114
APRIL 2013
ARCHITECTURAL
STEEL INNOVATION
WITH BLUESCOPE STEEL

STEEL PROFILE

RICHARD KIRK ARCHITECT
FITZGIBBON COMMUNITY CENTRE

GUYMER BAILEY ARCHITECTS
GAP RESIDENCE

IN PROFILE:
PETER STUTCHBURY

EDITORIAL

Welcome to *Steel Profile* #114.

We are proud to bring you this collection of innovative steel architecture and some insights into the inventive minds behind it.

Community themes thread throughout this issue. Whether purpose-built for gathering, such as the Fitzgibbon Community Centre, or to suit a culture's manner of living, the importance of design tailored to place is illustrated by projects in these pages and echoed by thinkers such as Peter Stutchbury – the subject of our architect profile – and also Ralph Bailey whose design for his residence demonstrates how gracefully unpainted buildings can meld with nature.

We trust you will enjoy the issue. Please feel free to share your thoughts via info@steelprofile.com.au

Kristin Camery
BlueScope Steel editor

EDITORIAL ADVISORY PANEL

Steel Profile has established an editorial advisory panel to ensure that only projects of the highest calibre are selected for publication. The panellists are:

ADAM HADDOW

Adam is a director of SJB Architects NSW. He was awarded the 40th Anniversary Churchill Fellowship in 2006 to study alternatives to conventional models of urban design. SJB Architects recently won two Australian Institute of Architects NSW Awards for Multiple Housing.

More than anything, he loves to design buildings

FRANK STANISIC

Stanisic Associates founder Frank Stanisic is a Sydney-based architect and urbanist.

His work is fuelled by an evolving interest in the diagram and frame as a basis for architectural invention, and the aesthetics of permeability.

Frank's projects have won numerous awards including Australian Institute of Architects' Special Jury, Wilkinson, Aaron Bolot and Frederick Romberg

SAM BRESNEHAN

Sam Bresnehan is a graduate architect with Melbourne-based architectural and urban design practice, McGauran Giannini Soon Architects (MGS).

Graduating from the University of Tasmania with a Master of Architecture (First Class Honours) in 2010, Sam was awarded the 2011 BlueScope Steel Glenn Murcutt Student Prize

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COVER PROJECT
Fitzgibbon Community Centre

PHOTOGRAPHER
Paul Bradshaw

NUMBER 114, APRIL 2013

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ARCHITECT Richard Kirk Architects
PROJECT Fitzgibbon Community Centre
LOCATION Fitzgibbon, Queensland

LAY OF THE LAND

With an oxidised steel shell wrapping around a series of community gathering spaces, Richard Kirk Architects has marked the importance of place while re-asserting the poetry of cast-off materials.

Words **Margie Fraser** Photography **Paul Bradshaw; Richard Kirk; Scott Burrows**

When the Queensland State Government began planning the outer Brisbane suburb of Fitzgibbon, a community centre was envisaged as its focal point. Low-cost housing has since followed, with shops and other infrastructure still in utero. Richard Kirk Architects (RKA) was briefed to design the centre well before any of these buildings existed, which is indicative of the importance placed on developing a strong sense of community.

Part of the building's role was to be a gateway to the bushland trails that begin and end at the rear of the site. In the delicate and benevolent social manipulation that is entailed in this kind of planning, promoting the use of existing walking tracks was key to the vision of the client, the Urban Land Development Authority (ULDA).

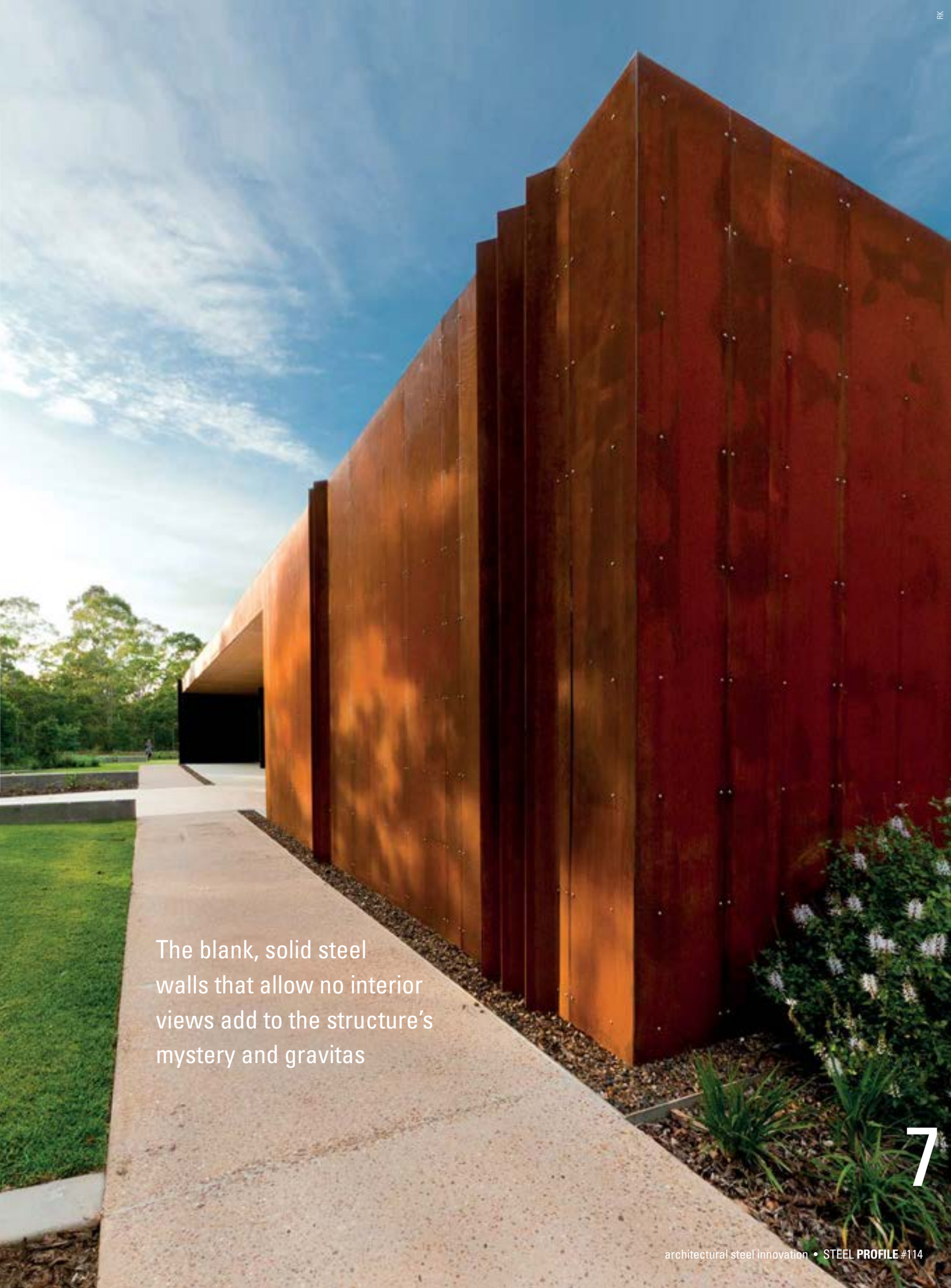
"It was all about experiencing the landscape," says RKA owner and principal Richard Kirk, of the ULDA brief. "The bush was valued highly and it was hoped to encourage more use of it by local families."

The site, a swampy patch of redundant farmland, had become a dumping ground for old fridges and cars. A couple of rusted car hulks, one piled on top of the other, gave Kirk his inspiration for the building, and its extreme sense of materiality. "I think of the building as a bit of land art, or a sculpture in the landscape – it has a very abstract quality. We used the weathering steel as a reference to the discarded objects that you find in these parts."

The building has a monumental quality that contrasts strongly with the articulated and multi-storey structures of the surrounding suburb. Its isolation on the edge of the town, with a backdrop canvas of bushland, heightens the object-in-the-landscape effect.

The blank, solid steel walls that allow no interior views add to the structure's mystery and gravitas. The one major view through (rather than into) the building is made via the large portal in the core of the 60-metre-wide elevation, acting as both guide and frame into the bush behind. The covered

RIGHT: Rusted car hulks gave Kirk his inspiration for the building and its extreme sense of materiality



The blank, solid steel walls that allow no interior views add to the structure's mystery and gravitas

The major view through the building is made via the portal in the core of the 60-metre-wide elevation

portal space appears as a shell or remnant of what might have been part of the solid structure, and is used for communal gatherings.

The portal divides the simple plan, with a hall to the east and offices and community services to the west. A cafe, yet to be occupied, sits between the two and opens to the undercover courtyard. Holes are punched into the hoop ply-lined canopy for extra light and the odd glimpse of stars at night. The signage along the portal's fascia is stencilled into the rusted metal, reminiscent of a bit of ardent handiwork from a high school metalwork class.

The cladding made from BlueScope XLERPLATE® weathering steel acts as a rain screen and, notes Kirk, will require zero maintenance. "The last thing we wanted to do was use materials found in the houses," says Kirk. "This is a public building, and must clearly be so. It needed to have a strong sense of identity – to make a strong statement."

The oxidised armour of XLERPLATE® weathering steel "did everything for us," he says. "It can play all these different roles." As a light metallic skin that shades the internal thermal mass of the building, heat can escape from the gap behind the epidermis. Where the strips forming the outer colonnade were folded and twisted, the material gains strength.

The folding of the XLERPLATE® steel members, achieved through the use of a brake press, is an economical solution that delivers a strong language and much evocative power in its repeating linear pattern. The folds in the steel register the weather (reddening during rainy seasons) and also the sunlight as it hits the surfaces.

Light and shade have a key role to play in the building's expression, which takes primacy on the relatively small site. The folded blades, for all their strength and ruggedness, act as a protective veil to the building. Inside, ply-lined walls and timber floors are fleshier components of the materials palette.

"We had created folded metal before, in the ABC building at South Bank," says Kirk. "But that was aluminium. With its three-millimetre thickness and the fact that the folded panels are rigid, this required the most fundamental metalworking."

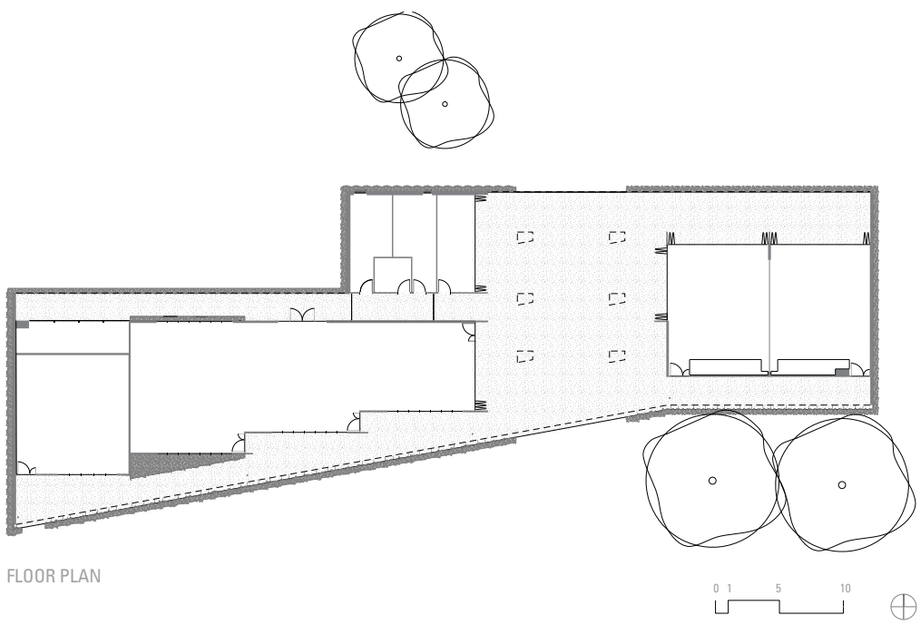
The clear linearity of the building, enhanced by its modest height, gives it a presence in the landscape. While it kinks back to accommodate a couple of remnant gum trees – "There's nothing pretty about them," says Kirk, "but they are very much part of the locale" – it is the solidity and simplicity of the form that lends weight to the image.

"A community hall can't be over-programmed," says Kirk. "The spaces are simple, functional and versatile. The building is an empty vessel for all the activities that might take place inside."

The LYSAGHT LONGLINE 305® profile made from ZINCALUME® steel is pitched to the street on the south, and wide fascias conceal the guttering. The LONGLINE 305® profile was chosen for its ability to span wide areas and associated waterproofing quality.

PANEL SAYS

A bold example of public infrastructure marking the transition from landscape to development, this community centre for a new suburb on Brisbane's northern fringe is a terrific exercise in place-making. The structure is anchored in its bushland setting and is well-suited to its sub-tropical climate through the use of large overhangs, the breezeway which provides a generous open covered public entry space, and operable glazing behind the rainscreen. We particularly like the detailed rhythm of the facade with its twisted blades that strategically animate the otherwise blank walls, and the weathering steel that references the unsanctioned corroding cars that were once abandoned on the site. While it presents as a simple structure, this project is underpinned by a degree of complexity and demonstrates a strong sense of clarity around its key architectural ideas – suitability, rationality and economy.



