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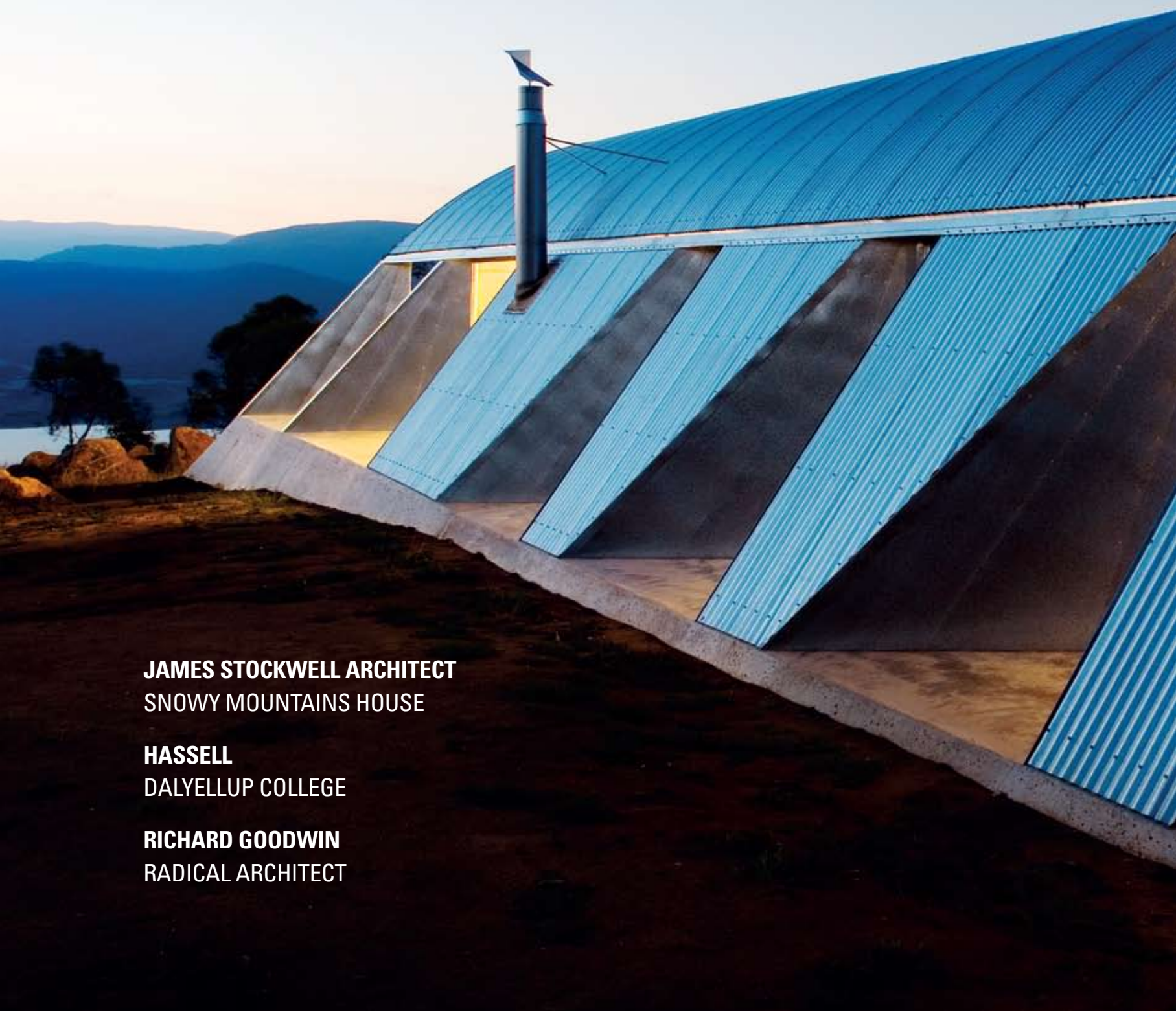
NOVEMBER 2009

ARCHITECTURAL

STEEL INNOVATION

WITH BLUESCOPE STEEL

STEEL PROFILE



JAMES STOCKWELL ARCHITECT
SNOWY MOUNTAINS HOUSE

HASSELL
DALYELLUP COLLEGE

RICHARD GOODWIN
RADICAL ARCHITECT

EDITORIAL

Welcome to *Steel Profile* #104

We are once again pleased to provide a collection of Australia's most innovative steel architecture and some insight into the minds behind it.

In our continuing support of Australian architecture, BlueScope Steel is proud to sponsor The Australian Institute of Architects 2009 National Architecture Awards, including the prestigious National COLORBOND® Award for Steel Architecture.

The AIA Jury deliberated arduously in choosing this year's National COLORBOND® Award for Steel Architecture. James Stockwell's Snowy Mountains House is a relevant and simply beautiful example of steel architecture. Beyond the internal and external finishes that are obviously fundamental to its form, it embodies many of steel's finest attributes including hardness, longevity, sustainability and cultural context.

We are delighted to tell you more about this house and other projects and personalities deserving of acclaim.

If you have an innovative steel-related project we should know about, please submit it for consideration via www.steelprofile.com.au

Or feel free to share your thoughts via info@steelprofile.com.au

Manu Siitonen

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 an elected Councillor of the NSW chapter of the Australian Institute of Architects and a director of SJB Architects in inner-city Sydney.

He was awarded the 40th Anniversary Churchill Fellowship in 2006, to study alternatives to conventional models of urban design.

More than anything, he loves to design and construct buildings



FRANK STANISIC

Stanistic Associates founder Frank Stanistic 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



DANIEL GRIFFIN

Joint winner of the 2008 COLORBOND® Steel Biennale Prize, Daniel works for McBride Charles Ryan Architects and is currently teaching architecture at the University of Melbourne.

His Award-winning architectural thesis at RMIT – where he is establishing a Humanitarian department – examined the urbanisation of Palestinian refugee camps

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Inspired by the shape of a beetle carapace, James Stockwell's ground-hugging Snowy Mountains house is this year's National COLORBOND® Award-winner

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Far from the grim and perfunctory roadside amenities blocks found littering some highways, the Calder Woodburn Rest Area is a joyous homage to the great Australian corrugated dunny

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Whether working on an art piece for exhibition or a new home for an architectural client, Richard Goodwin "radically transforms" everyday objects by disassembling and reinventing them

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The owners of this small house never imagined being suspended over the creek on their hobby farm, but they've come to love Max Pritchard's lofty idea of placing their home on a bridge

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With its origami-like roof that pitches and twists in a virtuoso performance, the diminutive Noosa Visitor Information Centre forms a welcoming party for Hastings Street passersby

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Wound around existing trees and sporting an overarching steel roof befitting of its semi-rural location, Dalyellup College sits comfortably in its surrounds

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The focus of this issue's *Steel Details* section is a sandwich panel that simultaneously provides the roof, internal walling structure and insulation for much of this house

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ALPINE SENSATION

Several stylized white snowflake graphics of varying sizes are scattered across the top half of the image, partially overlapping the title and the sky.

ARCHITECT James Stockwell Architect
PROJECT Snowy Mountains House
LOCATION Kosciuszko National Park,
New South Wales

Scanning the Snowy Mountains for design cues, James Stockwell was initially inspired by the pyramid-like structure of quartz, however it was insistent visits from a beetle that ultimately provided the insight he was seeking for this award-winning house.

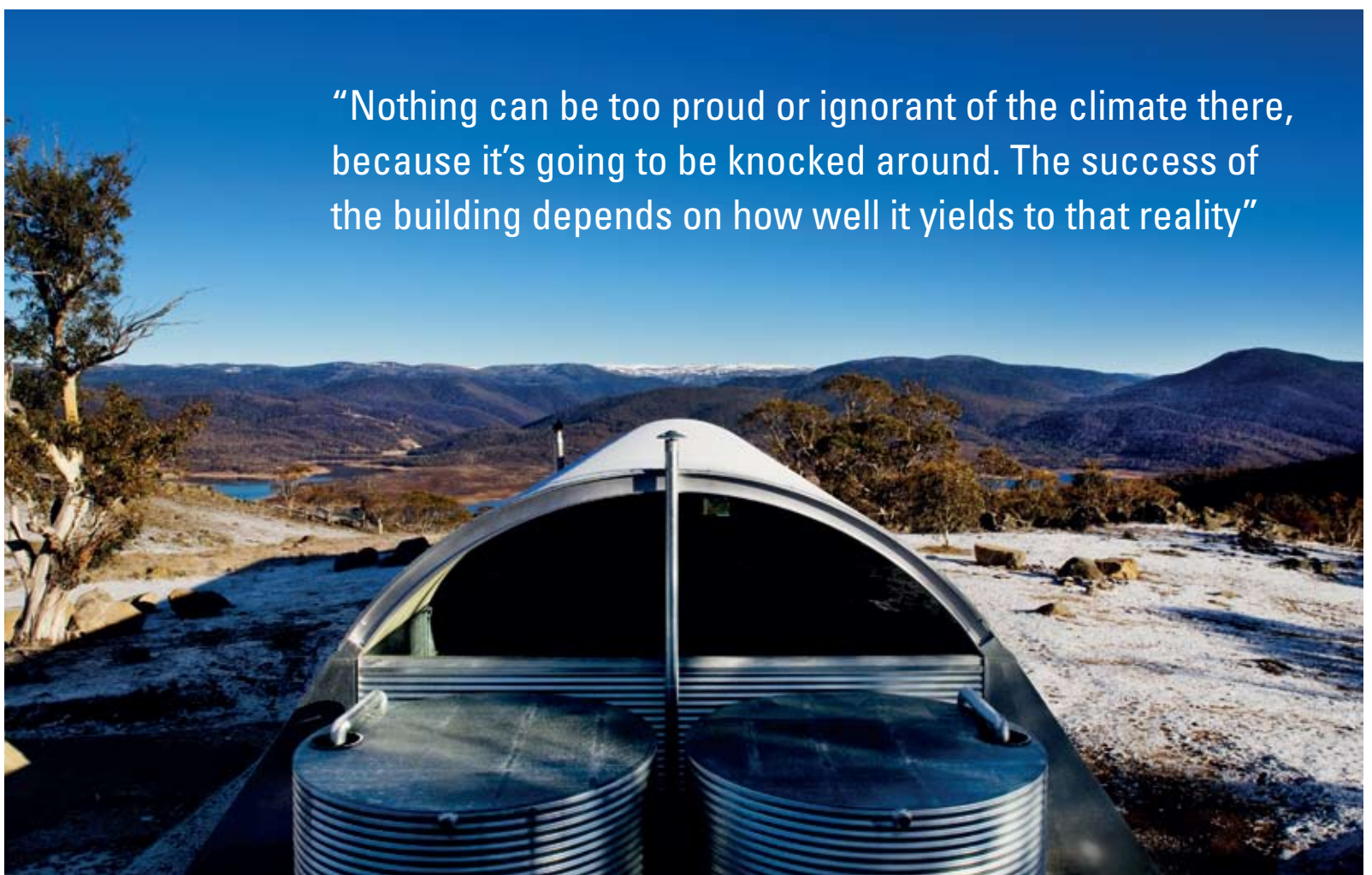
Words **Rachael Bernstone** Photography **Patrick Bingham-Hall**





