

# steelprofile

Architectural steel innovation with BlueScope Steel

number 91, july 2005







002

## Highland Fling

As a freshly minted graduate of architecture, Alex Matyear tackled the type of commission which gives pause to many a practitioner – even with the experience of a long career behind them. She took on the design of a NSW Southern Highlands home for a cousin whose previous abodes had included Glenn Murcutt's seminal Jamberoo House.



010

## Hover Craft

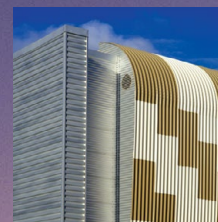
Sitting on the dock of the bay watching the tide roll away can now be combined with fine cuisine and edifying architecture at Melbourne's Station Street Pier, thanks to the understated work of Daryl Jackson Architects. The newly completed trio of restaurants demonstrates the versatility of an architectural practice better known for work on a grander scale.



018

## Sustainably Green

Design of the new Ecolinc Science Technology Innovations Centre at Bacchus Marsh outside Melbourne generated its own demand for innovations. For leading practice Lyons, the task began with the challenge of creating a suitable site. Then there was the input from multiple stakeholders to consider. Surprisingly, the resulting building not only answers the brief, it cleverly challenges its users to interact in a way that keeps sustainability top of mind.



024

## Cool Science

One of New Zealand's larger architecture practices, Chow: Hill, has created a dual purpose facility on the Tamaki Campus of the University of Auckland to cater for the needs of two organisations which champion the native environment and ecology. Too often institutions commission the kind of buildings that are dead to the eye and spirit – not this time.



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(cover photograph) Daryl Jackson Architects' classy addition to Melbourne's Station Street Pier.

(this page) Viewed at dusk the Station Street Pier restaurant buildings appear prominent but not dominant, as if merely berthed at Port Melbourne awaiting the evening tide.



# 002

**Architectural Consultants** Whitcher and Matyear  
**Builder** Barrington Homes  
**Structural Engineer** Simpson Design Associates  
**Interior Decoration** SpaceKadet Design

## HIGHLAND FLING

**For much of her childhood Alex Matyear spent her summer holidays in one of Australia's best known examples of contemporary architecture - the Glen Murcutt-designed Jamberoo House on the New South Wales south coast. That experience, and specifically that home, inspired her to become an architect.**

**Now, in her first major commission since graduating from Sydney University, Ms Matyear has designed an allegoric Southern Highlands home for her cousin, who lived in the Murcutt house.**

Alex Matyear's earliest memories of the Southern Highlands are long road trips with her family, passing corrugated iron hay sheds which dotted paddocks like milestones alongside the old Hume Highway. Simple in construction with steeply pitched roofs for run-off, closed to the savage southerly winds and providing maximum volume for storage, they were hardly iconic. But they were a distinctive and practical part of the landscape.

When it came to fulfilling her first major commission, her impressions of the simplicity, practicality and capacity of the hayshed largely mirrored the experience of her client, brought up in the Murcutt-designed classic long home.

Long a weekend retreat for the land barons of Sydney's financial and media sectors, the Highlands are now – just – in reach of daily city commuters. That's led to an explosion of subdivisions, rippling out from the region's quaint old villages to form a bridge between town and country.

It's a tenuous conjunction at best. Interpretation of country







North facing to maximise natural heating, the bedrooms, family and dining areas are placed to the front, with services discreetly placed to the rear.

(below) The vision? Unmistakably that of a country barn.

living is very much in the mind of the developer. The big city squatters have cultivated their hundred acre holdings with an eclectic array of mansions – from faux Georgians in which John Macarthur would have felt at home to Balinese-inspired beach houses. Closer to town, on the so-called lifestyle blocks, it's the same scenario in miniature. Originality, while not absent, is a comparative rarity .

By contrast, locals are calling the new home by Alex Matyear the "gothic barn". Situated within a new land release at the edge of one of the Southern Highlands' more picturesque villages, Matyear's "hayshed" is both innovative and evocative.

Starting point for the project was a stand of three well established elms on the eastern or roadside border. Redolent of remnants of a country garden, the elms led easily to the laying of a sweeping path under their wide branches, arriving at a detached garage preceding the main home. Built, like the home, with a steeply pitched roof clad in COLORBOND® steel, the garage combines with the residence to give the impression of a cluster of farm buildings on a nineteenth century estate.

Far from contrived, the feeling on arrival is both welcoming and natural. With a view to the weather, Matyear has cleverly joined garage to home with a covered, but not enclosed pathway. Above the pathway, a slightly pitched awning clad in COLORBOND® steel in the same colour and profile as both roofs provides shelter, while timber battened screens divide the pathway into two passages.

The northern path goes from the driveway to the front door of the home. On the reverse side it leads from the rear door of the garage to the laundry entrance, creating a parallel and partially concealed service entry. Missing only is the porch







Externally mounted and retractable sun shades insulate against the harshest summer glare.

– but pragmatically, the laundry easily becomes today’s repository for wellies and brollies. In a nice touch, the high sides of the garage beneath the gables are clad in translucent polycarbonate sheeting, enabling plentiful natural light and heat to permeate.