FLOOR PLAN

RK

Storm water management was important on the low-lying site that had required filling. The building is constructed on a raft slab, and there is a two to three-metre fall across the site. Water running down the bladed colonnade lands in a perimeter drain filled with oxide ballast. The design allows for residual rust to be camouflaged in the pebbles, but to date there has been no run-off.

The marriage of form and material is RKA's high moment in the piece. The overall simplicity of the form and the honest expression of the weathering steel make its own language.

"Weathering steel is an evocative material and an important product, particularly in Australia," says Kirk. "In states like Arizona in the US, using this product without coating is good. You don't ever have to treat it again."

Black stained plywood is used on walls and soffits so the building recedes behind the steel cladding, leaving the Uluru-esque form to enjoy its own rhythm and poetry.

In a suburb that was conceived as a benchmark for low-cost housing and sustainability, the use of XLERPLATE® weathering steel is apt. RKA's commission came as a result of earlier work with the ULDA and an understanding of what they were trying to achieve in Fitzgibbon. The ULDA (now transitioning to the Department of State Development, Infrastructure and Planning under the LNP State Government, with some functions going to Brisbane City Council) advocated for affordable and sustainable housing with smaller lot sizes, and RKA was involved in a design charrette that explored new housing typologies on small lots.

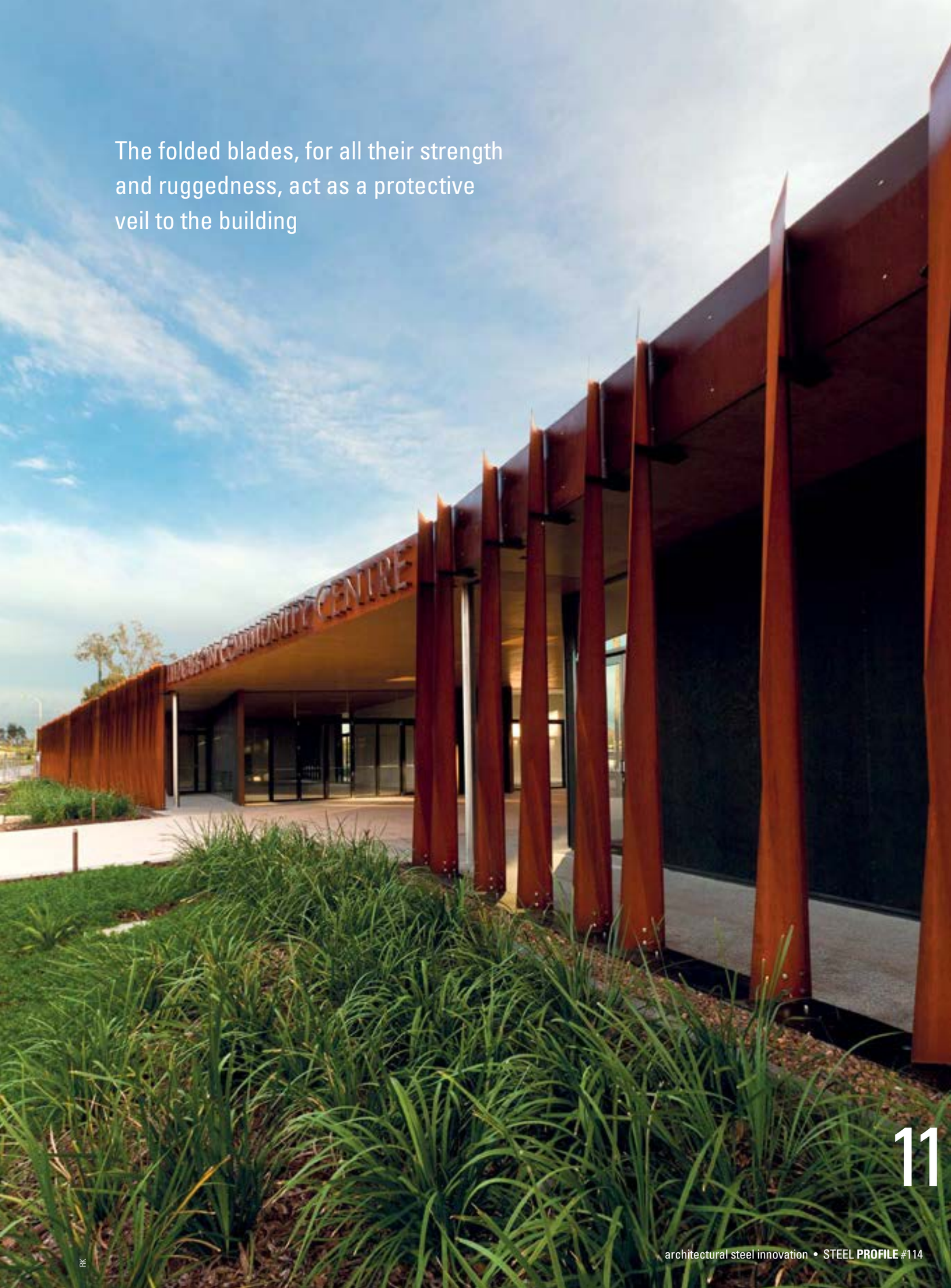
ULDA completed the masterplan and subdivision work and built some demonstration projects for the private sector to follow. A healthy relationship between architect and client developed in the process, resulting in RKA's commission on the town's centrepiece community hall.

With partial funding from the Federal Government, the project had a relatively low budget. Importantly, the client, according to Kirk, is happy, and "got more than they expected". **SP**

ABOVE: Folding the members made from XLERPLATE® steel is an economical solution that delivers a strong language in its repeating linear pattern. Water running down the bladed colonnade lands in a perimeter drain filled with oxide ballast, allowing for residual oxidisation to be camouflaged in the pebbles

ELEVATION

PROJECT Fitzgibbon Community Centre **CLIENT** Urban Land Development Authority **ARCHITECT** Richard Kirk Architects **PROJECT TEAM** Yee Jien, Luke Hayward **STRUCTURAL & CIVIL ENGINEER** Cardno **BUILDER** Grindley Construction **SHOP DRAWING CONTRACTOR** Lowline **STEEL FABRICATOR** Lowline (cladding); Kyst Engineering (structure) **CLADDING CONTRACTOR** Lowline **LANDSCAPE ARCHITECTS** PLACE Design Group **PRINCIPAL STEEL COMPONENTS** Cladding: BlueScope XLERPLATE® weathering steel; Roofing: LYSAGHT LONGLINE® 305® profile made from ZINCALUME® steel **PROJECT TIMEFRAME** Design and documentation commencing march 2010. Construction to completion March 2011 to October 2012 **AWARDS** 2012 Australian Steel Institute Queensland State Steel Awards - Steel Clad Structures Building Design **BUILDING SIZE** 600m² **TOTAL PROJECT COST** $3.25 million



The folded blades, for all their strength and ruggedness, act as a protective veil to the building

RK

PETER STUTCHBURY

Quoting an Aboriginal elder and dear friend, Sydney-based architect, professor and risk-taker Peter Stutchbury respectfully says: "In order to keep it, we must give it away". Words **Trisha Croaker**
Photography **Bob Seary (portrait); Michael Nicholson**

Having established a reputation over the past 30-plus years as one of the nation's most innovative architects, Stutchbury clearly has a lot to give away. We're not talking about an invitation to raid the figurative trophy cupboard, home to what must be a near-record swag of top Australian awards (more than 50 to date), including the Robin Boyd Award for Residential Buildings (twice), the Sir Zelman Cowan Award for Public Buildings, the National Award for Commercial Architecture and a string of other architecture, timber and steel accolades for work both overseas and in Australia.

The breadth, diversity and ground-breaking nature of these honoured projects is formidable: residential works such as the Bay House, Springwater, Bangalay, Cliff Face House (with Fergus Scott) in New South Wales, and Wall House (with Keiji Ashizawa Design) in Japan; uncommonly beautiful commercial work such as the Deepwater Woolshed and The Hangar in country NSW; public work including Birabahn (with Richard Leplastrier and Sue Harper) and the Life Sciences Link Building (with Suters) in Newcastle, and Sydney International Archery Park.


MICHAEL NICHOLSON

ABOVE: Deepwater Woolshed, Wagga Wagga (2005)

What Stutchbury is referring to, and what he's been consistently and progressively handing out for some time, is the knowledge acquired in the process of designing these buildings: his thoughts on how to practise architecture, how to make something beautiful, along with his understanding of landscape, of belonging to and respecting place, and understanding of how that formation came about.

His dedication to the role, to inspiring, motivating and sharing knowledge, may turn out to be an equal or greater legacy than his built works themselves. "For years you're learning about architecture, you're learning about building, you're learning about people, and then all of a sudden you can do it," Stutchbury says. "About five years ago I realised I've finally reached the stage where I actually know clearly what can be done and what can't be done, and my aesthetics relating to that – not someone else's aesthetics. Teaching is an important way of passing on this knowledge and sensitivities and understandings."

Stutchbury is quick to credit his own teachers – close friends such as Richard Leplastrier, Glenn Murcutt, Britt Andresen and Nielsen Warren, with whom he shares a deep connection. And all, with the exception of Warren and Stutchbury, are Australian Institute of Architects Gold Medallists. "What I've learnt from them, and this is a statement from our wonderful Aboriginal elder who teaches our master class, Uncle Max Harrison, is in order to keep it you've got to give it away. I give away as much as I can in the knowledge that no-one can ever repeat what we do, they can only replicate. The best designers won't replicate, they'll consider and replenish in a different way."

Stutchbury's commitment appears an exhaustive one, starting at home – two of his three children are already studying architecture and engineering. Down the road in his Newport office – Peter Stutchbury Architecture (PSA) – on Sydney's northern beaches, he's mentored many young architects who are now making their own marks on the profession, including Fergus Scott, James Stockwell, Sue Harper and Sacha Zehnder to name a handful.

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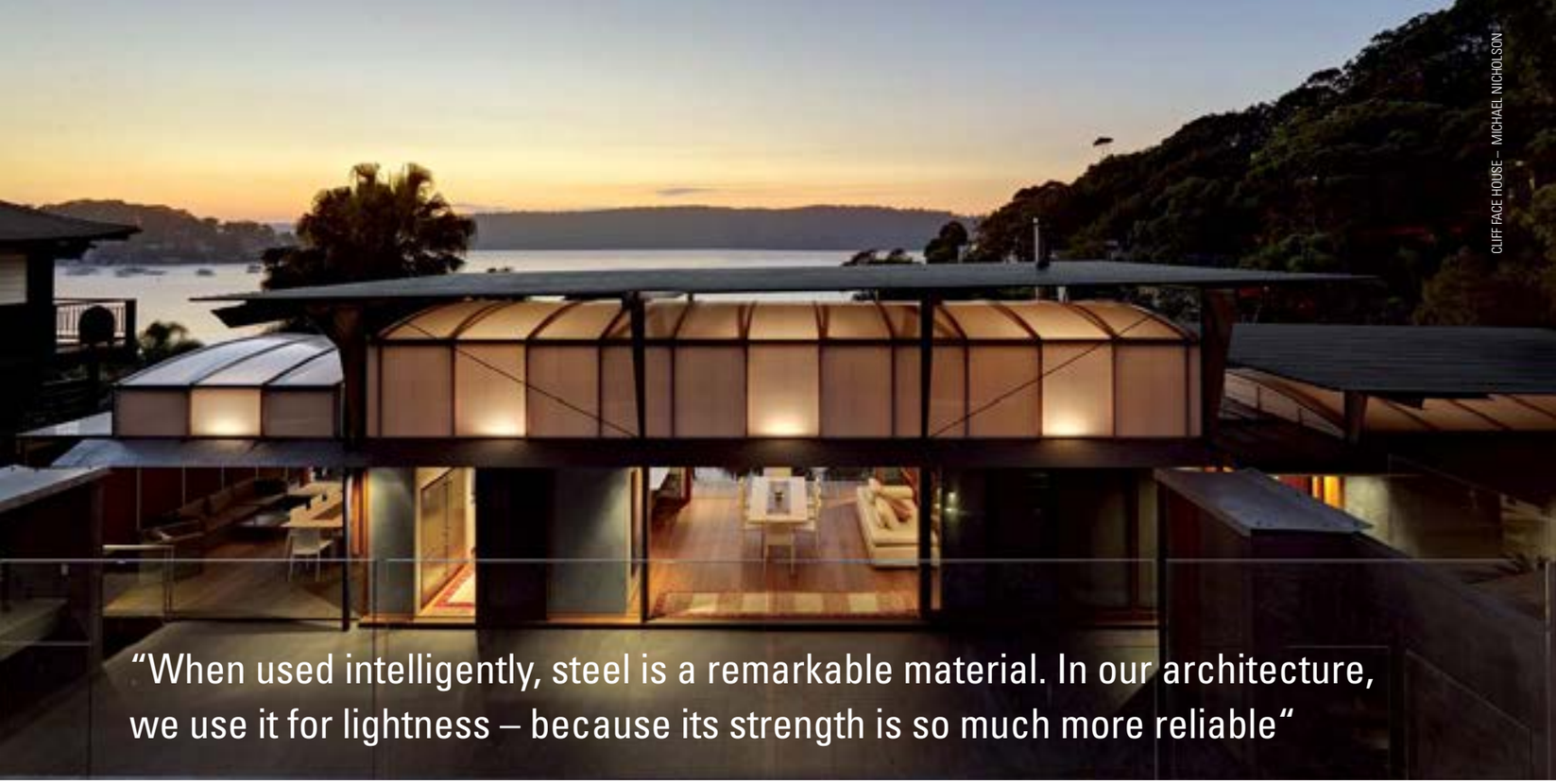