The narrow plan and east-west orientation captures views across two valleys and Lake Jindabyne, and limits exposure to gale-force winds

“Nothing can be too proud or ignorant of the climate there, because it’s going to be knocked around. The success of the building depends on how well it yields to that reality”





The curvaceous form of the Snowy Mountains House is not merely sculpture, it arose from practical considerations. The shed built by the clients on their alpine property more than 30 years ago – with its dirt floor and potbelly stove inside, as well as earth buttresses and galvanised iron walls outside – provided the starting point for architect James Stockwell’s musings about the type of house that might sit comfortably in these rugged surroundings. The house would have to contend with gale-force winds, which have weathered away the earth to reveal granite and quartz outcrops, as well as freezing temperatures, the possibility of snowfall, and the threat of bushfires.

“The clients’ brief was for a small, low-cost, environmentally conscious house, that required minimal maintenance and was fireproof, with four bedrooms and two bathrooms to accommodate their extended family,” Stockwell says. “It also had to capture views across Lake Jindabyne to the Thredbo and Snowy Mountain valleys.

Stockwell sees his architecture as a backdrop to life, “a structure upon which fine art can occur, rather than necessarily being sculpture itself,” he says. “By backdrop, I mean that [my] architecture is not mirroring the experience I want to have as the designer, but rather enhancing the experiences of the occupants,” he explains. “If it happens to be sculptural as well, that’s even better.”

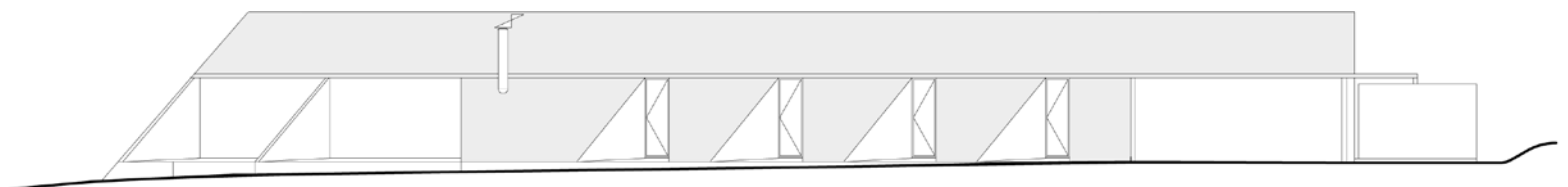
“I saw the snow gums – which start off as tall saplings and become haggard things with branches around the base – and sensed brittleness in the landscape,” he adds. “One of my main design intentions was to acknowledge that brittleness. Nothing can be too proud or ignorant of the climate there, because it’s going to be knocked around. The success of the building depends on how well it yields to that reality.”

Locating a suitable site on the eight hectare property was the first challenge. “I walked around with the clients and found a spot on a small ridge with a rocky outcrop just in front, which could act as a windbreak,

and the views were spectacular,” Stockwell says. “There were gullies either side, so I knew that strong winds would strike the sides of the building. At that stage I didn’t have a design in mind, but I knew it had to be long and narrow to limit western exposure, with the broad side facing north, so I had a configuration and was looking for ideas.”

From the outset, Stockwell was intent on building with LYSAGHT CUSTOM BLUE ORB® profile made from galvanised steel. “It’s basically bullet proof – it’s very durable – as well as being inexpensive and low maintenance,” he says. “It’s also culturally and contextually appropriate, because rural buildings in that area are all galvanised steel, including the existing shed.

“Having grown up on a farm myself, I knew that country people are innovative, and so if my design was practical and sensible, people would like it and it would be easy to construct,” Stockwell adds. “The ability to use flat sheet and corrugated steel satisfied my intent to employ a limited palette.” ➤



SOUTH ELEVATION



Galvanised steel catches the light well and I thought it would sit beautifully with the Snow Gums and the greys in the granite outcrops."

Stockwell was also keen to salute the robust simplicity of nearby Mt Kosciuszko huts, "Those fantastic metal buildings that have been used by cattleman for decades."

Having selected his site and main materials, Stockwell scrutinised the topography and climate for design clues. "I believed that if I could get in sync with the natural systems of the site, there might be ways to design building forms that hadn't been seen yet," he says. "I was keen to develop an architecture that would converse with the elements, rather than turning its back to them."

"That meant looking at water, snow, fire, wind and movement in the landscape, because it is always in flux," he says. "The appearance of that landscape reflects those natural systems and I thought it might throw up shapes for a building that nobody has seen before. I decided to put my notions of houses aside, to see what might occur."

Stockwell was fascinated by a nearby quartz blow, and speculated that a house that aspired to longevity in that environment might share similarities with quartz's tetrahedron structure. That idea was left hanging though, when Stockwell was presented with an alternative form, quite by chance.

"I was down there camping in a tent, when a Christmas beetle landed on my notebook," he says. "I tried to blow it off, but I couldn't budge it. It hugged the surface as the wind passed over it. The shape seemed like a great idea for a building: one which grew up out of landscape, so I drew it."

Having settled on the ground-hugging form of his long, narrow building, Stockwell grappled with fitting rooms into its sloping sides – aiming for a harmonious balance between roof height and wall pitch – and anchoring the structure to the gentle slope. A concrete plinth solved the latter problem, with the added benefit of being fire-, water- and termite-proof, while a 3.5 metre-high vaulted roof and six metre-wide section created a pleasing curved barrel shape.

The section is segmented into bathrooms, hallway and bedrooms at the eastern end, and open-plan living, dining and kitchen to the west. In contrast to the 55 degree pitch of the external walls, the interior walls, floor and ceilings meet at right-angles. This simplifies the installation of doors, external openings, joinery and furniture, and provided space for wardrobes, pump rooms and other services in the leftover space between internal and external walls.

Stockwell says feedback from his clients helped to resolve problematic external openings. "I wasn't sure how much aperture to remove for the windows and I started with waist-high sills in the early models," he explains. "But the clients were concerned about getting out of the house if there was a fire, so I extended the windows to the floor to become narrow doors, and then splayed the cutouts by 45 degrees at the front to capture the valley views." ➔



In contrast to the brittleness of the exterior, honey-coloured hoop pine and LYSAGHT MINI ORB® profile made from COLORBOND® steel in the colour Classic Cream™ combine to create a cocoon-like interior



PANEL SAYS

At first glance, this is a confronting building – is it a shed or a hydroelectric power station? From some angles, the window and door niches resemble sluice gates, shrouding the house in fortress-like mystery, while from other perspectives it is incredibly open to the sky and panoramic views. The contrast underlines the clever marriage of shelter and aspect afforded by the house in a very harsh environment. The egg-yolk interior formed from LYSAGHT MINI ORB® profile made from COLORBOND® steel contrasts with the bright external metal cladding. The unique form appears to hug the landscape, and the refined detailing is impressive. We especially appreciate the point of connection between the concrete and steel elements which gives the impression the house is moulded to the rugged terrain



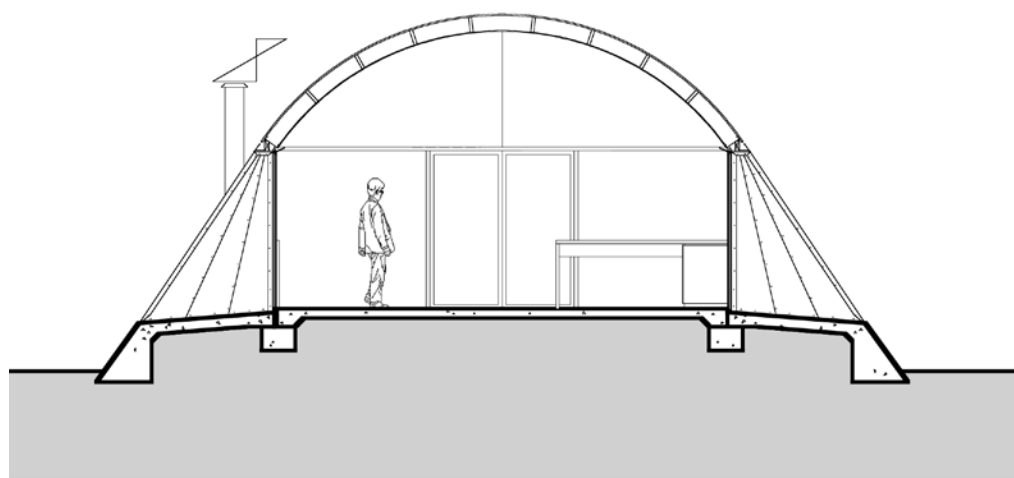
ABOVE: The windows and doors are made from hollow steel sections to seal the house up like an 'inside-out aquarium'