The garage easily segues from the home into an incremental entertainment area – far more suited to the task than many atypical “extra rooms”. A hootenanny, much loved amongst the Southern Highlands squattocracy, is always on the cards.

The home’s innovative design is immediately signposted by a high-pitched roof clad in COLORBOND® steel with the peak

forming a central spine neatly dissecting the interior into living and service areas. North-facing to maximise natural heating, the bedrooms, family and dining areas are placed to the front with all service areas to the rear.

Built tall, on two storeys, the home locates its common rooms and a master bedroom-retreat on the ground floor, while bedrooms to accommodate a still growing family are above. Temperatures in the Southern Highlands span the spectrum, from snow-driven sub zero in winter up to 40 degrees at the height of summer, requiring extreme solutions but also providing opportunity for visual distinction.

Externally, the steeply pitched roof flows freely into a vertical







Century old recycled Victorian Ash flooring highlights the home's calm, minimalist interior.

weather shield on the southern face. A 2.4-metre drupe drops at a right angle from the roof, protecting the upper storey from the worst of the weather and allowing run off straight into the garden beneath.

Constructed of the same roof material and, like the roof, finished in the colour Ironstone™, the vision is unmistakably that of the classic farm barn.

To the front, maximum use is made of glazing to allow winter sun to warm the home. To insulate against the sometimes harsh summer glare, externally mounted retractable sunshades are concealed behind a full length fascia clad in COLORBOND® steel above both the ground and first levels - and operated by small electric motors. When fully extended, the horizontal louvres take the form of the vertical

The home is divided into three thermal zones, two downstairs and one upstairs – each designed to close off with concealed sliding doors, retaining heat within each sphere. Budget, again, precluded the inclusion of internal fireplaces, a curious decision in both a practical and aesthetic sense. Instead, concealed gas-powered central heating is employed to be used in the depths of a Southern Highlands cold snap. Roof mounted solar power is used for the hot water system. In the circumstances, the choice of a long narrow building, with plentiful cross ventilation, was both inspired and fortuitous.

Behind the courtyard, a feature wall conceals the suspended steel-beamed staircase to the first floor. The stairwell has its own void, leading to a gallery where large southern-facing windows look to the sky. On the ground floor another bank of

Oblong windows at ground floor level beneath the unique COLORBOND® steel-clad weather shield provide light and ventilation to the service areas, while limiting wind, rain and snow intrusion as well as views of homes beyond. The effect is not that of a fortress, rather of an invitation to occupants to look to the north where light and warmth abound.

“The inspirations I drew on have in the main been expensive projects,” Matyear says. “This has not. The resolution has been to use simple, cost effective, low maintenance materials – and then to find inspiration in their form. In this case the use of steel has been directly related to the shed imagery – so the choice was clear.”

Nonetheless interior solutions have been outstanding in their

The simplicity of the minimalist interior is highlighted by extensive use of century old Victorian Ash flooring, lifted from a Melbourne wool store, painted black and walnut and then tongue oiled.

Matyear's solution has played to the very edges of the style book and as such it stands out as a clean and very honest interpretation of the character of the region. Both architect and owners would no doubt have preferred this striking home to have been more isolated, a classic farm building on a classic farm. In truth, however, such an intrinsically beguiling structure loses little from its relative confinement.

\*Since graduating, Alex Matyear and partner Bernard Whitcher have been so intensely pursuing their craft that only now is their fledgling consultancy seeking

**Project:**  
Southern Highlands House  
**Architectural Consultants:**  
Whitcher and Matyear  
**Telephone:**  
02 8399 1333  
**Builder:**  
Barrington Homes  
**Structural Engineer:**  
Simpson Design Associates  
**Interior Decoration:**  
SpaceKadet Design  
**Principal Steel Cladding:**  
**Roof, weather shield and fascia:**  
COLORBOND® steel in the colour Ironstone™ rollformed in LYSAGHT CUSTOM ORB® profile.  
**Dimensions:**  
**Block:**  
1672 sq metre  
**Home, including garage:**  
370 sq metre  
**Photographer:**  
Paul Bradshaw



corrugated steel above them, adding to the impression of a simple farmyard barn. It's a solution coincidentally pioneered on Murcutt's Jamberoo House, but respectful of the design and the man that inspired her career, Matyear is at pains to avoid any suggestion of cloning or comparison.

floor-mounted windows allows views from the stairway to the garden below, but neatly masks nearby homes.

The treatment of the building's southern face is noteworthy. Butted hard against the property boundary, the southern exposure is open to severe elements.

delivery of innovation. From free floating ceilings with a lower height in the kitchen to separate it visually from the living room, to the use of silent, self-closing drawers and showers without obvious drains, this home is a conversation piece of contemporary design ingenuity.



AACA registration. Whitcher was able to assist Matyear in the latter stages of the project, but rightly acknowledges that this first major commission should be recognised as an Alex Matyear original.