CLIFF FACE HOUSE – MICHAEL NICHOLSON

"When used intelligently, steel is a remarkable material. In our architecture, we use it for lightness – because its strength is so much more reliable"


INVISIBLE HOUSE – MICHAEL NICHOLSON


TOROVO HOUSE – PETER STUTCBURY

TOP: Cliff Face House, Palm Beach (2011)

ABOVE LEFT: Invisible House, Blue Mountains (2012)

ABOVE RIGHT: Torovo House, Russia (2011)

RIGHT: Wall House, Japan (2009)

OPPOSITE TOP RIGHT: West Head House, Clareville (1991)

OPPOSITE FAR RIGHT: The Hangar, Cessnock (2010)


WALL HOUSE – MICHAEL NICHOLSON

Locally, he holds a Fractional Professorship at his alma mater, Newcastle University, a position he feels very privileged to share with 'quality thinkers': friends and colleagues Leplastrier, Kerry and Lindsay Clare, and Lawrence Nield. Again, all Gold Medallists. Rather than seeing it as teaching, he sees it as "passing on stories, information and guiding people".

Thanks to Lindsay Johnston's efforts to take Australian architecture to the world, Stutchbury is one of several 'masters' at Architecture Foundation Australia. He teaches regularly with the not-for-profit organisation, which runs up to four international master classes annually. In addition he accepts as many overseas and domestic speaking opportunities as appropriate and feasible – traversing the globe in 2012 to present in Denmark, the length and breadth of the United States, France and Portugal.

While the content varies, it usually involves an outline of his background, his understanding and deep appreciation of the Australian landscape, form, occupation and shelter, followed by examples of work. Despite his teaching commitments, and a less-full project dance card than he'd like, he has an ever-growing pool of innovative new work to present.

While it's early days, a project in progress and of particular significance to Stutchbury is his own house, to be built next to the ocean at Avalon. With his current much-loved family home – West Head House – on the market for the first time since he designed, built and moved into it in the early 1980s, this future home has much to measure up to.

Elsewhere in Sydney, construction is underway on a large waterfront home in Vaucluse, with a cliff-edge house dubbed 'The Lighthouse' in Dover Heights and another in Mosman just completed. In rural NSW, recent or current projects include the Invisible House in the Blue Mountains and one in Holbrook being hand-built by the farmer owner.

Overseas, Stutchbury is working with colleagues on a mountainside project in Taiwan. Comprising private and public bath houses, a small hotel and organic farming which services traditional restaurants, it promises to excite international attention. Most recently, one of China's most reputable publications, *Architectural Worlds*, dedicated an issue to his practice's philosophy and documented 26 of its projects.

WEST HEAD HOUSE – MICHAEL NICHOLSON

As with all of his practice's work, each project is an opportunity for appropriate experimentation and risk-taking to yield the most successful end result. Despite these varying investigations, all buildings continue to display Stutchbury's preference for tactile, honest and direct work, in which "if we get the design right, everything else is secondary; everything that goes into the building is secondary to the building itself". And all have a "complete understanding of where they are".

"I think something that we've learnt to do and something we're very astute at doing is aligning the choice of materials and nature of a building to where it is, to place."

Stutchbury refers to the Deepwater Woolshed in south-western NSW and The Hangar (see *Steel Profile* #110) in the State's Hunter Valley as examples. "Deepwater Woolshed is on a big, flat plane of land adjacent to the Murrumbidgee River – it isn't a place that would accommodate a heavy building. It's a place that would accommodate a light grove of trees. The use of steel there was to emulate the lightness of the site, or the lightness of the nature of the building, but also to make it a cost-effective project," he says.

"When used intelligently, steel is a remarkable material. Its weight-to-span ratio is incredible compared to any other material. In our architecture, we use it for lightness – because its strength is so much more reliable than other materials.

"And we use it for pre-fabrication because you can get a direct connection with it, such as in The Hangar," he adds. "In this project, our direct connections meant that when the building was half up, it was wobbling and falling over, but once we bolted all the roof sheets to it, and the gutter and truss extensions, it became rigid."

PSA adopted an entirely different and original use of steel to win the 3rd International Living Steel Competition with the Torovo House, completed in the Russian town of Cherepovets in 2011. Located in a region with temperatures that plummet below -30 degrees Celsius, the house traps heat and moves it to a storage point, where it's redistributed through a storage wall made of plate steel and filled with gravel, allowing it to act as a large thermal mass radiator. Monitored since completion, energy and temperature readings show the house working 60 per cent more efficiently than other buildings in the area.

His preference is to work in Australia, but Stutchbury says it's proving difficult to win new public projects at home.

"We're invited to work with clients overseas who are prepared to take a leap of faith. It's frustrating that we don't have the same public opportunities here, but we remain open to them.

Meanwhile, work for the Taiwan project is underway and the world remains in Stutchbury's sights. SP

THE HANGAR – MICHAEL NICHOLSON

METAL WORKS

Inspired by metal and wood shavings, Trades North is a sensual expression of steel that demonstrates how a building can contribute to the identity of a young suburb. Words **Paul McGillick**

Photography **Damien Hatton; Daniel Eaton**

ARCHITECT JCY Architects and Urban Designers
PROJECT Trades North, West Coast Institute of Training building
LOCATION Clarkson, Western Australia

This is a steel building in more ways than one. Yes, it is made from steel, but crucially, it is a building which both explores and celebrates the potential of the steel products used to give the building character and to express its purpose.

Clarkson is a new suburb on Perth's northern coastal fringe. The beaches are superb, but the flat, featureless suburban sprawl seems a recipe for alienation. At the very least, it needs some buildings with character to help generate an identity for the area: to give the people who live there a sense of belonging to a place with value.

Trades North, West Coast Institute of Training does just that. As an apprentice training facility it clearly provides social and economic value to the region and beyond. But the confidence, colour and character of this building generates added value by giving the community a facility to be proud of.

JCY Director Scott McConn says that everyone at Trades North and all associated are happy with it. "In a lot of projects," says McConn, "when you re-visit the project looking at defects, you often get collared by whoever is complaining about something. But not here. These people are all very happy. BMW (Building and Management Works, the government commissioning body) are more than happy with the project. And the builder promotes it in their marketing as one of their flagship projects."

But if Trades North is about the place of Clarkson, it is also about another, bigger place: Western Australia. Firstly, the resources boom has created a skills shortage as tradespeople are lured north to the big money in the Pilbara.

Trades North is the government's response, addressing this shortage by offering pre-apprenticeship and apprenticeship training in building and construction, metals/light manufacturing and electrical for up to 90 students a day.

The aim is to supply qualified tradespeople to the housing and mining industries, both in the north and in Perth. These students are trained not just in specific trade areas, but also in employability skills, including self-employment as sub-contractors or via their own company.

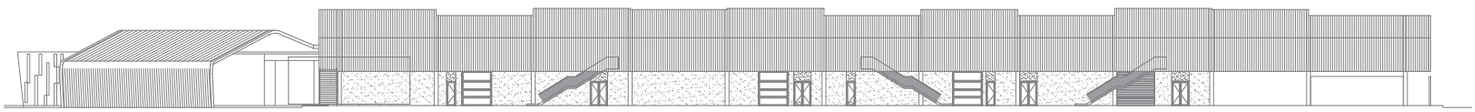
The second aspect is to do with the climate. This is a facility designed to respond to the typically harsh summer climate of Western Australia, especially important for a building whose long elevation faces directly into the western sun and which lies just 2.7 kilometres from the coast.

One of the chief strategies here is also the most distinctive aspect of the building: the screen of yellow, black and grey powder-coated fins applied at different angles to the frame structure. These take the western heat-load off the building, while still allowing views out as they form a gallery linking the different training areas inside the building. Driving down the expressway which passes the facility, this elevation is eye-catching, especially at night when it glows from a combination of up-lighting and concealed lighting.

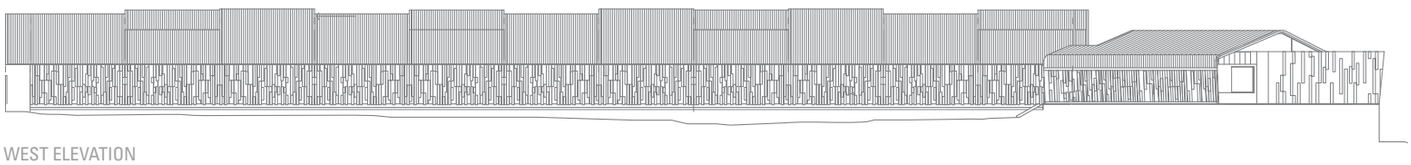
Otherwise, the large volume of the main building, combined with the massive garage-like overhead glass doors, serves to moderate internal temperatures significantly, with air-conditioning only used in the administration block and in the double-glazed (for acoustic abatement) classrooms on the mezzanine floor of the main building.

The facility responds to the typically harsh summer climate, especially important for a building whose long elevation faces directly into the western sun

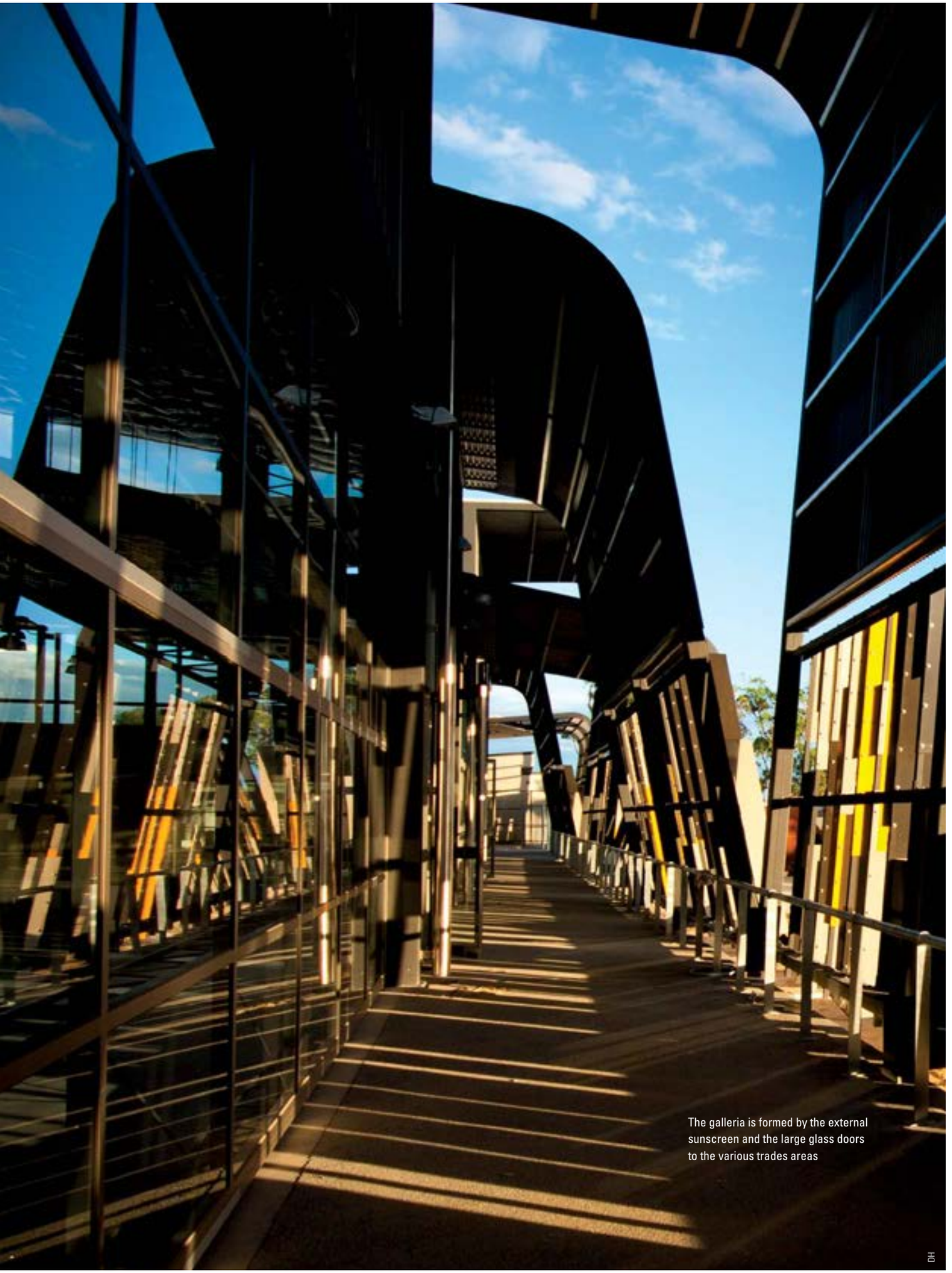
LEFT AND BELOW: The playful screen of yellow, black and grey powder-coated fins applied at different angles to the frame structure provides character and takes western heat-load off the building, while still allowing views