BELOW: The carefully considered junction between concrete plinth and curved steel carapace creates the illusion that the house is moulded to its rugged alpine landscape

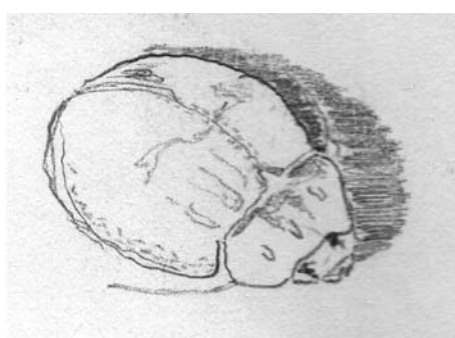


Taking a sander to an early model helped Stockwell refine the building's western end. "I didn't like the straight end, so I carved off the front at the same angle as the walls to give the impression that the building is leaning back," he says. "It created an elliptical curve that resembles a parabolic arch, and means that from inside the house you can connect with the sky."

Once again, client feedback prompted Stockwell to finesse the details, after they objected to the heaviness of the concrete buttress fins. "We compromised by making them slender and then cladding them in flat galvanised steel sheet that is cut and tapered like the panels of a sail," Stockwell says. "When you are in the living room, the fins disappear into the view lines."



WEST ELEVATION: SECTION



Architect James Stockwell's Christmas beetle drawing

Working from the premise that the house needed to be sealed as an "inside-out-aquarium" to cope with driving wind and rain, Stockwell opted for steel-framed windows and doors. "I knew there would be wind and water coming at the house from every direction, so it needed to be pretty solid," he explains. "The steel doors and windows – which are made from hollow sections – are brilliantly strong and thin, and they open and close solidly, like a car door. The real beauty is that the seals work so well."

They also allowed him to realise his vision to an extent that he hadn't anticipated. "I didn't expect to get the palette so exactly right, with the steel framing, curving roof, windows and doors," Stockwell says. "The simplicity of the materials clarifies the architecture, and the steel section sizes give the house a delicate elegance in terms of strength-to-size that enhances the design."

Internally, Stockwell created a warm and cosy atmosphere, with pine frames surrounding hoop-pine ply walls, doors and joinery. The domed ceiling is lined with LYSAGHT MINI ORB® profile made from COLORBOND® steel in the colour Classic Cream™, so it would, "feel like the inside of an egg, in contrast to the shield-like appearance of the exterior," Stockwell says.

"One of the advantages of using MINI ORB® is that we could run the internal material to the outside, which is a major plus for eliminating the threshold," he adds.

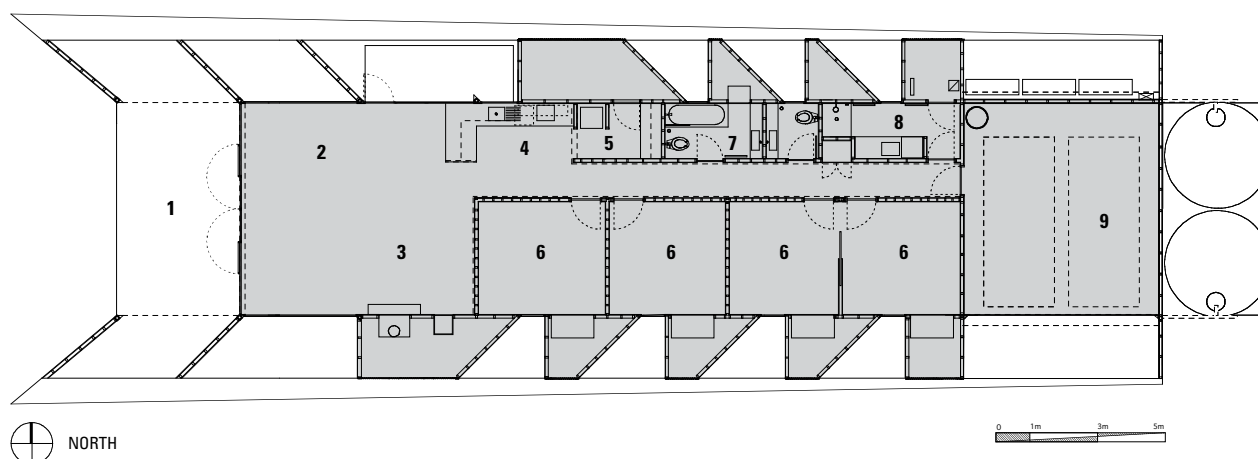
The architect is happy to admit that the finished house is a beautiful object, almost a work of art, but Stockwell reiterates his primary focus is utility.

"The sculptural aspect and unusual shape are so tied to function and practicality that it was indisputable it would look like that," he says. "The form is about nurturing and protecting what's inside, but not turning its back on what's outside."

And his early selection of galvanised steel was reinforced by subsequent deliberations. "It was so sensible on so many levels that it became obvious: it had to be steel," Stockwell explains.

Rather than being merely sensible, Stockwell's meticulous approach results in a house that is sculpturally fused to its landscape, as the NSW AIA jury noted when it bestowed three awards on the project.

"The building's arched facade, curved spine and cocoon-like internal spaces are daringly anchored with fins of galvanised steel, at once tethering the house to this windswept site," the jury citation read. "The simple elegance of this structure has been achieved in part because of the qualities of the materials selected, in combination with masterful detailing. It is an appropriately beautiful and stark structure for a remarkably striking site." **SP**



LEGEND

- 1 Terrace
- 2 Dining
- 3 Living
- 4 Kitchen
- 5 Pantry
- 6 Bedrooms
- 7 Bathroom
- 8 Laundry
- 9 Garage

PROJECT Snowy Mountains House **ARCHITECT** James Stockwell Architect **STRUCTURAL & CIVIL ENGINEER** John Carrick **BUILDER AND CLADDING CONTRACTOR** Lindsay Wild **STEEL FABRICATOR** G Z Engineering, Jindabyne **CLADDING SUPPLIER** Rooftec, Batemans Bay **STEEL WINDOWS AND DOORS** La Maison De L'Art **PRINCIPAL STEEL COMPONENTS** Ceilings: LYSAGHT MINI ORB® profile made from COLORBOND® steel in the colour Classic Cream™; External cladding: LYSAGHT CUSTOM BLUE ORB® profile made from galvanised steel; detailing, flashings and custom guttering made from LYSAGHT® galvanised flat sheet; 2 x 13,500L AQUAPLATE® steel water tanks with galvanised finish; steel doors and windows custom made using hollow section profiles imported from Italy; Structure: Curved 200UB sections including elliptical arch **AWARDS** National Australian Institute of Architects COLORBOND® Award for Steel Architecture; AIA NSW chapter Blacket Prize, COLORBOND® Steel Award and an Architecture Award for New Houses in 2009 **BUILDING SIZE** 190m²



ARCHITECT BKK Architects
PROJECT Calder Woodburn Rest Area (CWRA)
LOCATION Shepparton, Victoria

ROLL UP

Sculptural, surprising, and curiosity-arousing, BKK Architects and VicRoads have transformed the idea of a drab, roadside amenities block with a joyous homage to the great (and not so great) Australian corrugated dunny.

Words **Peter Hyatt** Photography **John Gollings**

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A zebra-striped steel roof evokes the playfulness of carnival tents and gravity of road safety crossings



Roadside rest

stops often mean instant coffee, doughnuts and a grim, urgently required toilet break. On approach to Shepparton from Melbourne on the Goulburn Valley Highway, the Calder Woodburn Rest Area (CWRA) sounds faintly foreboding, but in so many ways this one is an exquisite relief.

It's a revelation of levitation... well, almost. Robust, yet keenly finessed, this ensemble of lightweight structures evokes an era when modernism was in top gear; when exuberant design was central to the great road trip.

Architecture as art of the pleasant surprise or act of astonishment is well understood by design-literate clients. The benefits of this state-of-mind are obvious: they open the door to the unexpected and deliver a real sense of delight. Visitors to a major art gallery anticipate uplifting design, and why not? An architect's reputation is inextricably bound in such a major civic building. There's nowhere to escape if it doesn't come up to scratch.

A roadside toilet and amenities block is something else. If ever there is the opportunity to cut and run, this is it. Partially out of sight and potentially out of mind, BKK Architects of Melbourne has really turned the adversity of an undistinguished type into something quite exceptional.

Taking their cue for the road between Melbourne and Shepparton – a distance of some 180km – the architects have delivered an absolute treat for their client, VicRoads, and the thousands of motorists who will be grateful that someone actually bothered to invest design in this typically ignored type.

Cumbersome and ponderous amenities blocks have always had a place in the hearts of the long-distance road traveller and that is what makes BKK's efforts such a show-stopper. There will always be party poopers unable to imagine, or much less care, that such an essential public service should demonstrate any flair.