**John Smailes**

*Architectural steel innovation with BlueScope Steel* **number 91, july 2005**



# 010

**Project** Station Pier Restaurants  
**Client** Mirvac Group  
**Architect** Daryl Jackson Architects

## HOVER CRAFT

**Monumental is rarely memorable. It's often left to art-house architecture to reveal the painstaking craft lacking with blockbuster budgets and special effects. Daryl Jackson is best known for his big work. It's what supports a big practice with a big reputation. His Melbourne Cricket Ground Great Southern Stand and collaboration with the UK's Nick Grimshaw on Melbourne's Spencer Street Station redevelopment are just two of the star attractions in the firm's vast portfolio. What is the result when Jackson turns to projects of modest scale and budget? His triumvirate of COLORBOND® Stainless steel clad sheds at Port Melbourne's Station Pier is the result of some light stepping on a highly visible, vulnerable site.**

Are there ever enough restaurants? Apparently not in Melbourne which has over 3,000 and more looming on the horizon in every direction. The city rates its head off in the food, alcohol and coffee stakes. Add what seems a million or so pizza parlours, cafes and fast food outlets and you better believe that there is an insatiable demand across the entire gastronomic spectrum. Any wonder burgeoning dietary schemes and potions are a parallel growth industry. Amongst this fast-changing retail dynamic, architecture is a major beneficiary.

Better known as the point of arrival and departure for the trans-Tasman crossing, Port Melbourne's Station Pier is the site of a new retail development. The waterfront's residential towers are distinguished for being unremarkable while behind is a suburban oasis that blurs Kath and Kim's Fountain Gate with The OC's Orange County.

The risk is that the pier development could have responded chameleon-like to the pastel-toned, fancy dress



The modernist steel clad 'box' is veiled, frayed and filleted to add dimension and provide a seamless inside/outside relationship.



of the foreshore development. Sagely steered in the opposite direction, the three restaurants that comprise the reclaimed Station Pier – Pier 3, Campari and Waterfront – are all low-key in attitude and high-key in ambition. Patrons accustomed to a pretentious and aloof dining

experience will be pleasantly surprised by this project's easy informality.

All are open to their north-west aspect and encourage inquisitive visitors to visually sample the individual, highly transparent, open planning.

Built on reclaimed land, the project provides a springboard for lightweight architecture that effectively hovers in space as gleaming objects. Sited parallel to public parking at the main shipping terminal for the Spirit of Tasmania, the pier extends at a right angle to provide a

glittering broadside for the land-lubber condos. Its L-plan form creates a sheltered embrace from squally southerly winds.

Station Pier works around a solid architectural program of considered composition and authentic materials.

The temptation for over-bearing, over-scaled work entirely unsuited for its site is all too familiar a part of cities. The project exhibits a pearly luminescence with none of the sledgehammer maritime references we have come to expect of most seaside developments.

Jackson delivers remarkably consistent goods. And he keeps evolving. The days of his monumental buildings with trademark horizontal banding, a legacy of Venturi perhaps, have thankfully faded. Doing more with less comes with age and Jackson now



Reclaimed and transformed, the pier creates its own mini-harbour suitably low-rise and maritime without the slightest hint of seafaring cliché.



Raked rooflines and a shared material palette of stainless steel COLORBOND® contribute to a family resemblance yet each project retains a strong individuality.





expensive fit-out of polished marbles and exotic timbers that work well within the spare Jackson envelope.

A void above the bar ricochets daylight from the upper dining level and contributes to a fine balance between intimate, formal spaces and a Riviera insouciance most obvious at the point of the curved wave wall.

The addition of a timber pergola for Waterfront was unplanned on the original design. While it maintains an authenticity of material choice, its trade-off for extra

dining area reduces the transparency level apparent in the other restaurants.

The decision to provide a series of understated, as opposed to dull, buildings, is not as easily achieved as it might appear. Many architects have tried unsuccessfully to replicate the incandescent elegance of Mies' Barcelona Pavilion circa 1929. Some architects and developers believed they had the answer through imitation of this assembly of veined marble, chrome and glass. Heavily discounted and poorly

imitated, the original's rigour and levity was inevitably absent.

Jackson's modernity here shies well away from the formula response and is all the better for it. It exhibits a controlled massing, structural rhythm and elegant composition. This is architecture of a friendly, human scale. Visitors are not overwhelmed by the grand gesture or caprice of exaggerated form. It is about the promenade and contemplative space to the background sound of gulls and lapping water.



Each of the three restaurants makes a fine connection with its setting. Strong rectilinear forms open via doors, windows and canopies to the elements, thereby blurring the boundary between interior and exterior. They reference the classic Parisian cafe/restaurant that intuitively makes the link with al fresco dining. Interior fitouts were arranged independently.

Battened timber is used to varying degree for subtle fenestration and shade in combination with canvas umbrellas and awnings as brise soleil on the north/west elevations of Campari and Waterfront. Not to be outdone by its neighbours, Pier Three plans to install a steel framed pergola along its western elevation. Hopefully it will be carried out to the architect's specifications to retain clarity and integrity.