EAST ELEVATION

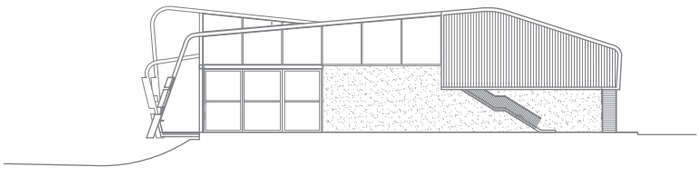


WEST ELEVATION

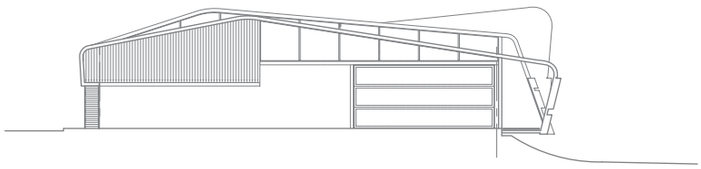


The galleria is formed by the external sunscreen and the large glass doors to the various trades areas

DH



SOUTH ELEVATION



NORTH ELEVATION

ABOVE: The courtyard acts as a link between administration and the trades areas

BOTTOM LEFT: The cafeteria is at the heart of the complex

BELOW RIGHT: A view of the trades areas from the upper gallery and the classrooms

Apart from the remarkable facade, what gives the building character is the surging, undulating roofscape of split, curved roofs in three colours. Inspired by metal and wood shavings, this roofscape is a celebration of the sensual expression that steel can provide. It is also an expression of the flexibility which was part of the brief: to provide a building which could constantly adjust to changing circumstances and which, because of its simple construction, could potentially be dis-assembled and recycled elsewhere.

The main structure is a combination of pre-cast concrete and a main steel frame structure fabricated off-site, then bolted together with minimum welding. It is, says McConn, a shed: but a highly flexible shed and one with attitude. "If it was just a shed," he says, "it would probably get abused". Instead, this is a robust building with a powerful aesthetic presence.

It consists of a series of linked spaces, beginning with the administration and staff room areas, which include meeting rooms. The entry space gave JCY the opportunity to continue its interest in pre-cast concrete panels forming a decorative finish (a sand-blasted, abstract bas-relief) by creating a wall separating the administration area from a covered, open-air cafeteria and courtyard. The courtyard links to the gallery of the main building with its various instruction areas where students can build downsized versions of actual houses, walls and bathrooms.

The split curved roof form of the complex is typically JCY (an evolution, McConn suggests, from the firm's earlier Edith Cowan University Library Building at nearby Joondalup). This surging roof form was only possible using steel.

Roofing, walling, flashings and trim are all made from COLORBOND® steel, which has 30 per cent thicker base metal than standard.

The sheeting made from COLORBOND® steel provided flexibility for creating curves and for doing them in a single piece, resulting in less maintenance and less leakage in the roof system. There were also cost advantages deriving from the speed of construction and assembly provided by steel, and by the opportunity for lightweight construction.

Compared with alternative materials, JCY found that COLORBOND® steel was the most cost-effective for what it wanted to achieve, robust (especially in this coastal location), easy to replace and durable.

In short, it offered the flexibility JCY was looking for.

COLORBOND® steel is also available in a wide range of colours, which encouraged the architects to vary the roof profiles. In all, five types of profiles were used on the project: KingKlip® 700, LYSAGHT CUSTOM ORB® and CUSTOM BLUE ORB®, LYSAGHT LONGLINE 305® and LYSAGHT SPANDEK HI-TEN®.

The split curves of the roof profiling also enabled skylighting to draw in natural light to the wide floor-plate of the workshop areas.

Equally robust is the weathering steel sculpture created by artist Daniel Eaton (his photographs of the project also feature here), which sits directly across from the front facade. Like the roofscape, the sculpture was inspired by metal and wood shavings and is designed to be sat in, walked through and climbed on. "The artist," says McConn, "actually started assembling and installing it after we had handed over the building. There were classes going on inside, so people who were learning about metal-work were watching this artist putting together a piece of metal. It was quite inspirational for them."

The sculpture, like the complex itself, is elevated over a shallow gully which separates the complex from the main road. In fact, the initial master-planning had the building over an easement through this gully. Shifting the building further east necessitated invention, giving the architects an opportunity to transform rather sparsely vegetated surroundings into rapidly growing lush landscape.

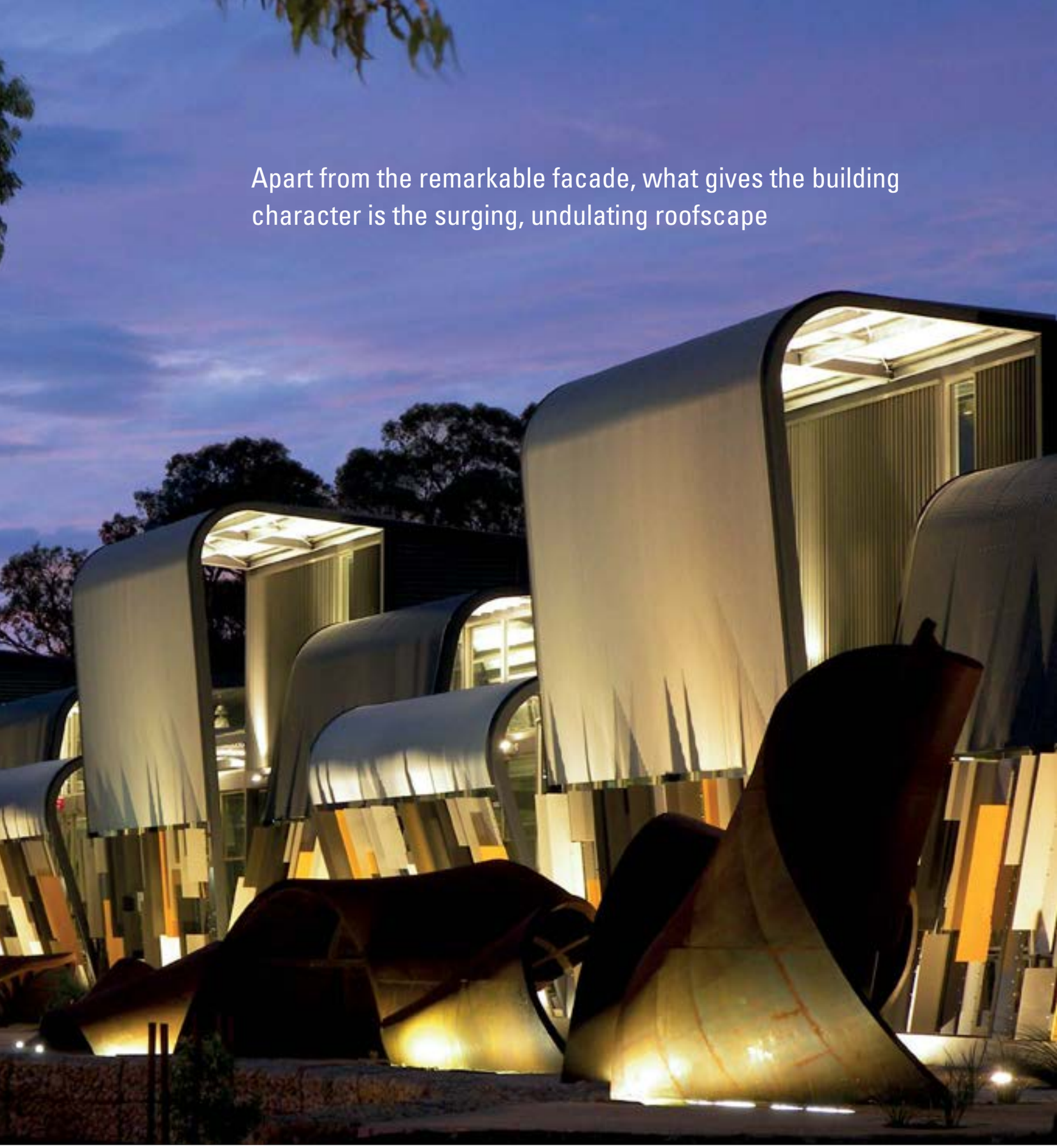
Trades North makes a statement about how steel can be used to turn an otherwise highly functional structure into an aesthetically dynamic building that makes a major contribution to the developing identity of a young suburb. **SP**

PANEL SAYS

Responding to a significant economic issue – a skills shortage in Western Australia as a result of the mining boom – the complex design of this educational facility in Perth showcases the disciplines that are taught within its walls. The building's rolling, folded roofscape is a thoughtful response that is far from gratuitous. The alternate scissoring of the roof allows natural light to penetrate into workshops, circulation and teaching spaces, and through careful manipulation of the plan, to create inspiring airy and stimulating interiors. Outside, the coloured external fins add interest and vibrancy at a human scale and also provide protection from the harsh western sun, while the sheltered courtyard provides a cool place to retreat to. From every angle, this is an eye-catching project.

TOP LEFT: The facade stands out at night because of the clever use of up-lighting and concealed lighting. The celebration of steel includes Daniel Eaton's steel sculptures

ABOVE: The dynamic roof forms communicate the centre's mission to support WA's surging economy



Apart from the remarkable facade, what gives the building character is the surging, undulating roofscape

PROJECT Trades North, West Coast Institute of Training, Clarkson **CLIENT** Building Management Works **ARCHITECT** JCY Architects and Urban Designers **PROJECT TEAM** Libby Guj (Project Director), Paul Steed (Project Architect), Brad Shales (Architect), Scott McConn **BUILDER** Pinda **STRUCTURAL/CIVIL ENGINEER** Aurecon **HYDRAULICS SPP LANDSCAPE ARCHITECTS** Ecoscape **MECHANICAL ENGINEER** Aurecon **ELECTRICAL/SECURITY ENGINEER** SKM **PRINCIPAL STEEL COMPONENTS** Roofing, walling, flashings and trim made from COLORBOND® steel. Roofing profiles in KingKlip® 700, LYSAGHT CUSTOM ORB® and CUSTOM BLUE ORB®, LYSAGHT LONGLINE 305® and LYSAGHT SPANDEK HI-TEN®; Structural: Grade 300 welded beams, steel plates and rolled sections; Grade 350 hollow sections; members including 300x200x8 RHS, 400x300x8 RHS, 200x8 SHS, 200 UB 30, 460 UB 67 and 180 UB 22 Sculpture: made from XLERPLATE® weathering steel **PROJECT TIMEFRAME** 2009-2011 **SIZE** Total enclosed covered area: 3863m^2; total unenclosed covered area: 870m^2 **BUDGET** Final contract sum: $15.8 million **AWARDS** Australian Institute of Architects Western Australia COLORBOND® Award for Steel Architecture 2012; 2012 World Architecture News Shortlist for Education

HOME DELIVERY

Ralph Bailey's songline for landscape is a key for this project, which blurs the traditional experience of inside and out.

Words **Peter Hyatt** Photography **Peter Hyatt; Scott Burrows**

ARCHITECT Guymer Bailey Architects
PROJECT Gap Residence
LOCATION The Gap, Brisbane, Queensland

25

The gleam in architect Ralph Bailey's eye is partly the reflection of his latest creation. His design for a house for himself and wife Jenny at The Gap, in a leafy pocket 12 kilometres west of Brisbane's CBD, ripples with ideas as if absorbed from the adjacent rainforest creek.

An architect as experienced as Ralph Bailey doesn't take the challenge of designing his own residence lightly.

"It's a tough ask: it's a showcase in many ways for what you have, or haven't, learnt," he observes. "You create for yourself, but you will be judged differently because there is no-one else to blame. There's no client, no excuse of who got in the way of some grander, better idea. No, you're it."

Many architects refuse to self-diagnose and design, preferring a designer friend or colleague to handle the delicate task of fashioning their shrine to domestic bliss. Bailey, however, has plunged into the whirlpool with his house at The Gap.

Bailey came to prominence in the mid-1980s after he was lured from government practice to join Tim Guymer and establish Guymer Bailey. The firm's pioneering work created Fraser Island's Kingfisher Bay Resort. The project went on to win accolades for its architectural design and environmental initiatives a good decade before green practices became more widespread.

