about having sun on books," says Chris. "In summer that's not an issue although it is designed to get winter sun coming in but the windows are double glazed with a UV filter.

"The whole idea is it's a shopfront for the library because the role of the library is to sell the love of reading and literature to kids."

Shelving is arranged around the perimeter of the library to create an open plan space in the middle that can be used for readings or drama. Inside, there is a librarian's office, open to view, an issues desk and a tiered seating nook where teachers can to read to students. Overhead, the curved poplar plywood ceiling is a feat of craftsmanship. "This was a difficult job at the junction of the ceiling and angled exterior glass wall where the plywood sheets needed to be curved with an angled cut that was notched to each timber mullion," says Chris. "Cover beads or filler were forbidden and, to the builders credit, all joins and notches were perfect."

Because the northern glass face of the library is angled in instead of being square, this creates a larger covered area on the north-eastern end of the building, something that was perfect for the band that played at a recent community hangi at the school when it turned a bit rainy.

For his library design, Chris won two categories in the Architectural Designers New Zealand Regional Design Awards last year - Commercial Interior Design and Colour in Design.
The judges said: "The resulting school library is appealing, functional, vibrant and ideally suited to the Gisborne environment with a wave-shaped roof line reflecting the region's strong coastal influences. A covered veranda frontage provides a generous outdoor performance space for school and community activities."

But the greatest plaudits come from the schoolchildren who are "bursting at the seams" to use the library since it opened a year ago, says Chris.
"I was speaking to the principal and she was saying that it's a treat for the kids to go to the library now."

Pacific Modern Architecture

A small, design-led practice based at Wainui Beach, Pacific Modern Architecture draws its inspiration from the dynamic coastal landscape. The firm is developing a modernist response to our South Pacific lifestyle with sustainability a prime consideration. Designs employ natural ventilation and shade for the hot summer months while key elements for winter are deep sun penetration, thermal mass and solid insulation to create stable and comfortable buildings that sit elegantly and naturally within the environment.

Design: Chris Shaw of Pacific Modern Architecture, Telephone: 06 889381 in association with MSM Architects, Telephone: 07 839 9049. Email: chris@pacificmodern.co.nz

Project Manager: Willem van den Worm Telephone: 06 867 8817

Builder: D Stevens Telephone : 06 867 5700

Engineer: Geoff Kell Consulting, Telephone: 06 876 0818

Fire Design: Marlis Haertel Telephone: 06 863 5022

Roofing Installer: Tony File Roofing, Telephone: 06 867 0794

Roofing Manufacturer: BJ Moss Telephone: 06 867 1219 COLORSTEEL® MAXX™ .55 corrugate. Roofing colour: 'Foam'

THE HOUSE THAT TOM BUILT

Fendall Halliburton

Tom Butcher built his first home 47 years ago and moved in with Georgie, and their young family of four, to their first home in Redoubt Rd Manukau City. He chose a Decramastic tile roof manufactured by LJ Fisher the founder of the metal tile business known today as Gerard Roofs. On Christmas Eve 2010 Tom and Georgie moved into a new and very striking home at Marsden Cove. Tom chose the recently released Gerard Roofs Milano Tile for his new home.

Since that first home in Redoubt Road Tom's life has been a very full one. His family of eight, (seven daughters and a son), and eighteen grandchildren filled this house for a family Christmas dinner on the second day of their occupation of the house. Georgie gladly moved out of the relocatable building onsite from which she and Tom had managed the construction of this house over the preceding thirteen months.

This house is big in every dimension. It occupies six lots on a headland of the Marsden Cove Marina. It was fundamental to the design brief that "every room in the house has a view". This same rationale lead to the purchase of the six sections, the entire headland, to ensure that these water views could not be built out. It was also this design requirement that led to the house having no less than 32 angles.

These 32 angles were the feature the designer, Brent Robinson, described with some glee as a challenge to see what Tom had learnt in sixty years as a builder.