Practice Director Julian Kosloff says CWRA was an opportunity to imbue the project with a value not normally associated with roadside rest-areas. "We were really interested in the 1950s American roadside diners, Australian service stations and roadside comfort amenities that are such a part of the travelling experience."

Kosloff says the rest stop is part of a grand cultural institution made famous by iconic symbols such as the big guitar, big prawn, the big banana and big pineapple. "In its own way this is Shepparton's homage to that tradition," he says.

"From the child's perspective there's also the anticipation of arrival with the opportunity to run out towards something and look at it after you have been trapped in a car for hours. The road trip is often humorous, sometimes daunting, but always entertaining.

"The apparent randomness of the service pods are curated to direct the views to the plains beyond. This is similar to the driving experience along the Arcadia section of the Goulburn Valley Highway, whereby the views from within the corridor of trees is released at major road intersections."

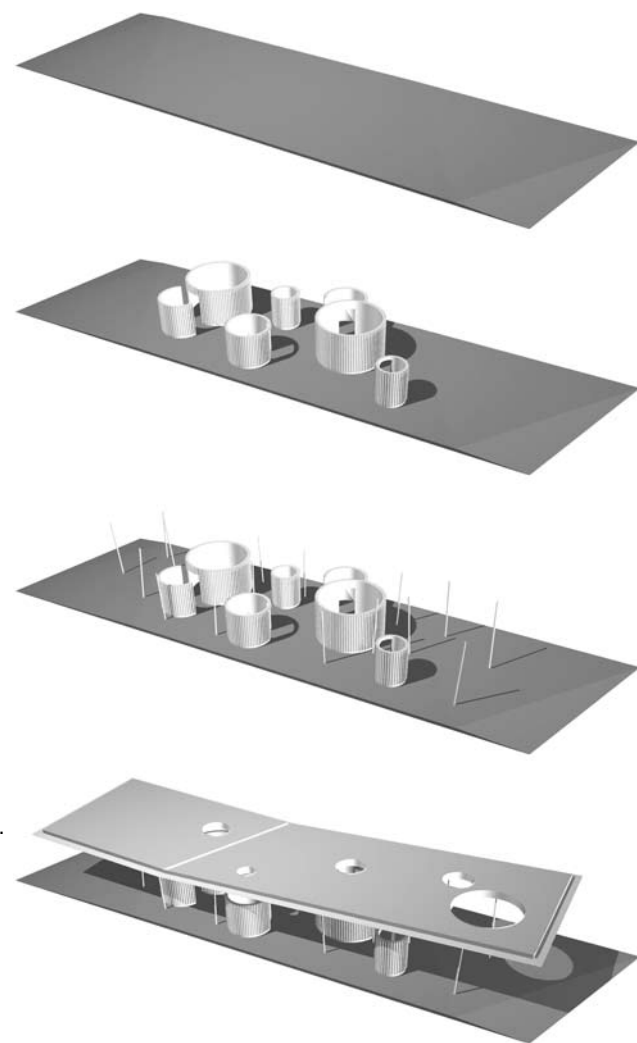
Architecture is often a subconscious experience and it's the memory or recollection of the past that gives modernity meaning. The striped canopy of Stramit Xtraspan™ 900 made from COLORBOND® steel has an almost carnival tent quality.

"Standing beneath the roof there is a sense of something quite modernist and soaring, yet viewed from a distance the building conveys another language of road-building and agricultural sheds."

Steel was an obvious language for the architects to achieve the level of strength and fit within the landscape.

"Steel allowed us to achieve the cantilevered roof, which appears disconnected from the facilities below, as well as the random scatter of columns," Kosloff says. "There is a dexterity of material and its ability to defy gravity.

"The relationship between client, builder and architect was particularly fluid throughout this project," he adds. "Prototypes were built and tested, and alternative methodologies were encouraged. Contracts these days are risk averse and it takes a brave client to be innovative and supportive of processes that may or may not work" ➡



EXPLODED COMPONENT DIAGRAM

"Steel allowed us to achieve the cantilevered roof, which appears disconnected from the facilities below, as well as the random scatter of columns"



Corrugated silo amenity pods and ceilings express a consistent, holistic design vocabulary

BELOW: A light-as-air design creates a sense of structural levitation. Roof cut-outs introduce additional daylight and echo the circular amenities

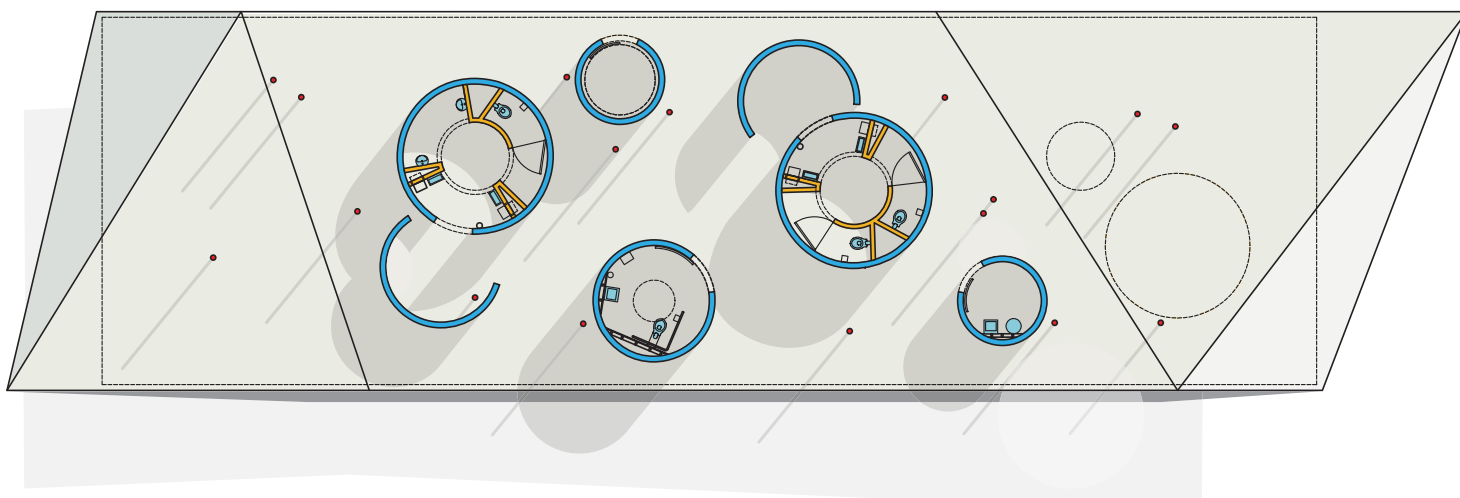
The resulting flat and curvilinear forms are light-catchers and shadow-makers that work in juxtaposition

PANEL SAYS

BKK Architects have created a very inventive and striking amenities block, one that may linger in the memory once drivers and their passengers have moved on. It's a simple concept that is well executed: materially it is very strong, and the interiors and cylindrical spaces sit boldly beneath the big roof. We especially like the ambiguous expression of the cylinders that resemble steel – thanks to the Stramit Xtraspan™ 900 formwork – but which are actually poured concrete. This is an outstanding small project that makes a bold statement using a refined palette

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BKK's material selection emerges from the language of standard road and bridge construction: cylindrical units being reminiscent of pre-cast elements and galvanised steel columns. However, it was important to transcend the more common road-making and bridge-building language of pipes, concrete slabs and reinforcement.

Here the architect's art harnesses everyday materials and suffuses them with another altogether more lightweight, yet remarkably durable, quality. The deft sculptural treatment is far less about dominance over place. "It's about place-making," says Kosloff. "It's about an invitation to experience and see such places in a new light. Architects such as Robin Boyd and Wood Marsh have demonstrated that freeways and amenities can be exceptional. And good design needn't cost any more than the rubbish. Our client, VicRoads, was very supportive and willing to see what was possible, rather than adopt some bland 'house style'."

The floating rippled steel roof and ceiling/soffit utilises Stramit Xtraspan™ 900 made from COLORBOND® steel in the colours Nightsky®* and Surfemist®. Stramit Xtraspan™ 900 was also used for in-situ formwork on the corrugated concrete pod 'skins' to develop a consistent language and material typology. The resulting flat and curvilinear forms are light-catchers and shadow-makers that work in juxtaposition. Raking and reflected daylight dances in and around these mini-'silos' to provide a more visible, secure environment.

The great patterned roofing made from COLORBOND® steel held aloft by a bare minimum of means – patterned and punctuated with apertures –

deftly introduces vertical daylight. It is this sense of prevailing lightness that is the dominant experience of floating fabric held aloft by simple means using steel columns, with factory-applied paint finish in Dulux light metallic grey.

The variegated stripe of the corrugated steel echoes the furrowed earth. A fully convincing structural and surface rhythm is created by the concrete pods cast from Stramit Xtraspan™ 900 in COLORBOND® steel to provide a precisely authentic surface profile.

The repetition of such elements is critical to the project's success, says Kosloff.

"We used that profile and those colours to achieve a particular textural relief," he says. "The colour rationale referenced road language, such as zebra crossings and the super graphic. Steel provided durability and authenticity.

"Of course there are always alternative materials. Design isn't a linear process. It just so happened that for what we were trying to achieve, COLORBOND® steel was the most appropriate material."

One of the key advantages associated with using steel was the ability to shop draw and produce precise construction elements in a factory setting for on-site assembly. "We worked closely with the shop drawer because it is quite a complex form," Kosloff explains.

"For example, each corner of the roof has a different height, which gives it a twisting, warped effect." Working in this way meant the components of the complex job were pre-fabricated prior to delivery, and then easily slotted together, like Meccano.