Bailey still takes pride in such heroic understatement that opted to celebrate nature rather than be tattooed all over with self-importance. While most holiday resort developments bleat 'look at me!', Kingfisher Bay's fluid steel roof forms mould exquisitely with the rolling dunes of the world's largest sand island.

His penchant for floating steel, timber and deft projections creates the illusion of stepping into space. "Kingfisher really brought home that idea of living in contact with place. There, you can walk out into the landscape from the decks – an affect which is helped by being able to work without railings," he explains.

Is there a secret to resolving such designs? "How do you begin to design well?" he asks rhetorically. "Take a simply resolved plan, a simple palette of material and learn about details. But," he adds with a caveat, "it only comes about through failure and discovering what *doesn't* work. Then you know what to avoid and don't recycle mistakes."

His designs produce a fusion between the natural and imposed. The Gap House wefts with the landscape to create a series of silvery foils that fan and feather into space. Its tree-house qualities provide various perches from which to work and play. This light build quality doesn't mean the project isn't fully grounded in substance or performance.

Meticulously sited on its 2750 square-metre allotment – previously a tennis court – the house aligns its slender length to a rainforest creek and noses towards the main road.

He says The Gap House would make little sense almost anywhere else. "This design," he explains, "is quite specific to the rainforest creek, main road and site." It's as if the vagaries of allotment are every bit as unique as human fingerprints.

Bailey has opened the house with expansive decks to the creek while substantially blunting traffic noise with a subtly striped, sound and heat-insulated wall made from COLORBOND® steel in gentle defiance to passing traffic.

Essentially a series of articulated steel skins, the house's permeable bond with the elements creates a sublime environmental relationship.

"It's not an either/or. You can have security and privacy, or you can open up fully to the elements," remarks Bailey.

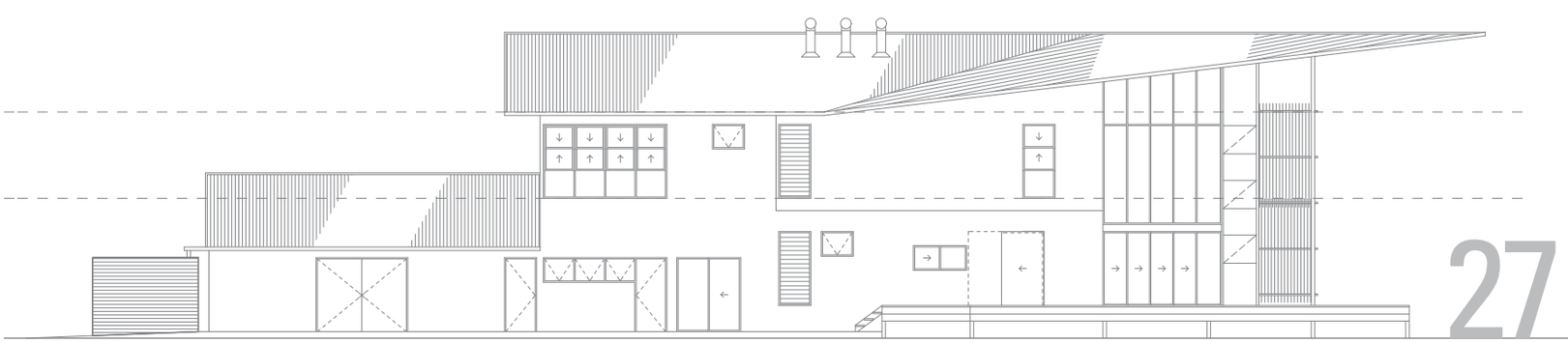
Bailey views Queensland's now typical brick and tile transplant from down south as an environmental blight. "They isolate occupants from the realities of place and climate, and create havoc with natural groundwater systems." He eschews earthmoving in all but extreme instances. The Gap House offers a 400mm elevation on a few pilings to obtain a lightweight footing, minimal ground disturbance and faster, more effective cooling.

"Every building needs to have some sense of relationship and belonging to the site," he argues. He admires and feels a kinship with many of his colleagues who have helped establish Queensland as home to the most authentic vernacular style of any Australian state. It's a reputation hard won and well deserved.

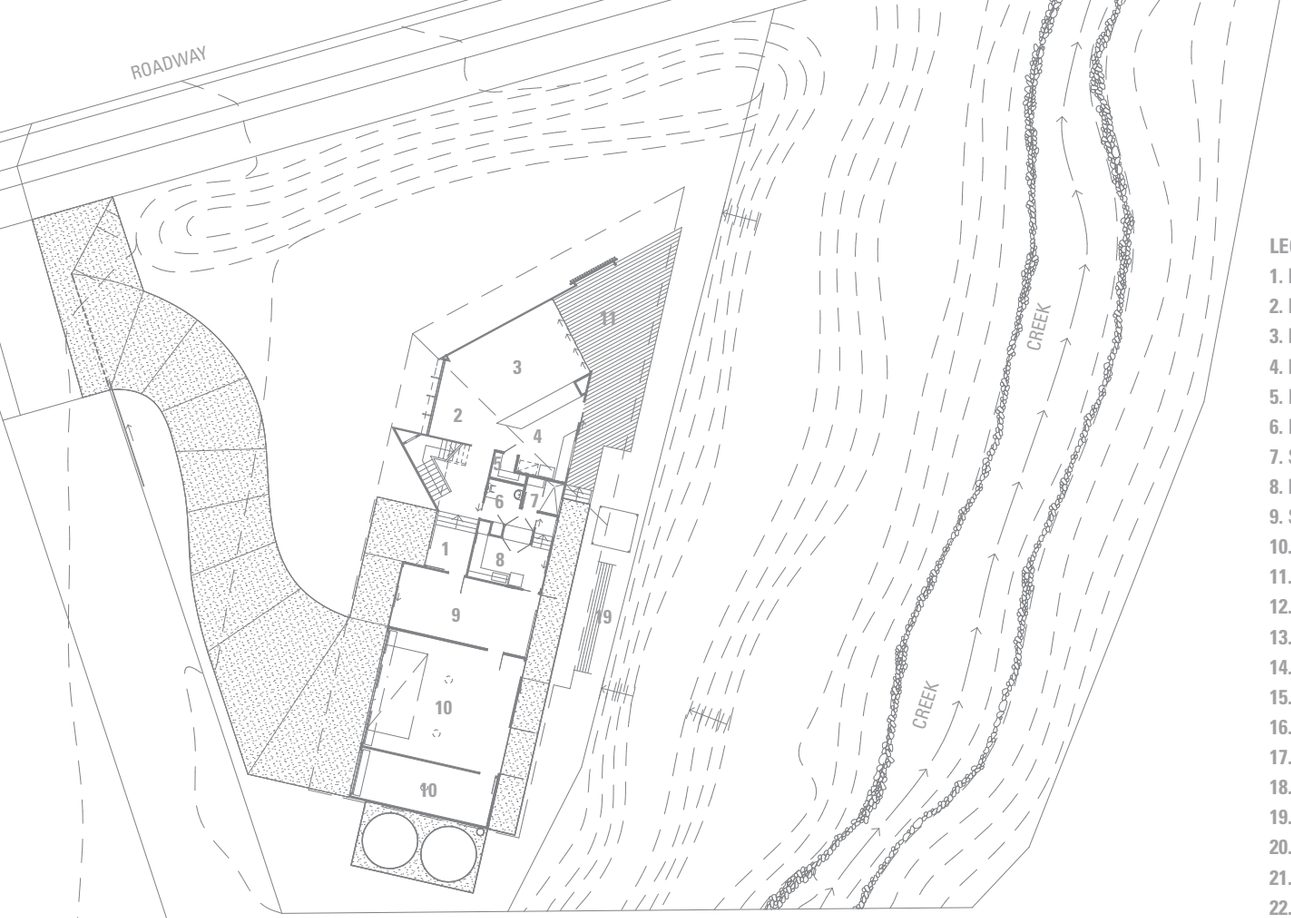
LEFT: A spearing, north-facing edge reveals an astonishing thinness and lightness. Elevated on piers, the house reprises the traditional Queenslander

OPPOSITE: Far more than an esoteric gesture, the wide bladed roof performs as a broad-rimmed Akubra sheltering occupants from sun and storm

Essentially a series of articulated steel skins, the house's permeable bond with the elements creates a sublime environmental relationship



EAST ELEVATION



SITE AND GROUND FLOOR

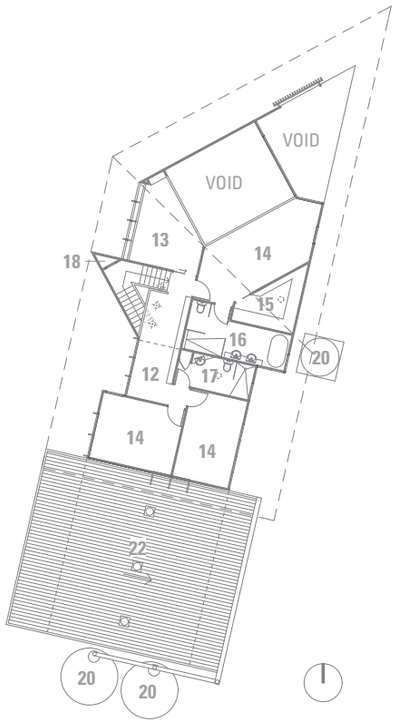
LEGEND

1. Entry
2. Dining
3. Living
4. Kitchen
5. Pantry
6. Powder room
7. Shower
8. Laundry
9. Studio
10. Car Area/Workshop
11. Verandah
12. Gallery/Library
13. Study
14. Bedroom
15. Walk in robe
16. Ensuite
17. Bathroom
18. Thermal chimney
19. Drying area
20. Water tank
21. Heat pump & HWU
22. Solartubes

LEFT: Roof-water collection is an essential component of the sustainability and integrity of the design

ABOVE: Ralph Bailey at drawing-board: "This design is quite specific to the rainforest creek, main road and site. It's as if the vagaries of allotment are every bit as unique as human fingerprints."

OPPOSITE: Shade and light inform the subtle transition from inside to out



FIRST FLOOR

"Early Queensland timber and corrugated iron housing has always influenced me. I've always been intrigued with design for climate and orientation," he says.

"Some might see this house as quite unlike the traditional Queenslander. I would disagree. It's a modern take on a wonderful, proven type that works incredibly well." Bailey hopes designs such as his Gap House shine a little more light onto a subject not well served by regulations, as a means to generate a low carbon footprint and better living.

"Traditional Queenslander verandahs are an intermediary space between the glare and the cooler, darker interior. Air flows through those spaces and rooms with full-height windows and 10 to 12-foot ceilings. This is exactly what we have here. We have broad eaves and a big verandah for shade and ventilation. The air moves freely."

It's no accident that the roofline tapers to an almost aerofoil edge that is entirely consistent with the material palette of tensioned slenderness. "Big eaves shade brilliantly and steel offers flexibility to project to a very fine edge finish."

Bailey likens his preference for lightweight construction to clothing appropriate for hotter/wetter northern climes. "You wouldn't wear a thick, cumbersome jacket for travelling through northern Australia – especially during summer. You would wear layers of light clothing and broad hat or cap."

A sound-insulated wall features three bands of cladding comprised of LYSAGHT CUSTOM ORB® profile made from ZINCALUME® steel, LYSAGHT CUSTOM ORB® profile made from COLORBOND® steel in the colour Surfmist® and an opal-coloured polycarbonate CUSTOM ORB®-matching profile.

Other exterior roofing and cladding is LYSAGHT CUSTOM ORB® profile made from ZINCALUME® steel.

"I love the possibilities that CUSTOM ORB® provides," he says. "The steel cladding went on here in big sheets and so it's less of a patchwork and has greater continuity and ease-of-application.

"I love steel's texture and scale, and I don't want maintenance. Brick and weatherboard are so much more patchwork and labour intensive. Steel spares me that, it's incredibly durable and blends with the environment," Bailey continues.

"You might say that's not possible to do so when using unpainted steel, but I recently designed a hayshed using ZINCALUME® steel that melded delightfully into its grassy landscape. Its shine settles down to a gentle, soft grey and resembles the mists that fill the valley in the morning."

The house hangs off a well-planned steel frame using hot dip galvanised RSJs. Cut tapered, these contribute a thin edge. "We've really taken this modern fine edge to the extreme here in Queensland," he says.

PANEL SAYS

When an architect designs his or her own home, they are free to experiment and trial concepts that have fermented over time. So it is with this house. The most striking feature of this modern Queenslander is its thermal chimney – a single gesture which performs three tasks: the steel skin creates an updraft to ventilate warm air out of the house; polycarbonate cladding illuminates the staircase; and its placement and angular form provide shelter from the western sun. Externally, this highly articulated rectangular box presents a robust presence, but a considered selection and application of steel components and cladding lends it a well co-ordinated and uniform appearance.