The building contains two thousand metric tones of concrete and thirty metric tones of structural steel. There are eight bedrooms and a theatre, ten bathrooms and

two powder rooms, (remember Tom has seven daughters). There is garaging for six cars. Beside the main dwelling is the boathouse and the 230 metre sq secondary dwelling above it for the "caretaker". It seemed logical that

if there was to be separate building for the boats and marine toys that the upper level of this building should be a secondary dwelling designed and constructed to match the main house.

Tom's life as builder has been based on of strong loyalties. He has had his trade account with Carters Papakura for fifty-five years. He went on from the Redoubt Road house to build again with Decramastic Roofing Tiles building the Cedarwood Motel (26 units)

in Whangamata. This Motel is now known as the Palms. Tom is no stranger to big projects. He built the Kingsgate Hotels in Whangarei and Hamilton (with a total of 262 rooms) and oversees their management still. It was on the Kingsgate hotel project in Whangarei 25 years ago that he began working with Brent Robinson of Brent Robinson design. Brent went on to design a number of projects for Tom including his previous home at Brick Bay featuring the then new Gerard Roofs Oberon Shingle, and recently a 34 house subdivision in Kaitaia, show casing a range of Gerard Roofs tile profiles and colours. Tom

now describes himself as a "retired master builder" however he did not say he will be taking it easy with his slippers on.

In this his latest and grandest project Tom has chosen permanent materials and materials that will require only low level maintenance in this marine environment. Maintenance and cleaning is aided by the 160 metre of balcony deck around the building and the use of stainless steel in fittings such as exterior hand rails.

The last word should go to Brent Robinson "Tom is an excellent client who knows what he wants and can explain his wishes easily and precisely. This enables these thoughts to be easily converted into a concept design."

Brent Robinson Design Services

Brent has been successfully delivering Commercial, Residential and Home Renovation Designs using the latest technology.

Whether it's a new home, a renovation, or a commercial building we will turn your ideas into reality. High quality, innovative designs clients can see in 3D from a very early stage so that you can feel confident that the design is exactly what you want.

We offer On-Site Consultations, offering innovative, yet practical, experienced advice on building layout, style and cost.

Client: Tom Butcher

Designer: Brent Robinson
Brent Robinson Design Services
Whangarei
Telephone: 09 437 3508
Mobile: 027 495 8514

Builder: Tom Butcher

Roofing Manufacturer:
Gerard Roofs
Telephone: 0800 104868
info@gerardroofs.co.nz
www.gerardroofs.co.nz
Profile: Gerard Milano Tile
Colour: Teak

Roofing Installer:
Harvey Roofing Centre
Auckland

SOMETHING BORROWED SOMETHING NEW

Corrugated COLORSTEEL® & miniorb feature on this family house with its many sustainable features seamlessly integrated in the design. The striking double height entrance gallery at the middle of the simple C shape of the house is the pivot for circulation. Mini orb cladding alongside the double glazed curtain wall creates a flow between exterior courtyard and the gallery interior.

The house faces due north and a bank of solar tubes occupies the gallery roof. Polished concrete floors on north and west act as heat sinks, and the stack-bonded blocks in the gallery act as a conservatory/ trombe wall. The mini-corrugated iron doubles to conceal more trombe walls, which re-radiate the sun's daytime heat in the evening.

Overlooking the gallery is the exposed concrete, glass-balustraded bridge. Openings at each end of the gallery and bridge through the adjacent rooms allow vistas that underscore the east-west axis.

The clients had lived in a drafty single-storey 1950's box on the site for several years and enjoyed the panoramic harbour and garden views and all-day sun. They were keen to implement sustainable design principles in a house with a flexible layout for family and guests. They wanted an elegant, under-stated house with a relaxed feel.

The property is located in an established city-fringe neighbourhood, among mainly weather board houses. The new house adopts the scale and the weather boards of its neighbours but gives a striking new design focus with the use of corrugated steel. On its southern side, where the house drops to single storey in deference to neighbours, corrugated COLORSTEEL® provides a 'shed' feel to the house, alongside the COLORSTEEL® fence both neighbours wanted.

The builders agreed to demount the previous house to salvage materials and reduce tip fees. The former weatherboards were re-cycled to be used as architraves, and made into mounts for the light switches and lights on the miniorb. The rimu provides warmth to the grey of the metal.