Kosloff regards such small projects as similar to the sculptor's maquette, or small model, for subsequent work to emerge. "Hopefully it raises the debate," he explains. "These typically rudimentary facilities don't have to be dumbed down – they can be lifted and made to enrich the whole travelling experience. It demonstrates there are alternatives and hopefully that's how visitors regard the experience of this place."

The project won a 2009 Australian Institute of Architects, Victoria COLORBOND® Award for Steel Architecture. In addition, and perhaps most importantly, Kosloff says it is proudly recognised by locals, saying "Shepparton has really embraced the CWRA project. The community response has been gratifying."

Architecture that complements and frames the landscape can also open our eyes to new ways of viewing places and build our appreciation of the natural environment. Rather than feeling enclosed and divorced from place, travellers who stop at the CWRA are reminded of a time when big ideas were underwritten by a creative economy of means. In that hour of need, here is a rest-stop with a difference. **SP**

**Night Sky® is no longer part of the standard COLORBOND® steel colour range. Please talk to your nearest BlueScope Steel office regarding availability of non-standard colours for future projects.*



ELEVATIONS

PROJECT Calder Woodburn Rest Area **CLIENT** VicRoads **ARCHITECT** BKK Architects in conjunction with VicRoads Landscape and Urban Design **PRACTICE TEAM** Julian Kosloff, Tim Black, Simon Knott, Rory Hyde, Stephanie Bullock **STRUCTURAL ENGINEER** Meinhardt **CONTRACTOR** Cut and Fill **LANDSCAPE ARCHITECTS** VicRoads Landscape and Urban Design **PRINCIPAL STEEL COMPONENTS** Roof and ceiling cladding: Stramit Xtraspan™ 900 made from COLORBOND® steel in the colours Nightsky®* and Surfemist®; Formwork for concrete pods: Stramit Xtraspan™ 900; Structure: 150mm diameter steel columns with factory-applied paint finish in Dulux Light Metallic Grey; Picnic structure and cladding: steel plate with factory-applied paint finish in Dulux Black; Skylight linings: rolled steel plate with factory-applied paint finish in Dulux Vivid White and Five Star Orange; Fascia: folded steel angle **PROJECT TIMEFRAME** 12 months **AWARDS** Australian Institute of Architects Victoria COLORBOND® Award for Steel Architecture 2009; CCAA Public Domain Award 2009 - Public Artworks **BUILDING SIZE** 549m² (covered roof area)

RADICAL ARCHITECT

Dr Richard Goodwin, the Sydney-based artist, architect and academic likes to make things. Whether he's working on an artistic piece for exhibition or a new home for an architectural client, he applies the same process of "radical transformation", whereby everyday objects are disassembled and reinvented. Words **Rachael Bernstone** Photography **Anthony Browell; Paul Bradshaw**

He explains his hypothesis simply: "I like to take existing things and think of them another way," Goodwin says. "Art has always been good at that, and now architecture needs to be really good at that, because one of the greenest things you can do is to simply not pull something down, but instead give it the next life – so that's part and parcel of my philosophy."

Goodwin trained as an architect, completing a Bachelor of Architecture with Honours at the University of New South Wales in 1978, a Master of Architecture at the Royal Melbourne Institute of Technology in 1999, and a Doctor of Philosophy at UNSW in 2008, but has always worked as an artist. His first solo exhibition took place in 1974 while he was a student, and Goodwin won the Helen Lempriere National Sculpture Award in 2004, for *Prosthetic Apartment B*.

After graduation, he worked in architecture for two years before shifting his focus to art. In 1995, he established Richard Goodwin Pty Ltd to undertake large-scale public art and architecture projects. A series of long-standing collaborations with the Roads and Traffic Authority in Sydney, on projects such as the Gore Hill Freeway, Anzac Bridge and the Domain, prompted ABC radio presenter Bruce James to note that: "Not since Rayner Hoff in the 1930s has a sculptor made such a visible mark on the city."

He describes the two streams of his practice as being inseparable. "I see architecture as falling in the spectrum of art," Goodwin says. "Architecture is part of art, and it's up to the practitioner to choose how much of that spectrum to cover. So I've settled my projects across three different scales: the gallery as the laboratory, radically transformed – or parasite – architecture and urban planning.

"I'm interested in how my hypothesis in the gallery transforms when it comes to the scale of architecture, how that philosophy changes as it moves to the bigger scale," he continues.

"One informs the other and I couldn't work any other way. So, I'm fascinated with this idea of radical transformation, and I apply it across the board. When I make something architectural, I make it the same way I make an artwork.

"The core idea is really simple," he adds. "I have a good imagination. When I was a kid, I made sculptures with clocks or things that I pulled apart. In my parents' old cabinet there is a little thing that I swear to God is not too different to the motorbikes I work with now – I could almost exhibit it today."

Goodwin uses mechanical extensions of the human body – helicopters, planes, bicycles and cars, which he calls prostheses – as his raw materials. Sometimes they find their way into his buildings where they become parasites embedded in the host's skin. The Union Hotel in North Sydney – with its steel-framed balcony over the restaurant terrace – and the Goodwin Surgery in Sydney's Castle Hill (on which he collaborated with Terroir architects) – are two such examples.

"The clients had an old fibro house which was a surgery and they wanted to pull it down and build a new building," Goodwin explains. "True to my philosophy, I said 'No, keep it, even though it's fibro, and we'll gut it and grow a parasite on the back'." ➔

"I see architecture as falling in the spectrum of art. Architecture is part of art, and it's up to the practitioner to choose how much of that spectrum to cover"



A black and white photograph of Richard Goodwin, a man with curly hair, wearing a dark leather jacket over a dark t-shirt. He is standing in front of a large window with a grid pattern, looking slightly to the left. His right hand is resting on a surface in the foreground. The background shows architectural drawings and sketches on the wall.

RICHARD GOODWIN

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The parasite is completely different and it climbs irreverently on the back of the building, sparking a conversation between the two.”

Sometimes, Goodwin accentuates the public art virtues of architectural projects to help get them over the line with consent authorities. A case in point is the Parasite Roof at the Deepdene unit complex in Elizabeth Bay, where Goodwin is currently constructing a stealth bomber wing-like structure on the penthouse.

“We had to fight for it in court and it’s finally going ahead,” he says. “It’s a real parasite that one: it’s taken a lot of struggle and it’s at the cutting edge of my idea of art/architecture making a difference. It will improve the footprint of that building by shading the interior and changing the way the air conditioning system works, with solar collectors on top.”

The ability of the parasite to improve the host building earned Goodwin (and his collaborator Caroline Pidcock) the 2004 Blacket Award from the AIA NSW Chapter. The veranda they added to the Shellharbour Workers Club integrates rainwater collection for reuse in the club’s toilets; solar panels that generate surplus electricity; and an industrial-sized worm farm that repurposes the club’s organic waste for use as garden fertiliser.

That project was typical of Goodwin’s forays into architecture, which he described as “speculative and experimental”, occupying territory between architecture, and non-architecture, and his other disciplines. “But it’s still art, not architecture,” he said in 2000. “I don’t do anything with toilets and light switches.”

That approach changed, however, when Goodwin’s friend – ABC journalist Quentin Dempster – approached him to design an entire holiday house at Table Cape in Tasmania, overlooking Bass Strait.

Perching a house on a cliff overlooking the sea may seem like a harebrained idea, but for Goodwin it was an opportunity to test his hypothesis within a new dimension.

The modestly sized dwelling is made spectacular by its soaring roof that mimics the wings of a Messerschmitt aeroplane, designed to deflect wind loads around the building.

“For a \$500,000 budget, I think the result is miraculous,” Goodwin asserts. “One of the reasons that Quentin chose me was because I always said it was possible, but all his other architect friends said: ‘Not for half-a-million dollars’.

“The architect had to be a risk-taker, but I have a good relationship with my engineer, Harry Partridge, and between us we are immensely practical. Harry was there from the beginning and we make things work. Because I spend my life making stuff and welding things together, what I do might seem harebrained, but I know that I can do it. If this house cost half a million to build, just imagine what we could do for a \$5 million budget!”

Steel was integral to the success of the house, and was used in the footings, structure and winged roof. “Steel is such a ‘plastic’ material, you can do anything with it,” Goodwin says. “People think of steel as being hard, but it’s soft and bendable and you can draw with it: steel makes it all possible.”

Goodwin also appreciates the material’s sustainability attributes, citing Australia’s abundance of iron ore. “Steel has what I would call very good embodied energy,” he says. “We dig up iron ore, we melt it out of the dirt, and then we turn it into a series of strengths – including up to stainless – and we build with it. In the case of normal steel, we can hack it up, knock it down and build with it again. To me it’s a very green and natural material.”

Having created wing-like structures elsewhere to great effect, the Dempster house is imbued with exactly the sense of shelter that Goodwin strived

LEFT: A former motorbike, *Paroplastic 1 Red Octopus*;

CLOCKWISE FROM RIGHT: The Winged House in Tasmania is poised for liftoff over Bass Strait; North Sydney’s Union Hotel features an early parasitic roof extension; The fibro Goodwin Surgery was saved from demolition by a dramatic parasite; Stealth bomber-like wings will transform the Deepdene unit complex in Elizabeth Bay; The verandah of the Shellharbour Workers Club plays a key environmental role

for. “I wanted to make those roofs give you a feeling beyond the usual design-for-climate architecture approach,” he says. “On this building, the wing on the right-hand side overhangs as a huge cantilever, and it’s there not to give you shade – it actually shades part of the cliff – but when you open the doors and perch 200 metres above the sea it provides a sense of ‘psychological’ shade.