PH

Bailey says that the need for cranes to drop in the tall columns took his project out of the realm of the cottage builder. “But,” he explains, “cherry-pickers avoided scaffolding, so one largely cancelled the others’ costs”.

His passion for rainwater collection and distribution is revealed by his success a decade ago, when his objections stopped council from converting his backyard creek into a covered drain.

This preference for nature sees a skillion roof fall to a custom, folded stainless steel gutter. From here the majority of rainwater funnels to a single, stainless steel downpipe that discharges into an elevated 5000-litre stainless steel water tank. This tank overflows into two 30,000-litre galvanised steel tanks for toilet flushing and irrigation.

The Gap Residence recognises the traditional corrugated steel Queenslander, yet reaches to Hyderabad, India, with a modern take on an ancient understanding of thermal chimneys.

The skillion roof’s role is also to support three roof-mounted rotary ventilators that assist thermal control. A thermal chimney with operable glass louvres rises along the corner of the internal staircase. The ‘chimney’ cools in summer by the extraction of hot air through the ventilators and internally-adjustable louvred vents in the staircase wall. In winter the process is reversed. With vents closed, the chimney acts as a heat sink. Internally, a glass-fronted stand-alone fireplace with extended stainless steel flue heats both the upper and lower living spaces.

Bailey’s love of environmental initiatives has seen him always at the vanguard of eco-design rather than leaping onto the bandwagon. He says he relishes breaking the stereotype. “Your very first house is a prototype and each subsequent project demands that you polish your craft.” The Gap House illustrates this point and condenses lessons well learnt.

He recounts his graduation, when invited to remain at university and pursue a masters or doctorate after achieving first-class honors. “I didn’t hesitate. I told them: ‘No way. I’m dying to get out there and do it.’” And he has. Plenty of clients have and continue to be grateful Ralph Bailey has put theory into such convincing practice. **SP**

The ‘chimney’ cools in summer by the extraction of hot air through the ventilators and internally-adjustable louvred vents in the staircase wall. In winter the process is reversed

LEFT AND OPPOSITE: Despite its slender apparel, the house exudes a robust build that speaks of durability and practicality

The thermal chimney folds neatly into the stairwell cavity to help circulate fresh air throughout the house

PROJECT The Gap Residence **CLIENT** Ralph and Jennifer Bailey **ARCHITECT** Guymer Bailey Architects **PROJECT TEAM** Ralph Bailey and Stan Chrenkoff **STRUCTURAL & CIVIL ENGINEER** Brett Mills Engineers **BUILDER AND CLADDING CONTRACTOR** Matt Gaffney **STEEL FABRICATOR AND SHOP DRAWING CONTRACTOR** Watkins Steel **LANDSCAPE ARCHITECTS** Ralph Bailey **PRINCIPAL STEEL COMPONENTS** Roofing and Cladding: LYSAGHT CUSTOM ORB® profile made from ZINCALUME® steel, LYSAGHT CUSTOM ORB® profile made from COLORBOND® steel in the colour Surfmist®; Garage doors: LYSAGHT MINI ORB® made from ZINCALUME® steel; Structural: Hot-dipped galvanised SHS steel columns, posts, RSJs and PFC stair stringers; Roof gutters and down pipes: stainless steel; Water: 5000-litre stainless steel tank and two 30,000-litre tanks made from galvanised Aquaplate® steel **PROJECT TIMEFRAME** 12 months **BUILDING SIZE** Ground floor: 205m²; First floor: 117m²; External: 47m²

CONTINUOUS IMPROVEMENT

Three new public housing projects by Iredale Pedersen Hook Architects aim to build bridges to better lives for residents of two remote towns in Western Australia's far north. Words **Rachael Bernstone** Photography **Peter Bennetts**

ARCHITECT Iredale Pedersen Hook
PROJECT East Kimberley Development Package Housing
LOCATION Kununurra, WA

As the gateway to some of Western Australia's most stunning natural landscapes, the town of Kununurra is undergoing rapid transformation and expansion. It was initially gazetted in 1961 to serve the newly established Ord River Irrigation Scheme, which is currently being enlarged under a joint Federal and State government development package worth $415 million.

In 2005, the region's aboriginal owners signed the Ord Final Agreement with the WA Government, which paved the way for this latest phase of growth. The Miriuwung and Gajerrong (MG) people surrendered Native Title to their lands in exchange for a range of land, employment and training opportunities, which it is hoped will help to create a viable economy and sustainable future for indigenous people throughout the East Kimberley.

As part of the East Kimberley Development Package, more than $50 million was allocated to housing, which is where Perth-based architects Iredale Pedersen Hook (IPH) came in. Architect and director Finn Pedersen has more than 16 years' experience working on remote community housing projects, although the firm's previous dealings with state-funded Homeswest housing (HWH) projects were limited.

"We had only completed four courtyard houses in Perth, working in conjunction with Geoffrey London when he was the government architect," says architect and co-director Adrian Iredale. "The HWH project manager had never worked with us before, and initially we had just 10 weeks to design and document 26 houses."

Since then, IPH has completed more than 70 dwellings for HWH in three stages, learning more about the climate, the prospective occupants, and construction techniques in the remote region with each phase. Post-occupancy evaluation studies carried out on Stages One and Two – public housing for rental to mainly indigenous residents – helped to inform and influence the subsequent stages, so that for Stage Three – Transitional Housing which is available for assisted purchase – the designs were refined.

"The brief developed by HWH was for both non- and indigenous housing: it was essentially written for Perth metropolitan housing with some minor adaptations to suit remote or regional housing," Iredale says. "These included making toilets wider so that a visitor in a wheelchair could access them, and installing hand basins to encourage hygiene, as well as increasing the veranda space by two square metres. Basically the brief was very prescribed in terms of plans, room sizes and configurations."

That level of prescription didn't stop IPH from innovating to create "a sense of generosity" within and around the dwellings, and using steel patterns and colours to create a degree of individuality for each house, especially where multiple dwellings occupy one lot.

"We've tried to manipulate the brief and find ways of improving upon the typical model of social housing, which often relies on 'off-the-shelf' designs'," Iredale says. "We started by observing how people prefer to live in Kununurra: we found that the majority of people were using their front yards and carports as verandas."

The design process was also complicated by the variety of housing types and sites, each with its

Although the brief didn't allow for a front veranda, the architects were able to enlarge the carports – in part to accommodate larger 4WD vehicles – and install external ceiling fans and weather-proof power points, to create outdoor rooms which allow residents to engage with the wider community from a comfortable environment

own set of issues. Stage One consisted of 26 single-storey homes on new and infill sites in Kununurra and Wyndham (100 kilometres to the north-west, in a cyclone area), while Stage Two included eight double-storey townhouses on multiple dwelling sites, a type that is almost unheard of in indigenous housing.

The third stage consisted of 25 houses in a new estate in Kununurra, master planned by Perth architects CODA, and nine houses on a new subdivision by Lake Kununurra. At this point, sufficient knowledge had been accrued by IPH's senior staff and directors to enable a more inclusive design process to unfold, in the spirit of the Weissenhof-Siedlung that took place in Stuttgart in 1927. (Under the art direction of architect Mies van der Rohe, 17 architects from four countries created a model housing program for public exhibition and occupation.)

"In Stage Three we distributed the 34 houses to 15 architects in the office," Iredale says. "I went for the smallest site of four single-bedroom homes, while Finn designed six three-bedroom homes on one site, and everyone else developed other sites and types. The idea was to achieve diversity by allowing individual voices to come through, under a collective review process."

Across all of the stages, special attention was paid to the placement and integration of internal courtyards, rear verandas and front carports, and how they related to internal rooms, as well as to neighbouring houses and the street, in a concept that Iredale calls "living around the house".

That proximity – combined with the tropical climate – posed challenges for cooling the buildings, particularly as the HWH brief didn't allow for the installation of active air-conditioning as part of the initial construction. "We had to encourage adequate breezeways around the buildings, because it is hot and humid, and the wet season can be unbearable," Iredale says. "We were able to decrease setbacks to the street and increase the side and rear setbacks to encourage airflow, and we also installed two windows in the bedrooms, where possible, to facilitate cross-ventilation."

Iredale and his colleagues applied a similar degree of rigour to the selection of materials and construction techniques, initially referring to research they had compiled for an invited design competition for housing in Roebourne, which they'd won. That brief had called for an exploration of 'alternative materials and construction systems', so IPH had investigated,

Externally, the houses feature various colours and applications of COLORBOND® steel to differentiate them from the neighbours, and that approach continues internally where the living areas all boast different feature wall paint treatments

"We are building a 125 square metre house that has to be robust, durable, comfortable and individual, in a remote town with challenging climate and construction potential"

assessed and ranked various materials and combinations against criteria such as performance and durability, ease of procurement, fabrication and construction, suitability to the climate and cost effectiveness.

"We've observed an unfortunate scenario whereby remote communities sometimes become guinea pigs for the use of new materials, and when those materials fail in extreme environments, they are often hard to replace or repair, so we always use standard materials such as steel," Iredale says. "Our research showed that, in this case, the option of a standard steel frame with COLORBOND® steel cladding – combined with good insulation – won out."

The steel frames – some hot-rolled, some cold-rolled – were generally fabricated in Kununurra, and the roofing and cladding – corrugated profile made from COLORBOND® steel – was mostly sourced from Darwin, about 800 kilometres away by road.

"Even though we opted for a limited palette of material, we were able to develop a sense of diversity and individuality through the application and patterning of the COLORBOND® steel," Iredale says. "Because there were so many architects involved with the designs, we had many different attitudes towards how colour would be used: some of the houses are more conservative in the landscape, others are dark colours so as not to show signs of the pervasive red pindan dust, while some are vibrantly coloured or contrasting colours. We didn't have a universal approach to colour, especially in the first two stages, and there are no two houses that are the same.

"By the time we reached Stage Three, we'd exhausted all of the possible patterning systems so we tried to pare back our use of colour and pattern," he adds. "I think that's one of the reasons why the last stage was the most successful, because of the lessons that were learned on earlier stages."

These lessons fell into two main categories, Iredale says. The first – construction knowledge and detail – arose from communication with the builders. Four different contractors were involved over the three stages, and while they all employed some locals, there were many workers who had travelled to Kununurra from around Australia, bringing their own techniques with them.

"The way we work means that we were flexible enough to develop and change details based on the builders' preferred way of doing things, as long as it met our criteria for performance and aesthetic," Iredale says. "It didn't help that we had a really restrictive time-frame in terms of design and documentation, and construction, but we tried hard to facilitate their program requirements."

The second category of lessons arose from observation and interview: the way the occupants used the houses, as demonstrated during the final certificate interviews when architects met residents, often for the first time. "We were able to ask them what was working, and what wasn't," Iredale says. "Some things were technical or related to specifying, but others were design issues. For example, over the course of the project we designed up to 50 housing types, but some were compromised on particular sites."

Some of the lessons have a broader application, Iredale says. "One of the comments we heard most from residents was about the sense of generosity in these houses – which are essentially very modest," he says. "These projects have also taught us to appreciate the diversity of how people live, and to try and encourage and enable that through design flexibility."

Working with steel in its many colours, shapes and sizes helped to expand knowledge too, Iredale adds. "We developed a good understanding for the capacity of the material, and its possibilities," he explains. "For us, the skill level in these buildings had to be understood as a starting point – they are not pieces of jewellery – we are building a 125 square metre house that has to be robust, durable, comfortable and individual, in a remote town with challenging climate and construction potential."

The appeal of the homes in Stage Three is now being measured in a way that usually isn't possible in the social housing sector. As transitional housing, residents can choose to purchase their houses using subsidised loans, if they meet certain criteria.

"Once the houses were occupied, it became apparent that they were very successful," Iredale says. "I was talking to residents at Lakeside recently, and some of them have a very strong desire to buy."

The projects have been rewarding for the architects, too. "Working on Homeswest housing is incredibly enriching," Iredale says. When you talk to people who actively engage with the houses – personalising them, enjoying them – you start to realise that social housing can be a very valuable asset. These projects can help to improve and lift the overall standard of public housing, and the residents can feel proud of their homes.

"This process of innovation hasn't cost any more than its counterparts: it's very satisfying to realise that these houses were achieved on or under budget," Iredale continues. "In the end the cost is related purely to the quantities of steel, but it's how you deal with the steel that counts. We were able to implement numerous things that haven't been done before in social housing, and to elevate the value of social housing in the process." SP

PANEL SAYS

In a series of projects, this collective housing for remote towns in Western Australia's far north grapples with serious issues that are a far cry from those faced in the design and delivery of high-end housing in cities or along the coast. How best to respond to the harsh climate, to the remoteness of the location, to prospective residents who are unknown during the design phase? Over three stages, the architects have refined and resolved their response to these questions to arrive at new housing designs using steel framing and roof trusses that demonstrates that interesting forms can marry function appropriate to place and inhabitants, all within tight deadlines and low budgets. An admirable outcome, indeed.