Materials are authentic and provide a rich texture. The broad plywood stair rises up within the mass of the block work at the middle of the 'C'. Cork floors and sustainably-grown Fijian Kauri doors and European beech acoustic ceilings tone with the recycled timber floor areas (from the previous house), and former floor joists were fashioned as handrails.

The gallery is transition space between the east and west wings of the house. The house provides a range of living spaces and private areas for family members. The guest bedroom downstairs doubles as a library/extended living room. Tall sliding doors enable flexible uses of adjoining spaces.

The upper storey monopitch roofs have skillion ceilings to exaggerate the framed views of the harbour and hills; the large eaves provide summer shading. Wide wall framing provides deep window reveals and the space for extra insulation. As future proofing for the owners' old age, a lift shaft connects the basement garage with the ground and first floors – and to a roof deck for 360° views. Clerestory windows at the roof deck admit sun to the southern spaces.

The design used the previous large north-east-facing deck as a starting point. The house's placement provides sheltered sitting areas. Trees retained with other planting from the previous garden define the outdoor spaces.

The solar tubes heat a large hot water cylinder supplemented in winter by a wood burner (burning recycled timber!) located in the heart of the house – the blue kitchen. Under-floor water pipes distribute heat to the zoned concrete floor areas. In summer, excess heat is sunk via pipes in an excavation beside the subterranean garage.

'Something old, something new, something borrowed and something blue' – and 'firmness, commodity and delight' both sum up this house.

Cranko Architects

An NZIA Practice based in Wellington, offering expertise in residential, educational and commercial buildings. We provide creative, professional, and unique design solutions with a strong emphasis on sustainability, including new and adaptive re-use projects. We have specialist conservation knowledge and experience with the re-use of historic buildings from the 1800's to 1970's.

Client : Thomson Family

Architect:Cranko Architects
Deborah Cranko
Wellington
Telephone : 04 475 7946
email: deborah@cranko.co.nz
www.cranko.co.nz

Main contractor : PCB Limited :
Alan Marshall
Wellington
Telephone: 04 385 74 75
Mobile: 027 4481556
Email alan@pcbltd.co.nz

Cladding: COLORSTEEL® MAXX™
Colour: Mirage -
Roofing: COLORSTEEL® MAXX™
Colour: Thunder grey
Trombe walls and Mini orb
Colour: Smokey

Roofing contractor: Wayne Bull
DB Roofing Contractors
Upper Hutt
Mobile: 027 442 3497

Cladding contractor PCB Limited

WORLD CUP READY

With the approaching Rugby World Cup series getting ever closer Dimond are proud to see the renovation completed at the Eden Park Stadium.

Fletcher Construction was the main contractor and Dimond Certified Commercial Installer H.W. Coyles was appointed as the roof fixer on site.

Work began on the historical site in the heart of Auckland in October 2009 and was completed in July 2010.

There were many challenges both on site and in the design stages in which the Dimond team played a large part.

There were two main components to the roofing work. The Ceiling of the stand and the roof. Dimond DP955 was selected for the roof due to its robust design resulting in a low buckle installation despite the high foot traffic during and after installation. Dimond Metric ARX Aluminium was used on the ceiling which was made in Palmerston North and transported to the site. Both products were painted in Tule White by PCC (Pacific Coil Coaters).

Dimond also supplied structural steel to Grayson Engineering, Manukau, for the purlins which were manufactured, assembled and supplied to the site. One of the major challenges was the shear size of the job and the logistics and time constraints involved. Dimond assisted H. W. Coyles to find the most effective way to fix the ceiling prior to lifting up the preassembled bays. Large panels were assembled in jigs on the ground and then individually lifted and fixed to the rafters.

Another major challenge was the tight schedule which required close liaison between fabricators and fixers to ensure workflow met the predetermined deadlines.

The Dimond team are happy to have been apart of such a landmark site, and we are keen to see further success on the hallowed turf in 2011. Go the All Blacks!