“What I love about that house is when you’re in it, you feel like you are under the wing of a bird nestled on a cliff: it’s a beautiful feeling I think.”

Having completed his first discrete residential project with the Dempster house, Goodwin is keen to continue exploring this space. “When I was studying, I worked with Bruce Rickard and he and (landscape architect) Harry Howard were my mentors. The fact is, part of my training was in houses and I love all of that, but it’s not the way my practice has gone,” Goodwin says.

“I think Winged House represents some sort of pivot point, because it opens up an opportunity for more direct action into architecture, not that I’m going to fall into a regular practice,” he laughs. “This house, the upcoming Deepdene project in Elizabeth Bay and Shellharbour Workers Club are proving to the profession that the relationship between art, architecture and public art really has to be taken seriously.

“The artist’s role is to challenge architecture and all definitions of private and public space within our cities,” he adds. Whilst he applauds the invention of more and more ingenious forms, Goodwin prefers to appropriate, adapt and re-use existing objects and buildings. “Like that motorbike over there which has been blown up,” he says, pointing at *Paroplastic 1 Red Octopus*, in his Sydney Studio.

“You produce a radical transformation that makes it into something else: it might be architecture, it might be a city plan.

“By not having to invent the shapes – just by reorganising or rethinking them – my particular type of imagination is sparked,” he concludes. “Some [architecture] practitioners would like to think I’m off with the fairies, but at the end of the day I’m just a really practical person, I make stuff.” **SP**



AB



AB



AB



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AB



When Max Pritchard's clients approached him to design a small house overlooking a picturesque creek on their farm, they never imagined that he would perch them above the waterway, but they've come to love his lofty solution.

Words **Alex Taylor** Photography **Paul Bradshaw; Sam Noonan**

THE HIGH LIFE

ARCHITECT Max Pritchard Architect
PROJECT Bridge House
LOCATION Ashbourne, South Australia



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As they approached retirement, a string of serendipitous events led the owners of this steel house, an Adelaide couple, who wish to remain anonymous, to build a new home on a bridge, spanning a winter creek on their 20-hectare hobby farm.

The structure suspended above the creek is an amazing sight to behold. And although the design and construction process took longer than a house on their original site might have, it was all worth it the clients say.

"I didn't think we'd ever be allowed to build where we did," the owner says. "If the house had been built 50 metres away, the approval process would have been no problem, but once we got started, it happened more smoothly than I thought.

"My husband's parents owned the farm for 20 years and planned to retire there, but when they went to build a house, they couldn't get power across the neighbour's land, so they bought a house in town," the owner says. "That was our good fortune because after we'd been looking for a while for our retirement property, we offered to buy into the farm. It's a very pretty spot with the winter creek running through it."

The couple run sheep on the property to reduce the fire hazard, and alpacas to protect the sheep. The three undulating paddocks and the creek banks are dotted with massive River Red Gums, while prickly Kangaroo Wattle bushes provide a haven for native birds. The farm also boasts an orchard, vegetable patch and chooks to eat the scraps. The only thing missing from their rural idyll was the house.

Having admired a house in a magazine that was designed by Adelaide architect Max Pritchard, they wrote to him about their plans. "We had a phone call from him within two weeks," the owner says. "We couldn't believe he was interested."

After Pritchard met the clients to discuss their initial ideas, he put forward an outlandish suggestion. "We'd chosen a site with a view of the magnificent gum tree near the billabong, and thought Max would perch us on top of the bank," the owner says. "But that site is south facing, so Max swung us right around and across the creek, to get a north-facing aspect.

"We were both taken aback initially, because it was hard to imagine being that high: we couldn't string ourselves out there to get an idea of what it would be like," she adds. "We never thought we would be out over the creek! We are somewhat conservative and traditional people, and normally wouldn't consider something so 'out there'. We loved the design, but we wondered if we could get it through council."

Pritchard's radical proposal aimed to circumvent several problems associated with the clients' original site. "I thought it would destroy the little valley formed by the creek that the new house looks into," he says. "There is also a requirement that you have to build 25 metres from a water course, and I felt that a house in that position would be too remote, but I thought if we were able to overcome those obstacles we could get a good result."

He was also concerned about securing planning approval for the bridge scheme, but the clients enthusiastically took up the challenge. It took them roughly one year to achieve the go-ahead, after they'd jumped through many hoops. These included supplying a statement of effect demonstrating the design would have minimal impact on the landscape; an engineer's report that certified the house would sit above the 100-year flood line; their attendance at numerous council meetings and site visits, and, eventually, scrutiny of the plans by the state development assessment panel. ➔



SITE PLAN



The house touches its unique site lightly, with just four concrete pads supporting the delicate steel frame





TOP: The steel frame was prefabricated in Adelaide, and the steel clad box was quickly assembled onsite making for a smooth construction process

LEFT AND ABOVE: Pritchard likes the shadow patterns on the façade, created by the profiled steel sheet and steel shade structures (detail above)



It was hard to imagine
being that high.
We never thought
we would be out
over the creek!

Throughout the lengthy approval process, Pritchard remained convinced that his design could be built cost-effectively and without damaging the unique site. "It's nearly 20 years since I designed my own house in Adelaide, which is an elevated steel structure," he says. "The technology of the welded steel frame is much the same, although my house was a little larger, so the spans were longer. This is a far more economical structure because it's small, due to budget and space requirements."

Despite his faith in the design, Pritchard was slightly apprehensive on behalf of his clients. "I felt nervous doing a more original structure because of the relatively small budget," he says, "But I was confident that we could do it economically, because I knew a good steel fabricator who could do the job."

Once they secured planning permission, construction was relatively straightforward, with the limited material palette and the simplicity of the narrow plan making this an easy house to build. "Geoff Overall, the fabricator, manufactured the steel frame in large sections in his workshop in Adelaide, and it was transported to the site by truck," Pritchard says.

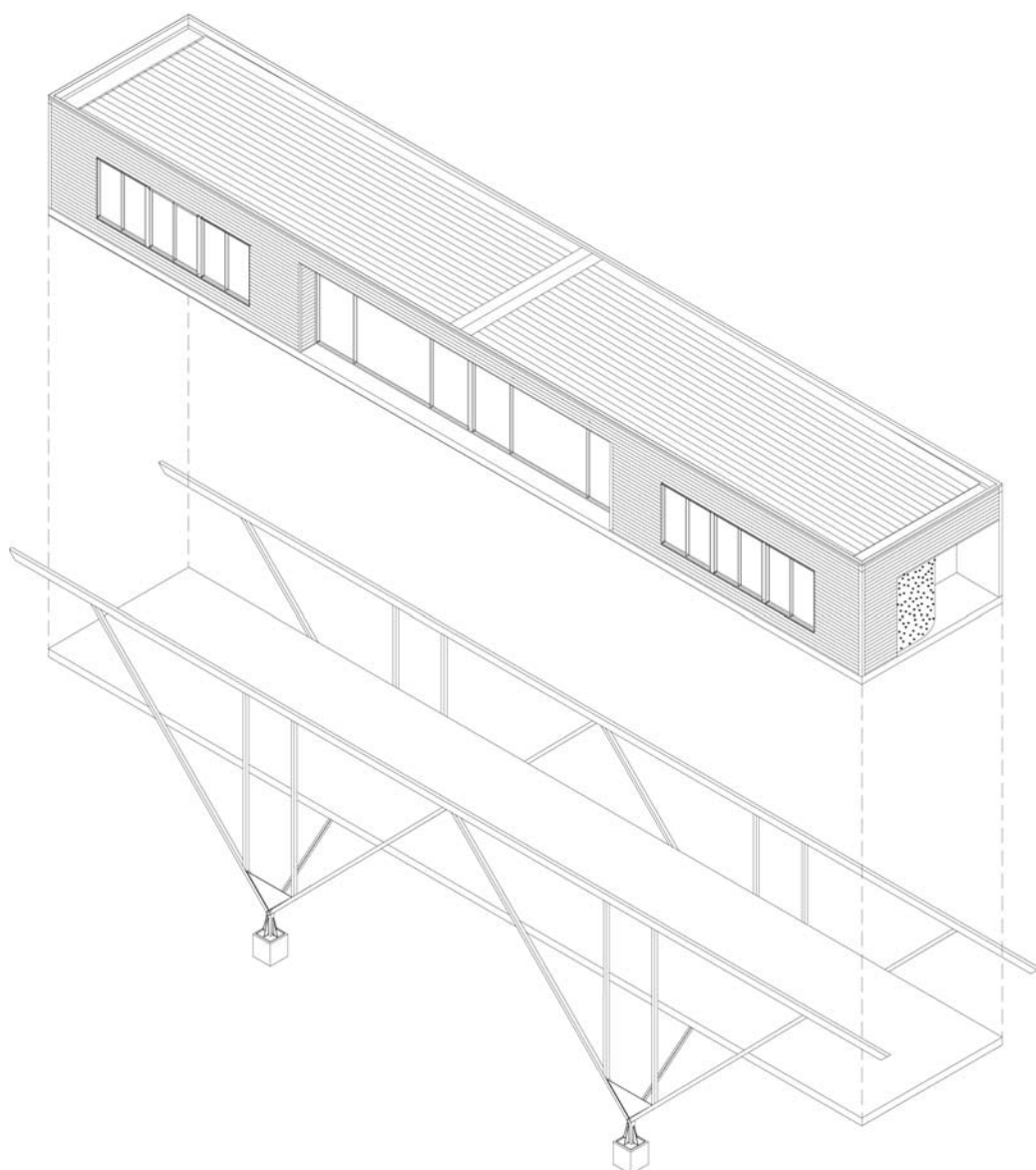
"It was craned into place in a couple of days, which is one of the big advantages of building with steel. I found that with my own house, too: it was erected in a few days with no damage to the site."