RIGHT: Kununurra was established to service the Ord River Irrigation Scheme, which is currently being enlarged

OPPOSITE AND BELOW: In Iredale's visits to the occupants, they have told him that they love the range of outdoor spaces provided. Residents have an opportunity to either connect with community at the front, or to enjoy a sense of removal from surrounding people by using the side courtyards and rear verandas, even though the density means that, in some cases, the neighbours are very close-by

PROJECT East Kimberley Development Package Stages 1, 2 and 3 **CLIENT** Department of Housing Western Australia **ARCHITECT** Iredale Pedersen Hook Architects **PROJECT TEAM** Adrian Iredale, Finn Pedersen, Martyn Hook, Caroline Di Costa, Vinnci Chow, Penny Anderson, Khairani Kalifah, Jemma Vandongen, Drew Penhale, Jason Lenard, Melissa Loong, Matthew Fletcher, Isabel Legge, Sinan Pirie, Rachel Thorogood, Matthew Omodei **STRUCTURAL & CIVIL ENGINEER** Terpkos Engineering **BUILDERS AND CLADDING CONTRACTORS** Stage 1: Ri-con, Maglion Enterprises, Colin Wilkinson Developments (CWD); Stage 2: Rapley; Stage 3: Lakeside Housing – Maglion Enterprises, Coolibah Estate – Rapley **STEEL FABRICATOR** Stratco Kununurra **SHOP DRAWING CONTRACTORS** BJ Uglow; Kimberley Steel; JBD Steel Detailing; BlueScope Buildings and Stratco Kununurra **PRINCIPAL STEEL COMPONENTS** Structural steel: roof trusses, wall framing; Roofing and wall cladding: corrugated profile made from COLORBOND® steel in the colours Windspray®, Headland®, Dune®, Woodland Grey®, Loft®, Bushland® and Ironstone® **AWARDS** East Kimberley Development Package Stage 2 Kununurra Social Housing for the Department of Housing: Commendation for Multi Residential Architecture, Australian Institute of Architects WA Chapter Awards, 2012; East Kimberley Development Package Stage 2 Kununurra Social Housing for the Department of Housing: Shortlisted for COLORBOND® Steel Award for Steel Architecture, Australian Institute of Architects WA Chapter Awards, 2012 **BUILDING SIZE** Ranging from 55m²-125m²

LEVEL HEADED

The conflicting demands of a steep site and a client brief for a single-level residence compelled David Boyle to adapt his usual approach of using timber, resulting in a dramatic cantilever and the practice's first all steel-framed house.

Words **Micky Pinkerton** Photography **Paul Bradshaw**

It goes without saying that anyone who undertakes building a new home does a fair amount of research before the architect is briefed. Nonetheless the owner of this residence in Earlwood, NSW, probably did more than most to ensure he got the house he wanted.

That investigation began in the preliminary stages by looking beyond location stereotypes in the selection of the site. Most Sydneysiders know the Cooks River from driving along the Princes Highway and crossing the waterway near its mouth at Botany Bay. It's a scene dominated by concrete embankments and pollution. If you heard there was some decommissioned RTA land for sale which backed onto the river, you probably wouldn't even think once, let alone twice, about it.

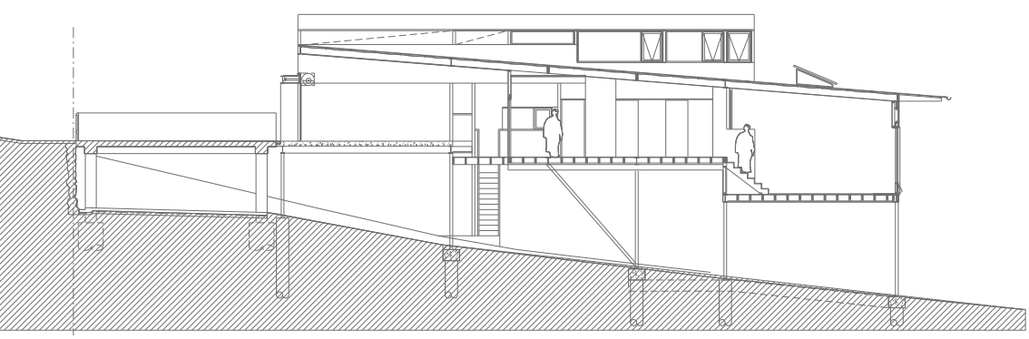
What a surprise then to find that not far from the Cooks River's grimy mouth it has undergone some impressive rehabilitation works, with parkland and cycle paths now lining significant sections of the banks. The owner's intuition in buying an unpromising site a number of years ago has since been rewarded with water views through a copse of established casuarinas.

That forward-thinking approach continued in considering how the residence would meet living expectations. Although the slope of the site practically demands a multi-storied house, the owner was keen to remain there for the rest of his life and sought a single-level home to suit him past retirement.

Realising that single-level and slope weren't easy bedfellows, finding the right architect to sympathetically forge this union was essential, and the client ultimately settled on David Boyle. Over the past 10 years Boyle has built a solid opus of residential projects and a quick perusal of his work shows a love of materiality and composition. But the client was looking beyond Boyle's signature exposed beams, plywood facades and cover battens, to his reputation for collaboration and a proven ability to deal with difficult sites.

From the outset Boyle knew that the only way to meet the client's single-level requirement was via a cantilevered design that required the strength of steel.

This led the practice in new directions. "It was the first all steel-framed house that we have done," says Boyle, "but it adopts some of the principles of our other lightweight timber-framed houses in that it is post-and-beam with infill walls and cladding. However, aesthetically, because of the steel cladding, it looks quite industrial in comparison."



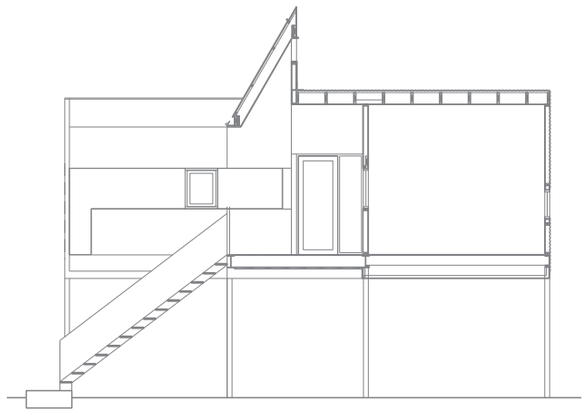
EAST ELEVATION SECTION

ARCHITECT David Boyle Architect
PROJECT Pike Residence
LOCATION Earlwood, NSW

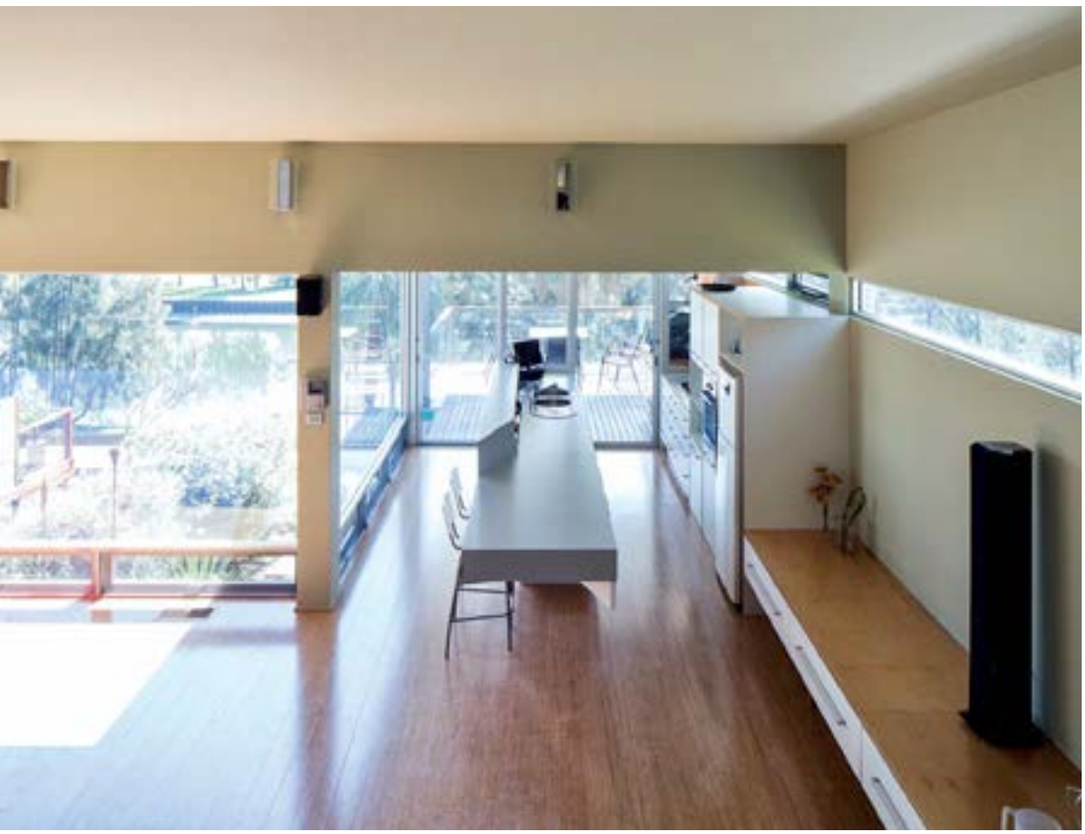
ABOVE: A large cantilever, consisting of a skeleton steel frame encased in LYSAGHT CUSTOM ORB® profile cladding made from ZINCALUME® steel, extends across the site, meeting the client's brief for a single level home as well as satisfying council's height regulations

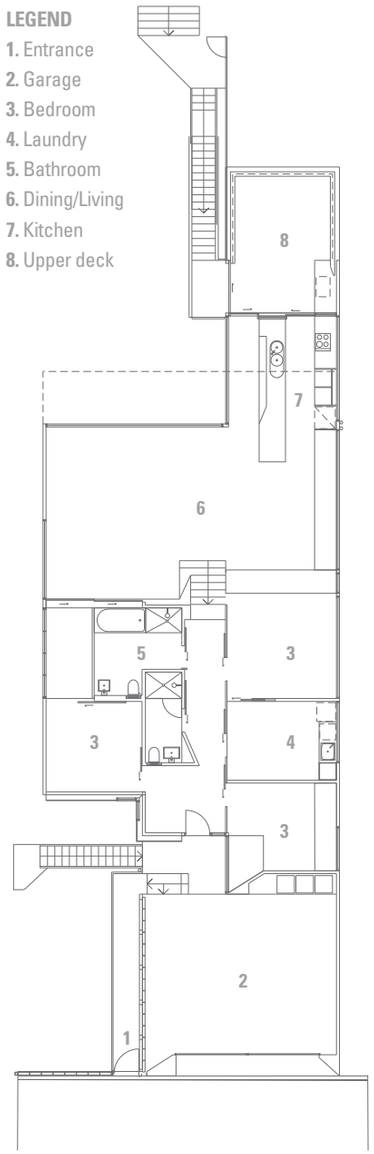
RIGHT: The industrial aesthetic of this suburban residence is softened by the landscaping around and under the cantilever

BELOW: The prominent angles of the LYSAGHT CUSTOM ORB® profile roof, made from ZINCALUME® steel, provide a dramatic entrance to the building, while the skylight set within it allows light in along the length of the building



NORTH ELEVATION





FLOOR PLAN

PANEL SAYS

Sydney-based architect David Boyle has established a reputation for carefully crafted timber and masonry projects, and it's interesting to see him translate his ideas into steel. This house in suburban Sydney uses the material with clarity – the typology makes references to the Australian shearing shed, transplanted into the most suburban of settings. The raw use of materials gives the work a strong, industrial feel. On a steep site sliding down to the Cooks River, this project descends the slope in a bold fashion, with the building cleverly stepped underneath the council height plan. We especially like the roofline, being represented as a strong singular idea.

A large cantilever extends across the site, and from garage to rear deck there's only half-a-dozen-odd steps. A skeleton frame made from square hollow sections, universal beams and universal columns has been enfolded with LYSAGHT CUSTOM ORB® profile cladding made from ZINCALUME® steel and matching custom folded LYSAGHT CUSTOM ORB® detailing and flashing made from ZINCALUME® steel.

Unusually, no prefab panels were used. Steel was ordered length by length, craned in and welded on. Once the structure was complete the in-fill panels went on. "The client was great and had done a lot of research on pole homes," says Boyle.

"He had found a builder who was experienced in such construction and had been a steel fabricator at one point. They did all the welding on site and that was quite efficient from a cost perspective."

The builder's steel skills are particularly evident at the front of the home where the zigzag profile of the LYSAGHT CUSTOM ORB® profile roof made from ZINCALUME® steel and the cantilevered bridge made from steel grating suspended on belt truss outriggers combine to create an austere and formal preamble to the building. Yet, as you move into and through the house, that sober, ascetic atmosphere dissipates as the internal spaces unfold to the landscape beyond.