Pier Three is the first completed and the least adorned of the three. More colourful and vibrant Campari has a cool retro feel reminiscent of Italian bistros from the '50s and plush, red upholstered dining cars made famous by Edward Hopper's realist paintings of the same period. Waterfront has the most

The notion of full enclosure is discarded for alfresco dining. (top) View across Campari to Pier 3.

(above) Fenestrated treatment creates filtered views at Waterfront.

appears much closer to the British view of modernity than in the 1980s when North American architecture seemed to provide a stronger intellectual gravity. Jackson has also been shrewd enough to surround himself with a quality team of lieutenants who have helped contribute to the practice remaining youthful and in touch.

Filling such a waterfront space is simple, but achieving scale,

form and X factor is infinitely more difficult. Genuine zip and frisson is uncommon in a city indulged by design novelty. Here crisp, articulated sheds clad in COLORBOND® Stainless steel (this grade's essential at the water's edge) rollformed in LYSAGHT SPANDEK® profile in the colour WINDSPRAY® achieve a subtle shift that offers an authentic backdrop for business without any hint of corny seaside simulacrum.







Waterfront's main bar exploits the slender external envelope with a daylight responsive void through its two levels.

Project architect Owen West of Jackson's says the project's success is achieved through the treatment of lightweight legible forms and as counterpoint to the foreshore development. 'Daryl's work always considers a strong urban dimension to the architectural dialogue,' West says, conscious the pier had to be treated very differently from solid ground. 'It's a relatively unstable base prone to subsidence, so building weight and structural system were critical,' he explains.

The benefit of building lightly is apparent as the structure feathers its way to the top. Masonry block is used in part for the restaurant bases that in turn support lightweight stainless steel cladding. 'These read throughout the restaurants,' says West. 'But the biggest issue in this harsh salt spray environment is durability. What appears striking today can look awful tomorrow no matter what the material. After intensive evaluation and technical advice from BlueScope Steel and independent engineering analysis, West says COLORBOND® Stainless steel (quite simply a substrate of stainless steel with additional layers including a durable COLORBOND® paint system baked on) was selected. 'It was the practical choice that ultimately provided a highly satisfying aesthetic entirely consistent with the history of wharf life without being constrained by historical forms.

'It's vital to have full confidence in the material in this environment. The secret is to look beyond the walls and roof. Ancillary components such as box gutters, cappings and flashing also have to be perfectly jointed. It pays to have a contractor who can handle the junctions and cutting of steel sheets. It's essential to pay attention to the details where material overlaps, at fixing points and where there are structural penetrations. All of this needs to be anticipated in the design

and followed through,' he insists. 'A lot of time is spent on site to establish the typical flashing profiles.

'It's a project that should stand the test of time,' says West. 'No building on the waterfront is going to be maintenance free. It's not a bad thing to look after buildings rather than turn your back on them once they're up.' Seaside developments frequently appear crass and date badly because no-one cares enough or considers the long-term. Station Pier shows a side of architecture not widely understood or appreciated. Understated and highly considered, this is articulate and softly spoken design. All developers should take note.

**Peter Hyatt**

**Project:** Station Pier Restaurants  
**Client:** Mirvac Group  
**Architect:** Daryl Jackson Architects  
**Project team:** Bob Sinclair, John Tallis, Owen West, Cherry Marquez  
**Tel:** 03 9662 3022  
**Structural engineer:** Connell Wagner  
**Materials analysis:** Taywood Engineering  
**Builder:** Mirvac Constructions  
**Steel fabricator:** Roofing and wall cladding – Barden Steeldeck Industries  
**Principal steel cladding material:** COLORBOND® Stainless steel rollformed in LYSAGHT SPANDEK® profile, finished in the colour Windspray®  
**Project cost:** \$5 million – base building works  
**Photography:** Peter Hyatt

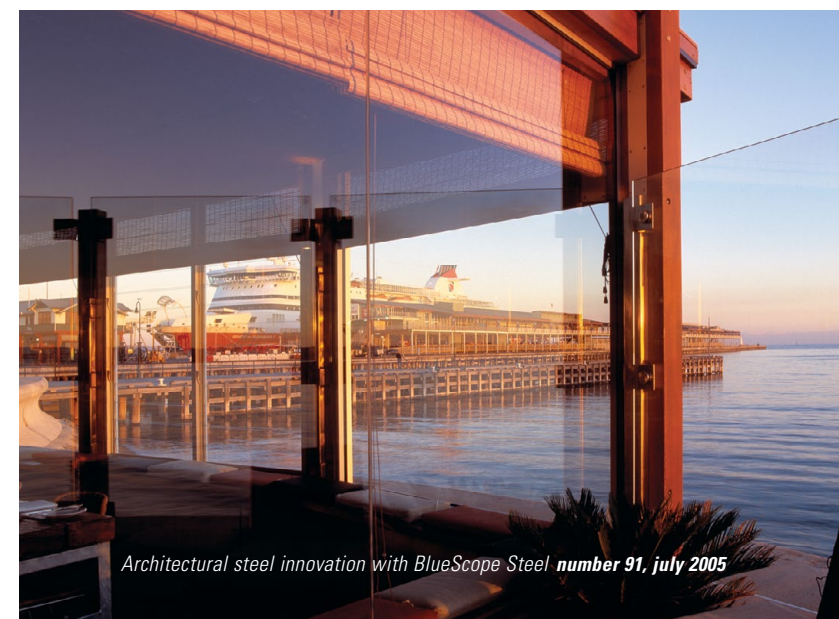


Transparency is a key of all restaurants on site. Food preparation is highly visible to diners and celebrated by kitchen staff.