Architect: Richard Breslin Populaous in conjuction with Jazmax

Main contractor: Fletcher Construction

Manufacturer: Dimond
Telephone: 0800 Dimond
Email: campbellgl@dimond.co.nz
www.dimond.co.nz

Roofing : ColorCote® ZRX™
Ceiling: Metric ARX Aluminium
Colour: Tule White

Roofing Fixers: H W Coyles
Dave Henderson
Telephone: 09 579 9065
Email: dave@hwcoyle.co.nz

THE ECOPOD KITSET

With steel framing, cladding and roof, John White's Ecopod house comes in kitset form designed to be assembled on site and can be configured to provide its own power, water and effluent treatment. Once erected, the house is transportable and can be relocated as prevailing circumstances dictate.

Initially launched as The Hatch House: the original free range living concept, John's notion was a fresh step in modular, low-cost, low-maintenance, sustainable architecture, using innovative design technology.

It also reflected a nostalgia many New Zealanders share.

"Rain on the old tin roof of a hut that was my home when milking cows as a boy; the long drop toilet down the paddock; the wood fire stove for warmth and fodder and the kerosene lamp . . . such a memorable atmosphere – and mine, mortgage free!"

These fond memories, John explains, stayed with him until just over two years ago when the 'hatch house' idea popped into his head. At that time he was farming in the South Island's high country and designed the house for extreme conditions, primarily in remote areas where there's no water or power laid on. Later he saw it as a second home – a beach house or a bach.

"But now I can see its potential as a replacement home for any areas where services are limited, like earthquake-damaged Christchurch. We can send these homes all over the country. All the parts, from screws and bolts to the pre-cut steel components, fit into a container. It's like opening a new Meccano set: everything you need to create your home is in the box in front of you!"

Over recent months John has changed location, having moved north to base his business at Warkworth. He's also changed the name of his product to Ecopod. (www.ecopodnz.com)

John's a proud New Zealander, delighted that his basic materials are all manufactured here.

He's proud too that his Ecopod is cost-effective and 100% self sustainable, as all materials can be recycled, giving the house a very small ecological footprint and, site dependent, enabling the home to achieve a high Green Star rating.

John's very comfortable with his cladding of choice: "I want to reflect New Zealand's building past. Many tin sheds and farm buildings are still around today and are still loved. Our Ecopod taps into that nostalgia, while taking a future-forward approach to materials."

He points out that corrugated iron was first used for housing and shelter as early as 1850.

"As a material it's full of character and colours from old rusty reds to modern New Zealand Steel COLORSTEEL® choices. Corrugated iron has outsmarted all other construction products over the generations and is now a top fashion, cost-effective product that is 100% sustainable – and more importantly it is New Zealand-made."

"Let's get back to basics, where we invest less in what we live in and more to live on," John advises, adding, "Don't rubbish corrugated iron or laugh at it: live with it and you will love it."

John's ECOPOD might be the 2011 version of traditional Kiwi #8 Wire ingenuity – and just what the country needs right now. Key decision-makers might think so too.

John is in discussion with the office of the Hon Phil Heatley, Minister for Housing, and with key personnel at the Ministry for Education, offering to replace damaged classrooms with Ecopod buildings. "There's considerable interest there," says John.

ECOPOD features

Design

- ECOPOD is traditionally 'kiwi bach' in style yet it's sleek, modern and practical in design, engineered for all conditions, from high country, high snow and high wind areas to exposed coastal zones, and specifically engineered to be virtually indestructible by force or wilful damage, thus achieving a very high earthquake rating
- ECOPAD has been designed so that the whole house, including fittings and furniture can be transported in kitset form in a 20-foot container. The steel structure just bolts together. There no nails.
- No foundations are required as ECOPOD sits on 28 steel legs that adjust to the topography of the ground to a maximum 20-degree slope and can be positioned up to a metre above ground. The adjustable feet are anchored by the ANCHORLOCK certified system
- ECOPOD has a floor area of 96m² plus 24m² of deck area. The standard layout of three double bedrooms, two bathrooms, a large 53m² open-plan kitchen, dining and living area
- Internal layout can be varied to suit
- Fully constructed, ECOPOD is transportable and relocatable
- Highly versatile, the ECOPOD design can be adapted for educational or commercial uses
- A further attraction is its minimal maintenance requirement since COLORSTEEL® Endura™ is pre-painted. ZINCALUME® steel interior wall cladding muffles sound, and is fresh, airy and easy to clean.