Although the single-level stipulation was initially seen as a constraint, Boyle believes that it ultimately gave the project one of its best attributes. "Cantilevering the house gave us the ability to utilise the whole of the site for landscaping," says Boyle. "The steel structure provides a lightweight-looking building which appears to hover above the extensive plantings below. All the roof water is collected, there's a greywater recycling system, two 5000-litre tanks and the overflow feeds the irrigation system under the house."

A skylight runs the length of the building, set within the dramatic, triangular roof profile. It provides a continuous, interconnected stream of light throughout the different phases of the house, from street to river. It's an apt motif for a project that began with a singular vision but led to a commendable collaboration between architect, steel fabricator and client. **SP**

PROJECT Pike Residence **CLIENT** John Pike **ARCHITECT** David Boyle Architect **PROJECT TEAM** David Boyle and James Fraser **STRUCTURAL & CIVIL ENGINEER** Northrop Consulting Engineers **BUILDER, STEEL FABRICATOR, SHOP DRAWING CONTRACTOR, AND CLADDING CONTRACTOR** Prestige Pole Homes **LANDSCAPE ARCHITECTS** Material Landscape Architecture **PRINCIPAL STEEL COMPONENTS** Cladding: LYSAGHT CUSTOM ORB® made from ZINCALUME® steel and custom-folded LYSAGHT CUSTOM ORB® detailing and flashing made from ZINCALUME® steel; Roofing: LYSAGHT CUSTOM ORB® made from ZINCALUME® steel sheeting and matching half-round gutters on custom gutter brackets fixed to the underside of the cantilevered roof sheeting; Bridge and landing flooring: Steel grating Webforge pattern A (40x5mm thick load bar) on cantilevered BT outriggers; structural: SHS, UB, UC post and beam skeleton frame **PROJECT TIMEFRAME** January 2007 – December 2009 **BUILDING SIZE** 160m² **TOTAL PROJECT** Cost $640,000

ROYAL 'TREETMENT'

Inspired by nature, a system of steel-fixed coloured 'petals' adds visual and emotional dimension to a hospital facade.

Words **Rob Gillam** Photography **John Gollings**

With its uplifting design for the new Royal Melbourne Children's Hospital, Bates Smart with Billard Leece has set a new benchmark for hospitals, which are too often marked by cheerless facades and glaring, antiseptic interiors. Completed in late 2011, the project demonstrates innovative healthcare concepts anchored by a model focused on patients and their families.

The new campus brings together clinical, research and education facilities. Eighty per cent of patient rooms offer single parent accommodation and ensuite facilities.

"It's all part of us trying to engender a sense of community and normality for the kids and their families while they're here," says corporate and donor relations manager Judi Giddings.

The children can enjoy unexpected features such as an aquarium, an interactive 'google wall' and a world-first permanent meerkat enclosure. Patients are also regularly visited by local entertainers.

With no fencing between the hospital grounds and surrounding public parklands, the new design aimed to maintain and enhance the link between the building and nature. "The outdoors is associated with health and wellbeing, and we wanted to bring those restorative qualities into the design," Giddings says.

Bates Smart associate director and project facade design development specialist Andrew Raftopoulos concurs. "As architects we give credence to the effects a building can have on people, whether they're consciously aware of it or not. There's a strong psychological element to recovery and we think our design for the hospital contributes to that."

The parkland's symbolism is most obviously reflected in the hospital's facade, which is decorated with a system of more than 1300 petal-shaped shading fins.

"There's a structural geometry there similar to that found in nature," Raftopoulos says. "In a sense it's an abstracted tree – you can imagine the spindly steelwork framing as the filigree of tree limbs and branches. Also, the colours of the glass are extracted from the natural parkland."

Each two-metre by .72-metre petal consists of a C-shaped and tapered T-section bracket to which a laminated tempered glass panel – which comprises an acid-etched surface, an coloured ceramic frit pattern, and reflective coating – is structurally bonded. Two steel bolts that run through the C-bracket and glass panel, however, are unnecessary for loading – providing, rather, a fail-safe system.

At the major entrances, the petals are set into the soffit and recall the shelter of tree canopies. Serving purely as decoration here, they are welded to cleats which are bolt-fixed directly into the building structure.

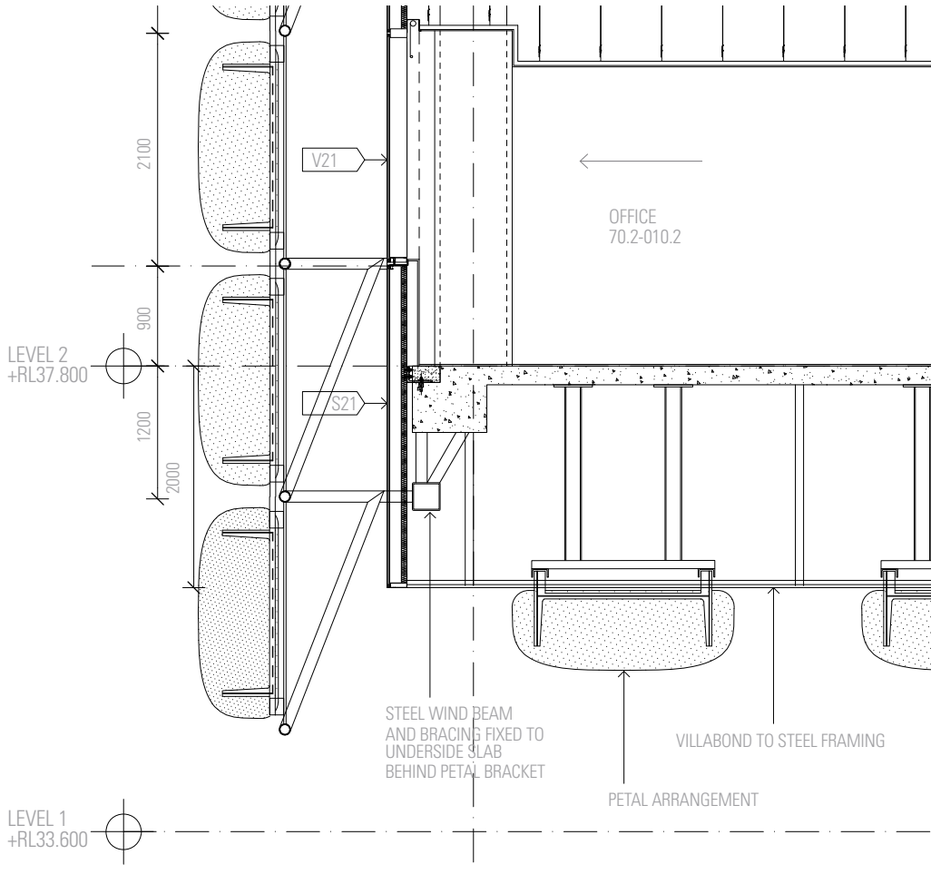
On the north-west facade, the petals sit flush, once again welded to cleats affixed to the glass facade. The second variation uses a triangular 3.6 metre-long 'goalpost' bracket – constructed typically of a 114- by 4.8-metre CHS welded frame with steel plate cleat connections to stiffened curtain wall mullions, stainless steel suspension rods and petal C-brackets. The frames sit proud of the facade and are finished with an Interthane 870 metallic polyurethane paint system.

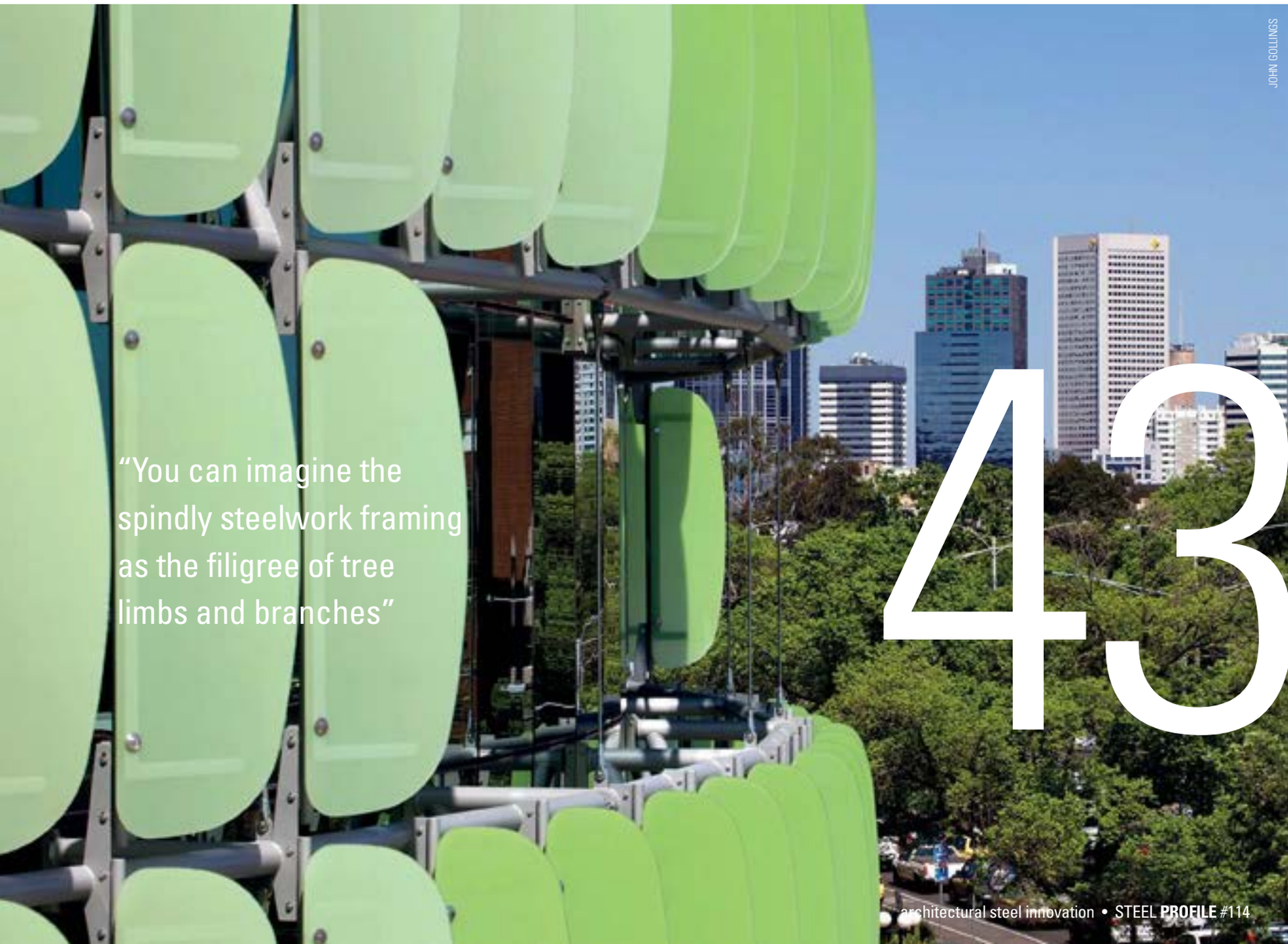
SHS (250) 'gallows' brackets overhang the building parapet, taking the vertical loads of the goalpost frames via tensioned steel rods that run through them.

While variation, dimension and colour has been injected into the facade, Raftopoulos recognises the need to temper its use. "We haven't sought to make it 'Disney-esque'," he explains. "We want it to look just as fresh and relevant as it does now in 20 years' time – not like yesterday's superhero." SP

PROJECT The new Royal Children's Hospital **ARCHITECT** Joint venture between Bates Smart and Billard Leece Partnership **PROJECT TEAM** (Specific to petal facade Upper West Building) Bates Smart: Kristen Whittle (design director), Mirjana Sazunic (design architect), Andrew Raftopoulos (facade design development architect); Core facade team: James Christophidis, Mark di Bartolo, Olda Kurdiovsky; Facade consultant: BG&E Facades **STRUCTURAL & CIVIL ENGINEER** Irwinconsult **BUILDER** Lend Lease **STEEL FABRICATOR, SHOP DRAWING CONTRACTOR AND CLADDING CONTRACTOR** Permasteelisa **PRINCIPAL STEEL COMPONENTS** Expressed steel framing proud of the glazed curtain wall. Frames typically 114- by 4.8-metre CHS welded frame with steel plate cleat connections, stiffened curtain wall mullions, stainless steel suspension rods, petal C-brackets, 250 SHS 'gallows' brackets at parapet level **PROJECT TIMEFRAME** May 2006 – November 2011 **AWARDS** 2012 Australian Institute of Architects National Award for Public Architecture, 2012 Australian Institute of Architects Victorian Architecture Awards Victorian Architecture Medal, Melbourne Prize, William Wardell Award for Public Architecture; International Health Project, World Architecture Festival, International Interior Design, Health Award **BUILDING SIZE** 165,000m² **TOTAL PROJECT COST** $1 billion

JOHN GOLLINGS




JOHN GOLLINGS

"You can imagine the spindly steelwork framing as the filigree of tree limbs and branches"

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