Mirrored ceilings and light reflection throughout heighten the experience of projection across the water.

(below) The Spirit of Tasmania in dock at historic Station Pier.



Architectural steel innovation with BlueScope Steel number 91, july 2005



# 018

**Architectural Consultants** Lyons  
**Builder** Buildcorp  
**Services Engineer** Bassett Kuttner Collins  
**Structural Engineer** Taylor Thomas Whitting  
**Landscape Architect** Rush Wright  
**Interior Design** Lyons

**“Things in nature aren’t perfectly straight. They often appear distorted,” says architect Neil Appleton, a principal at Lyons architectural practice.**

**The new Ecolinc Science Technology Innovations Centre at Bacchus Marsh, a forty-five minute drive from Melbourne, certainly appears distorted as one approaches the building. Even the roof clad in COLORBOND® steel is angled at five degrees. The angles in the building also appear considerably sharper against the relatively flat terrain.**

## SUSTAINABLY GREEN

Environmentally Sustainable Principles (ESD) applied to architecture sometimes summon up thoughts of organic-shaped buildings swathed in earthy colours. Lyons architectural practice, which wanted to create a more ambiguous relationship with the environment, never entertained this idea.

“It’s certainly not meant to disappear into its surrounds,” says Neil Appleton. The surrounds are the Bacchus Marsh Secondary School, where the new Ecolinc Science Technology Innovations Centre is located.

The innovation centre is one of three in Victoria, designed to build pathways between secondary and tertiary education. Funded by the State Government, the Ecolinc Centre is a joint venture between the Bacchus Marsh Secondary College, Department of Education, the Shire of Mooroobool and the University of Ballarat, all of which were involved in the drafting of the educational brief.

“This facility is used by all Victorian school students. It’s designed and set up as a resource for everyone, not just

those on campus,” says Appleton, whose brief centred on the facilities required: two environmental science laboratories, a resource centre, a conference venue, a glasshouse and a horticultural facility, all clearly demonstrating Environmentally Sustainable Design (ESD) principles.

While the adjacent model wetland provides a focus for the new centre, the siting for the new building was restricted by the small amount of vacant land available on the Bacchus Marsh Secondary School grounds. Lyons resolved the challenge by relocating a set of basketball courts closer to the school buildings and earmarking their former site for development. The primary ESD principle of orientation was addressed by orienting the Ecolinc axis fifteen degrees to the east.







(above) The centre takes advantage of morning sunlight, while excluding afternoon westerly sun.

(above right) The building has few divisions, allowing students to feel connected with classmates and the overall environment.

"We wanted to take advantage of the morning sunlight as well as excluding the afternoon westerly sunlight. We were also conscious of making connections to the wetlands," says Appleton, who included a series of boardwalks in the design, allowing students to more closely study wetland plant species. From the wetlands, students can also appreciate the process involved in the movement of stormwater through the ponds before the water is cleansed and reused.

The entrance to the Ecolinc Centre takes the form of a large angular overhang. The dramatic canopy, framed in steel and clad in COLORBOND® steel in the colour Surfmist™ rollformed in LYSAGHT SPANDEK® profile, shades the glazing and draws students into the building. A bright green steel handrail in the forecourt also leads students into the building.

"These bright green steel tubes continually reappear in the design. They represent an important part of the journey,"

says Appleton, referring to bright green storm water pipe, linking the storm water from the roof to the giant rainwater tanks nearby.

'Modwood' timber, used at the entrance to the centre, also adheres to ESD principles. Made of recycled timber and plastic, the reconstituted material is an appropriate welcoming mat. "It's not just about students seeing these materials, but physically connecting with them," says Appleton.

The irregular shaped foyer is designed to energise students as they enter, activating their senses in every direction. Like the angular glazed walls, the ceiling appears animated. Lyons used a number of materials to line the ceiling, including COLORBOND® steel cladding rollformed in LYSAGHT SPANDEK® profile, Ecoply, painted bright green and compressed fibre-cement sheeting. While the ceiling appears relatively lightweight, it conceals concrete above.

"The concrete ceiling is one of the most important features of the building. To create a constant temperature, you need to have thermal mass. It's one continuous concrete slab under the roof," explains Appleton.

The bright green steel tubes, which fan out from the entrance, are both functional and aesthetic. Some of the steel poles support display cases, containing environmental exhibits. Others were conceived as supports for sliding doors.