"The concept of touching the earth lightly is very appropriate in this situation," Pritchard adds. "For a building to only touch the ground at four points with four relatively small concrete pads that are bedded onto rock, it's a very minimal intrusion on the contours of the site."

The steel frame was instrumental to achieving that lightness, Pritchard says. "It would have been very hard to use an exposed truss in any other material that would economically span that distance."

The cladding is Fielders Kingklip 700 made from COLORBOND® steel in the colour Windspray® and the roofing is Fielders Spanform 700®, also made from COLORBOND® steel and also in the colour Windspray®. This offered several benefits.

"We had a relatively low pitch on the roof, and the Kingklip offers economy and a pleasing aesthetic for the box within the steel frame: it's a very simple roof," Pritchard says. ➤



PANEL SAYS

Suspending a box above the winter creek could have ruined this special place, but this modest house doesn't spoil its location. Rather, the integration of the object with its delicate structure enables the clients to immerse themselves in the natural world with minimal negative impact. The simplicity of the various steel elements, and the way they are assembled to produce a simple form means that verandas or balconies aren't necessary: the house itself provides the perfect opportunity to observe and interact with the natural surroundings

"We also wanted it to be non-flammable, and I like the patterns of light and shade that you create by using a profiled steel sheet. I also like the fact that it relates to traditional rural building forms.

"It also helps that once the steel frame is in place, the rest of the house can be sealed up by one tradesman," Pritchard adds. "The roofer was able to clad the whole building in a short time, which made it easier on the clients, who were owner-builders."

While it was a challenging site, the simplicity of the structure and the ease of its assembly using steel components made the task of overseeing construction relatively easy, Pritchard says.

"Owner-builders are not necessarily used to dealing with tradesman, and some of the more traditional tradespeople might have thought that the design was a little crazy, which is a typical reaction," he explains. "A lot of people understand it, but some are bemused by the idea of living above the creek."



PB

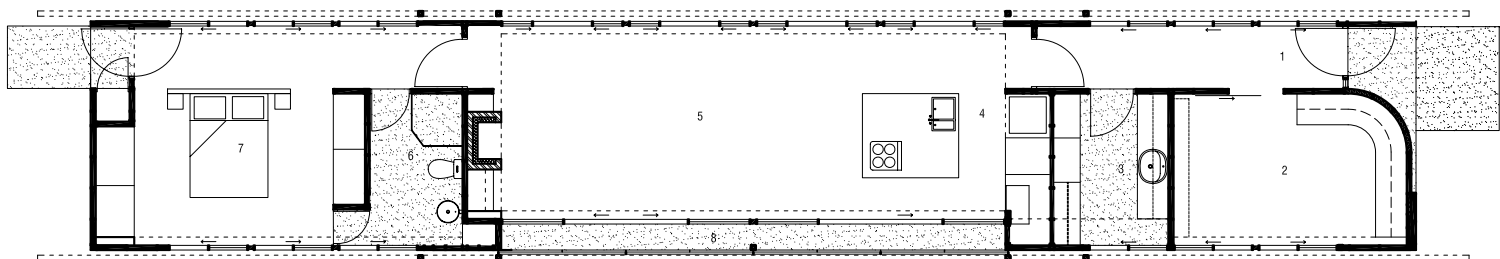
The clients are now convinced it was worth it.

"We've been here 18 months now and we are living in a magical spot," the owner says. "When we were building it there were hurdles – such as the flood studies, engineer's report and so on – that all took time to work through. I sometimes thought: 'I could have been here now if I'd just plopped a pre-fab in the paddock,'" she laughs. "But then I'd remind myself that it's a special spot and it deserves a special house."

Having swapped their humble aspirations for a house on the hill to take up residence in a bridge across the creek, the couple couldn't be happier. "We love that people say 'wow' when they come here for the first time," the owner says. "We hope that we don't ever lose that sense of wonder ourselves." **SP**



The simplicity of the form means the architecture doesn't detract from the natural beauty of the site



LEGEND

- | | |
|-------------------------|----------------------|
| 1 Entry | 5 Lounge/Dining area |
| 2 Home office/Guest bed | 6 Bathroom |
| 3 Laundry | 7 Bedroom |
| 4 Kitchen | |

PROJECT Bridge House **CLIENT** Anonymous **ARCHITECT** Max Pritchard Architect **PROJECT TEAM** Max Pritchard, Andrew Gunner **STRUCTURAL & CIVIL ENGINEER** Pocius & Associates **BUILDER** Owner-builder **STEEL FABRICATOR** Geoff Overall **CLADDING CONTRACTOR** Roofing and Cladding Contractor: Southland Roofing and Guttering **PRINCIPAL STEEL COMPONENTS** Roofing: Fielders Kingklip 700 made from COLORBOND® steel in the colour Windspray®; Cladding: Fielders Spanform 700 made from COLORBOND® steel in the colour Windspray®; Flooring: LYSAGHT BONDEK® profile under concrete slab; Flashing, Cappings and Gutters made from COLORBOND® steel in the colour Windspray®; Structural steel painted in Woodland Grey® **BUILDING SIZE** 110m² **TOTAL PROJECT COST** \$350,000 including power connection, all site works, green technologies etc

PAPER HAT

The diminutive Noosa Visitor Information Centre makes a big impact on Hastings Street, thanks to its origami-like roof that salutes the nearby ocean, and brings light into the building, while shading the street.

Words **Margie Fraser** Photography **Christopher Frederick Jones; Paul Bradshaw**



ARCHITECT Bark Design Architects
PROJECT Noosa Visitor Information Centre
LOCATION Noosa, Queensland



CF

Hastings Street in Noosa has thankfully retained – or, more accurately, regained – a laid-back insouciance and hippy chic charm that its '80s make-overs and interloper buildings once threatened to destroy.

The long boulevard of shops, bars, eateries and swanky hotels runs parallel to the breathtaking beach and marks the beginning of the trek into a National Park – that of granite coves, koalas and awesome surf. Boardshort-clad, sandy-footed backpackers mix easily with matrons dripping Gucci, and a holiday village vibe dominates.

The new Noosa Visitor Information Centre sits in a pivotal position on the strip – on the street side of the Surf Club and adjacent to the roundabout, to which all roads lead. It was important that the building design send the right message to visitors and capture the Noosa 'brand'.

Bark Design secured the project after a successful Expression of Interest to the then Noosa Council (now the Sunshine Coast Regional Council) and Tourism Noosa, which operates the facility. A brief

to provide a welcoming, dynamic and contemporary space that embodied the region's natural beauty was grist for the mill for architects Lindy Atkin and Steve Guthrie. Their practice is located in the nearby mountain hinterland in a glass pavilion that acknowledges the trees and the views, and has attracted much critical acclaim since its inception. The firm doesn't just "get" Noosa: it has been seminal in its contribution to Noosa's distinctive style through both residential and commercial work.

"We wanted to create a seamless transition between inside and out," says Atkin, "so that the main public information space becomes part of the life of the street."

The surf club on the northern edge of the site had undergone an extensive makeover, towering three stories above the street side visitors centre and blocking valued northern light. That constraint – and the land's small 134 square metres footprint – were turned into positives, giving rise to the delightfully vaulting structure of the roof and superbly orchestrated glass clerestory. ➤

ABOVE: The origami roof reaches out to the foliage of the streetside trees, providing surfers and other passersby with shade and refuge



CF

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“We wanted to create a seamless transition between inside and out, so that the main public information space becomes part of the life of the street”

PANEL SAYS

The shop awning comes to the fore in this playful design for the tourist office in the heart of Noosa’s Hastings Street. The beachside strip is highly textured and doesn’t provide much opportunity for standing back and taking in a broad perspective, but this light and delicate structure provides an ideal spot for gathering and meeting. The complexity of the folded roof form is achieved through careful detailing, to provide umbrella-like shading of the building and adjacent footpath. We also like the contrast within the material palette – the firmness of steel is countered by the softness of timber – which results in an expressive pavilion that sits comfortably within its coastal milieu

www.steelprofile.com.au



Light spills into the open air room. Bark designed moveable blue ottomans and yellow origami tables which mimic the “i” logo. The tables also refer to the folding paper forms of the roof



STREET ELEVATION

Light floods in through the 10m-high glazing, dappling across the floor and spilling onto the footpath. The local landscape was also used to advantage: remnant Bribie Island pines, tuckeroos and eucalypts, with trunks being slowly encased by strangler figs, are framed and celebrated through the glazing.

The desire to make the structure as open as possible led to the choice of steel framing. Four galvanised steel portal frames allow for four-metre spans, which in turn enable the fully slide-away walls and extended roof canopy.

As Guthrie explains, “Steel can be so much more slender than timber. To use timber in this structure would have required much larger members.” Also, the speed of construction was advantageous, being completed in a week.

“The STRUCAD program is brilliant,” Guthrie says. “It was used as part of the workshop drawings and meant we could see full 3D models before construction, which is good for complicated geometry such as this.”

Part of the structure’s complication comes in the distinctive folding roof form. Drawing inspiration from the idea of a leaf canopy, Bark has folded the roof in origami-like planes that pitch and twist in a virtuoso performance.

“Using the steel structure allowed for the twists required in the roof shape,” says Atkin. The roof made from LYSAGHT TRIMDEK® profile can handle the shapes and angles beautifully. The connections are precise and neat.”