Construction

- Hot-dipped galvanized steel subframes and rolled AXXIS® galvanized steel frames and trusses
- Marine grade plywood floor (the only wood in the building)
- Aluminium joinery with double-glazed toughened glass
- Insulated with wool / glass fibre materials in interior and exterior walls, roof and under floor, and a thermal break

Optional extras

Where services are not available John can also supply

- Solar power battery-inverter designed by Advanced Eco Solutions Ltd for lighting and power
- A self-composting Bioloo™ toilet and grey water system
- Under-floor rubber bladders for roofwater storage
- Cylinder gas for cooking / heating
- Hatches to cover windows and doors for lock-up security when home is unoccupied.

Design: Ecopod Mr John White
Telephone: 0274 951 437

Sub Floor Assembly:
New Zealand Steel RHS
Whangarei Engineering Ltd
Telephone: 09 438 7802

Light Steel Frames:
AXXIS® Steel for framing Impact Steel Frames
Telephone: 09 426 5096

Roofing & Cladding :
COLORSTEEL® & ZINCALUME® Steel&Tube Roofing Products
Albany Telephone: 09 415 8080

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

Members of the NZ Metal Roofing Manufacturers Inc.

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

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

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

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

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

Calder Stewart Industries Limited
PO Box 1400
Invercargill
Telephone: 03 214 5544
Contact: John D'Arcy

Continuous Spouting New Zealand Ltd
PO Box 151
Takanini, Auckland
Telephone 09 268 1555
Contact: Richard Mabin

Contour Roofing Nelson Ltd
PO Box 9015
Annesbrook, Nelson
Telephone: 03 546 4260
Contact: Dave Freeman

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

Dimond
PO Box 13546
Otahuhu, Auckland 1643
Telephone: 09 622 4625
Contact: Darren O'Brien

Franklin Long Roofing Ltd
PO Box 151
Pukekohe, Auckland
Telephone: 09 238 9249
Contact: Warren Oliver

Freeman Roofing Nelson
Roofline Marlborough Blenheim
Canterbury Long Run Roofing Timaru
Canterbury Long Run Roofing
Ashburton
P.O. Box 2317
Stoke, Nelson
Telephone: 03 5443108
Contact: David Hall

Gerard Roofs
PO Box 18071
Glen Innes, Auckland
Telephone: 09 978 9043
Contact: Grant Williams

HB Longrun Ltd
PO Box 3056
Napier
Telephone: 06 843 6159
Contact: Chris Patheyjohns

Metalformers Ltd
PO Box 22400 Khandallah
Wellington 6441
Telephone : 04 479 6151
Contact: Will Lewis

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

Megami Metal Roofing Systems Auckland Ltd
PO Box 113
Takanini, Auckland
Telephone: 09 268 8959
Contact: David Moselen

Metalcraft Roofing
PO Box 51286
Pakuranga, Auckland
Telephone: 09 274 0408
Contact: Tony Barbarich

Metal Design Solutions
PO Box 33
Drury, Auckland
Telephone: 09 294 9134
Contact: Jan Alberts

Metrotile (NZ) Ltd
PO Box 72-062
Takanini, Auckland
Telephone: 09 299 9498
Contact: Harry Boxall

N S Irwin Ltd
PO Box 27029
Mt Roskill, Auckland
Telephone: 09 620 8149
Contact: Gary Irwin

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

Roof Manufacturers Limited
PO Box 319
Tauranga
Telephone: 07 578 2650
Contact: Gordon Taylor

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

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

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

Steel and Tube Roofing Products
PO Box 204216 ,Highbrook,
Manukau 2162, Auckland
Telephone: 09 273 7628
Contact: Rod Newbold

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

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

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

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