"We saw these tubes as a coding device. Sometimes they were used simply to deter students from leaning against the glass," says Appleton,

who also used bright coloured laminates on surfaces and cupboards in various rooms.

The entrance to the Ecolinc Centre is flanked on one side by a conference room, seating up to sixty people, and by a demonstration space on the other side, with students sitting around hexagonal shaped tables. Floor to ceiling windows in the demonstration room were deliberately inverted and inserted with glass louvers, both at the top and bottom of the glazed panels.

"Natural ventilation is fundamental to ESD principles. Cool air is drawn into the rooms at low level and the hot air is

The entrance takes the form of a large, angular overhang, with the bright green steel tube leading students into the building.







(above, right) The adjacent model wetland provides a focus for the centre.

released through the upper vents,” says Appleton, who was also keen to incorporate aspects of the local climate into the centre. Reverse cycle fans concealed behind floating circular discs, also remove the hot air during the warmer months as well as drawing in the warmer air from the roof space during winter.

The arrangement of tables in the demonstration area is not typical of a classroom setting. Students

are encouraged to interact with each other rather than simply learning from a teacher standing in front. “This place is about sharing ideas rather than just taking instructions,” says Appleton, who sees the students’ experience as one of exploring and finding out more about their surrounds.

Students can learn about the environmental performance of the building which is comprehensively monitored

on an ongoing basis. The energy usage data can be mapped to local climate data collected by the Centre’s weather station, to provide a clear connection between the environment and energy consumption patterns.

A Resource Centre features an informal configuration of tables, arranged in a snake-like pattern in the available space. Perforated screen walls line this area, reinforcing the theme of flexibility in learning and promoting cross ventilation.

“There are very few divisions in the building. We didn’t want students to feel as though they were cut off from their classmates or from their environment,” says Appleton.

“We avoided using plasterboard walls. The spaces should breathe without the use of air conditioning. However, where fixed walls were required, the architects used concrete block walls in their raw state. “These walls are great thermal mass. But we also wanted to express the materials for what they are,” says Appleton.



The same approach was taken with the exposed concrete ceiling that appears in both the resource centre as well as in the horticultural laboratory. To lighten the impact of the concrete, Lyons painted white circular shapes on the surface. Skylights, of the same proportions, also appear in the ceiling, clearly defined rather than masked by the surface treatment. “We want students to see how things function rather than concealing things simply for aesthetics. There is a certain raw quality to the finishes. This is deliberate,” says Appleton.

The glasshouse offers the clearest expression of steel within the building. The ‘glass’ is in fact a polycarbonate sandwich panel material. And while the structure was fabricated off-site, the glasshouse is integrated with the horticultural laboratory to also provide a flexible teaching environment, with students following the green pipes which run across the roof carrying water to the two large rainwater tanks nearby.

Appleton describes the form of the centre as essentially rectilinear, with skillion lean-to sections on either side of the building. The rooms tend to bleed into one another rather than project sharp delineation. The building’s exterior also appears sporadic in its treatment, rather than regular. COLORBOND® steel cladding rollformed in LYSAGHT SPANDEK® profile in the colours Night Sky® and Surfmist® was used for the angular roof.

“We deliberately used the black sheetmetal cladding to create a huge hot box in the roof space. In winter, the sun’s heat can be stored above the concrete ceiling and is slowly released into the rooms in the course of a day,” says Appleton. “COLORBOND® steel cladding in the colour Surfmist® is used on the skillions below the COLORBOND® steel cladding in the colour Night Sky® to promote differential heating and thermal convection.

Appleton uses the standard brick veneer home as an

example of the way not to go when looking at ESD principles. “With a brick veneer, heat against brick walls slowly gets released into the home. This design is about reversing the brick veneer and using the lightweight steel cladding on the outside in combination with internal thermal mass on the inside to provide a stable internal environment” he says.

The Ecolinc Science Technology Innovations Centre is not a natural looking building that tries to mimic its environment. The centre is clearly a fine contemporary form that attempts to explain to students the principles of Environmentally Sustainable Development. But Lyons’ design is also about creating a journey through the landscape. As Appleton says, “you can still appreciate the rich natural environment without resorting to mud bricks. The built environment itself should be as exciting as discoveries made in its laboratories”.

**Stephen Crafti**

**Project:** Ecolinc Science Technology Innovations Centre  
**Architect:** Lyons  
**Builder:** Buildcorp  
**Services Engineer:** Bassett Kuttner Collins  
**Structural Engineer:** Taylor Thomas Whitting  
**Landscape Architect:** Rush Wright  
**Interior Design:** Lyons  
**Principal Steel Cladding:** WALLING: COLORBOND® steel rollformed in LYSAGHT SPANDEK® profile in the colours Night Sky® and Surfmist®  
**Roofing:** COLORBOND® steel rollformed in SPANDEK® profile in the colours Night Sky® and Surfmist®  
**Photography:** Paul Bradshaw





# 024

**Project** Manaaki Whenua Landcare Research Building, Tamaki Campus, University Of Auckland

**Architect** Chow: Hill

**Builder** Hawkins Construction Ltd.

## COOL SCIENCE

**New Zealand's climate and topography is similar in some ways to a number of Scandinavian countries and perhaps this is the link that produces a disproportionately high quality architecture. Brisk temperatures and cool winters appear to direct creative focus in a way lost on sun-loving hedonists. In theory, cooler climates could easily produce a lot of brooding buildings, but globally this is not the trend. Location in these climates is literally cool and seems to provide a cue for some of the sharpest design work around.**

NZ's agricultural economy is paramount to the nation's financial health and this gives special importance to bio-security and pest control organisations such as Manaaki Whenua Landcare Research and the Ministry of Agriculture and Fisheries (MAF).

Dedicated to preservation and protection of the nation's plants, fungi, wildlife and fisheries, Landcare and MAF's new administrative headquarters occupies a site on the northern edge of the Tamaki Campus, University of Auckland.

One of country's larger architecture practices, Chow: Hill caters for both groups under the one roof with its design for the \$10 million research, administration and collection facility. Too often institutions commission the kind of buildings that are dead to the eye and spirit. Both organisations – champions of the native environment and ecology – reveal an altogether different scientific line of enquiry.

The project exhibits sustainable design without the extreme expression often popularised

by the dreadlocks and dags in this form of building. Here the process is intrinsic, rather than applied, to its purpose.

Despite a demanding, multi-use, multi-client brief, the building remains unified. It is characterised by high performance materials and design elegance that elevates the humble shed to new heights. Maximum use is made of natural daylight and ventilation - thus the extensive use of renewable materials. The environmental rating of the building clad in COLORSTEEL® (The prepainted steel from New Zealand Steel) and ZINCALUME® steel is among the highest evaluated within NZ and Australia.

Contributing editor/photographer Peter Hyatt spoke with project director Maurice Kiely of Chow: Hill to discover a building with its healthy share of pests and bugs:

***How difficult was it to incorporate poetry of form when the overwhelming demand for government bodies is for standard issue anonymity?***

The finely detailed junction of feature COLORBOND® and ZINCALUME® cladding of Landcare's new research facility in New Zealand.





Our understanding from the outset was of our client's intention to step beyond the standard reference. We sensed their commitment and the opportunity to have a go, so within the various and demanding project constraints we worked with them to stretch the paradigm as much as possible.

***Was the ESD requirement big in the beginning, or was it just assumed to be an intrinsic part of the overall response?***

ESD was a major criteria for the design, but not an overriding one, as the design team had also to address functional, operational, technical, aesthetic and budgetary considerations. We worked through all the issues and responses to sustainable criteria as part of the overall process and at an early stage these were a major determinant of the building's overall form and relationship to the site. Once this was achieved it allowed us to free up the building. The risk with ESD being the only compass is that the results can inherently lose focus on the overall vision. Other than design decisions on orientation, building footprint

size, ratios of closed to glazed walls and sun-shading, our strategies were varied. They included solar water heating, reduced water usage through composting toilets and rainwater harvested from roofs for glasshouse irrigation and a highly insulated external building envelope. The result is an extremely energy efficient solution.

***How does this explain the split personality of the two main elevations? One is relatively corporate – the main street frontage elevation, while the rear is quite edgy, almost extroverted and in the middle a brilliant ZINCALUME® steel clad courtyard that punches daylight back into the building where it's needed.***

The building arrangement works on a number of levels. On a broad level, the building complex is arranged in three parts: the first, clad in steel, contains the highly technical laboratory and collections function. The second, timber-clad, houses the social and administrative functions, and the third in glass, the plant propagation function.

The courtyard is explained by the need to limit floor-plate width to fifteen metres, to allow cross flow of natural ventilation and maximum penetration of daylight.

In one view, the building is organisation driven, whereby MAF with its public interface and laboratories occupies the ground floor. This is a facility that involves testing and treatment of plant and insect pests against potential bio-security threat. Above that on the horizontal cut are Landcare's research laboratories and chamber areas for significant national collections of insect and fungi specimens. At another view, the building is arranged with either "dumb" (collections) spaces or contained and mechanically ventilated laboratories around both sides, with offices ringed the courtyard. These offices, located away from noise, dust and excessive heat gain all have operable windows and there is an availability of light and fresh air, a counterpoint to laboratory enclosure. Interiors are bare, uncluttered and fairly reflective, thus minimising the need for artificial light.

***How does your expression of material talk about building assembly and function?***

The divided spaces of the entrance form linking spaces for the co-tenants. The horizontal division between the two groups is quite important to their function and identity. Linking spaces are reception, cafeteria and kitchen. These form the social/cultural component and are clad in cedar. The harder edged, profiled steel cladding form signifies the laboratory, while the glass and shade-houses provide the other material component, housing plant propagation functions. The insect and fungal collections are contained in the profiled, curved metal part at the rear. These are very conscious material choices that represent the three functions.

***The rear reveals itself in a quite unexpected way. You use a boldly, decorated motif that is arguably the most distinguishing and rewarding aspect of the building. This intriguing aspect is almost hidden from public view.***



That was partly function and partly the type of building. The street frontage deals with complex issues of solar gain, noise and dust. There are encapsulated laboratory spaces where air is positively pressured to eliminate dust, for example. Because the labs are contained, they use double-glazing and are on the street frontage. These in turn provide a barrier for the offices that wrap around the inner courtyard. The labs really perform better as orthogonal spaces with straight-lines that better lend themselves to a

more rational configuration of spandrel panels and glazing.

***What about the university campus, was there a longer-term view?***

That organisation of spaces and expression allowed us to arrange the collection spaces at the rear. Essentially it's on the south to reduce solar gain and allow the future expansion of the collection spaces over the car-park. It also is intended to relate well to the that part of the university campus

(Top left) So often a neglected facade, the rear elevation here represents a symbolic woven basket for the collection and storage of precious specimens.

(above) A simple palette of non-synthetic materials provides a robust, direct material vocabulary.





(top) The main street elevation as part of the Tamaki Campus, University of Auckland.

(opposite) One of the project's design key's is the ZINCALUME® clad courtyard that punches daylight and fresh air into offices that ring the space.

adjacent, being seen as part of an integrated whole.

***The patterned wall is dramatic... almost like a giant Maori tattoo.***

We saw the collection of specimens as a precious resource, held within a vessel or woven basket. At certain points during the project local Maori iwi were involved and we wished to reference that engagement within the design of the façade, expressed in the stepped, coloured patterning of profiled cladding.

***How satisfied are you with the cladding system?***

It was difficult to achieve a layering and drape curve. We had to choose between drape curve or to crimp and fix. We originally considered pre-cast concrete for the two main walls but cost and manufacturing availability ruled these out. Coated steel compared very well in our comparisons and it soon became obvious that it is one of the best materials around.

***Presumably you felt steel helped facilitate and justify some of those obligations?***

We didn't look at materials in isolation. It was important to view steel as a cladding system so we considered framing depth and insulation, or R, value. Then you consider the profile. A good general

rule of thumb is the less refined it is and the less embodied energy, the more sustainable the material. Locally profiled steel was readily available.

***How else have you considered ESD issues?***

On the building's flank the profiled steel is a rain screen but below the interior walls is a reinforced concrete block or pre-cast panel. This provides a reverse wall with the mass on the inside rather than the outside. We get a lot of daylight and fresh air into the building where it's possible and those may seem small gains, but in terms of overall quality of occupancy the energy savings and staff satisfaction benefits are well worthwhile.

Because it's a building of necessity with very restrained openings and apertures, it plays into your hands in some respects in achieving its ESD ambitions.

The problem is a need for highly serviced spaces such as laboratories and then very dumb spaces like collection areas that just require low humidity and low temperature. And then you have office spaces where you require fresh air.

***It's a balancing act between enclosure and openness?***

Buildings of this type and design require a balancing and settling over their first year to arrive at optimum performance of both

active and passive systems and this is being reached by the Landcare Research building. This is backed up by both occupant reports and empirical testing by researchers within their organisation.

**Peter Hyatt**

**Client:**  
Manaaki Whenua  
Landcare Research

**Project:**  
Landcare Research Building,  
Tamaki Campus,  
University of Auckland.

**Architect:**  
Chow: Hill

**Project team:**

**Project Director:**  
Maurice Kiely

**Architectural team leader:**  
Stuart Mackie

**Laboratory design:**  
Bob Jones

**Documentation team leader:**  
Neil Kaiser  
**Tel:** 09 279 5131

**In collaboration with:**  
**Diprose Architects:**  
Peter Diprose

**and:** Robert Vale,  
University of Auckland

**Structural engineer:**  
Connell Mott MacDonald

**Builder:**  
Hawkins Construction Ltd.

**Steel fabricator:**  
Clarke Roofing

**Principal steel cladding material:**  
**Roof and wall** - finished in  
COLORSTEEL® COLORBOND®  
and ZINCALUME®

**Project cost:**  
\$10.76 million

**Photography:**  
Peter Hyatt





# steelprofile

## My inspiration

One thing I find fascinating about the process of working toward a built project is how good design and architectural opportunities can emerge out of a framework of constraints and pragmatic necessity. This process requires experimentation within that framework, and recognising opportunities which arise from being nudged in a particular direction. My first commission (the Southern Highlands Home) explores how architecture emerges out of a multiplicity of tight constraints, and the desire to push the spatial and material potential of a pure form.

I'm very interested in working with forces seemingly beyond the control of the architect, so on a broader note I am hopeful we will see an increase in professional interest in the suburbs, beyond the inner city. Presently most architectural work and publication interest focuses on inner city commissions, yet the greater Sydney basin is expected to absorb a massive increase in population in the next fifty years, ideally in a more sustainable and affordable context. I imagine that Australia's suburbs will have to see an increase in interest by architects and building professionals and just as importantly, politicians and the media. I would like to steer the practice toward attempting to address some of these big questions... and to remain optimistic in doing so!

*Alexandra Matyear  
Graduate of Architecture  
Whitcher and Matyear*



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