The twists and dips mean the roof can lift its cap to the trees on the eastern side, and pull down a

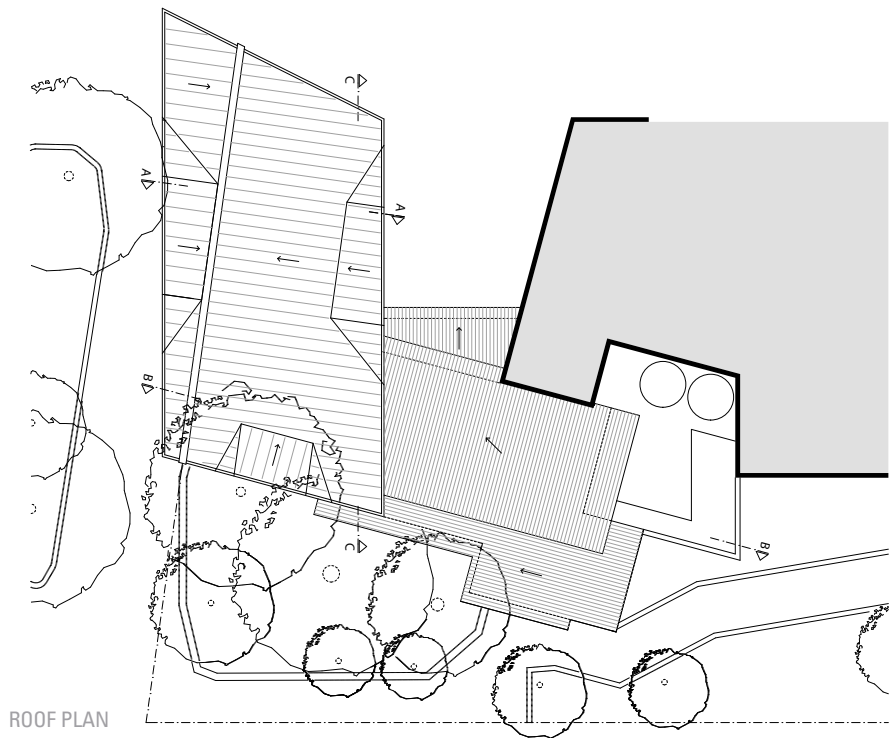
protective brim to the west. To tie in with the Tourism Noosa’s trademark blue, and in deference to the coastal location, the LYSAGHT TRIMDEK® profile roof is made from COLORBOND® Ultra steel in the colour Deep Ocean®.

Bark was keen to express the steel elements not only to add to the building’s robustness and legibility, but also to allow for maintenance in the harsh seaside environment. “It’s good to be able to see all the bolts and joins,” says Guthrie.

Materially and spatially, the open pavilion merges with the street. Passersby can amble in and out of the “obligation free” zone to pick up a brochure or catch the eye of one of the volunteer advisers.

Local artists Kevin McMahon and Wendy Brooks created works to blend with the setting: McMahon’s timber mangrove propagules (seed pods) dangle in front of the clerestory, recalling how they hang languidly off branches before dropping into the water to begin another journey downstream. Brooks etched the glass behind with lines reminiscent of the nearby Noosa River.

Meanwhile, vastly increased numbers of visitor drop-ins and bookings are proving the value of design which responds to locale while generously giving back to the public. The roof canopy that extends over the footpath has become part of the gathering zone during a tropical downpour, or simply for licking an ice cream in the shade. **SP**



ROOF PLAN

PROJECT Noosa Visitor Information Centre **CLIENT** Noosa Council (now Sunshine Coast Regional Council) and Tourism Noosa **ARCHITECT** Bark Design Architects
PROJECT TEAM Lindy Atkin and Steve Guthrie **STRUCTURAL & CIVIL ENGINEER** Blakeney Munns Consulting Engineers **BUILDER** Hutchinson Builders
STEEL FABRICATOR Cooroy Engineering **SHOP DRAWING CONTRACTOR** JBD Steel Detailing **STEEL ROOFING CONTRACTOR** Noosa Roofing **LANDSCAPE ARCHITECTS**
Landform Design Consultants **PRINCIPAL STEEL COMPONENTS** Roofing: LYSAGHT TRIMDEK® profile made from COLORBOND® Ultra steel in the colour Deep Ocean®; Structure:
galvanised steel structure using 200UC, 150PFC, 100PFC, 200x100RHS, 150x100RHS, 150x50RHS, 100x50RHS, 100x100SHS, 89x89SHS and Z150 **PROJECT TIMEFRAME** May
2007-February 2009 **AWARDS** Queensland 2009 Steel Design Awards - Architectural Steel Building Design Award **BUILDING SIZE** 134m² **TOTAL PROJECT COST** \$1.2m

CIVIC BEAUTY

A crowning example of the Western Australian Government's push to fund new schools and public art, Dalyellup College – complete with overarching wide-span roof that provides form and function – sits comfortably in its surrounds. It's an achievement of which David Gulland, principal of Hassell, is most proud.

Words **Rob Gillam** Photography **Peter Bennetts**

ARCHITECT Hassell
PROJECT Dalyellup College
LOCATION Dalyellup, Western Australia



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Hassell's design wound the school buildings in and around trees on the site. A large tuart tree in the central courtyard provides a natural anchor for focus when entering the school



LYSAGHT PANELRIB® profile soffit cladding made from COLORBOND® steel in the colour Surfmist® was chosen for the clean and simple plane it provides

ying just outside the city of Bunbury, WA, Dalyellup is a picturesque, tree-filled coastal suburb, the established nature of which belies its relative youth.

A building such as Dalyellup College was always going to provide a strong civic presence in an area that is, apart from a clutch of shops, predominantly residential subdivision. The challenge for Hassell was to ensure it did not lie at odds with its surrounds.

“We wanted to give the suburb something that felt more modern and had a different scale, but we didn’t want it to look too different,” says Gulland. “In a way, we wanted it to look like a house, but a really big one.”

“The way the building fits within its landscape is pleasing,” Gulland continues. “Dalyellup is quite a new suburb, but it feels more established than many new suburbs I have seen because decent tracts of land and trees have been retained.

Hassell’s aim for the building to reflect the essence of its environment ultimately provided one of Dalyellup College’s strongest signatures.

“One of the problems often encountered with new schools is that they start as just a clear sand pad. The site is completely cleared, the buildings are dumped on and there’s some context of paving and greenery, but no mature vegetation is established until many years after occupancy,” Gulland says. “We wanted to impart the school with a flavour of the suburb so keeping trees on the site was a major driving force.”

It began with a walkaround. Despite not having the landscape architecture commission, Hassell’s landscape architect and managing principal, Andy Sharp, joined the project team on the first site inspection.

“As a multidisciplinary firm, Hassell tends to operate across disciplines even if we only have the lead consultancy,” Gulland says. “Architects and landscape architects *do* tend to look at things in different ways and Andy provided a unique perspective for us. We drew on his contributions with a view to winding the school buildings in and around the existing trees.

Among the survivors are particularly large and proud tuart trees located in the school’s car park and courtyard. These flank the grand main entrance and provide a natural anchor for focus when entering and leaving the school.

Microclimate was another factor that helped shape the school. One of the reasons for the building to have a larger, blank facade on the south-west corner was to shelter the school’s internal courtyard from strong prevailing winds.



LYSAGHT SPANDEK HI-TEN® profile cladding made from ZINCALUME® steel and COLORBOND® steel provides a textural counterpoint to the college’s vibrantly coloured internal main entrance

The south-west corner is a two-story element, partially finished in LYSAGHT SPANDEK HI-TEN® profile made from ZINCALUME® steel and COLORBOND® steel in the colour Shale Grey™. The building mass forms a shoulder that stands against the blustery elements and protects the inhabitants within. This creation of an internal ‘heart’ – the central internal courtyard – is another of the school’s signatures. “It’s an inwardly focused design,” says Gulland. “Rather than have buildings as a series of separate islands, we wanted a focus on a singular school centre that suggests everyone belongs to one big community.”

Steel was used for roofing and cladding, and much of the building’s structure, which delivered efficiencies during the construction phase. “A lot of the main structure is based on steel columns and bracing,” says Gulland. “We’ve taken a steel post and frame approach, which is a simple and well-understood way of putting a structure together quickly.”

Overarching the entire project are huge spans of LYSAGHT SPANDEK HI-TEN® profile roofing made from ZINCALUME® steel and COLORBOND® steel, in the colour Shale Grey™.

Gulland says steel was an appropriate material to finish much of the project’s vast exterior. “The steel roof works well within its environmental context,” he says. “It’s a material that suits the semi-rural region and the site location. There’s a long history of schools in WA being steel-framed and steel-roofed, and it was fitting for Dalyellup College to retain that tradition.”

Broad sweeps of steel form simple skillion roof planes that provide an added dimension of functionality. “We wanted a big roof over the top, but to also retain lots of open-plan spaces on the sides. Our goal was to avoid having lots of little load-bearing walls, which can clutter a building,” he says.

“Steel is one of the few materials that allows you to run big spans without having necessarily to fill in all the walls, so it had a clear advantage over other materials in terms of its flexibility.

“The big clear-span roof allowed for the creation of incidental spaces underneath that we wanted to be used for impromptu learning,” Gulland continues. ➤





PANEL SAYS

Careful attention to the design of this new school ensures that the collection of buildings – a complex arrangement in terms of function, size and sitting among existing trees – retains an urban scale. The central courtyard plays a key role in organising the disparate elements and provides a gathering place for the school community. The broad selection of materials – concrete, terracade, timber and steel, among others – enhances the design rather than detracting from it and the inclusion of colourful accents contributes a sense of playfulness. With its generous roof overhangs and inside-outside teaching spaces, this is a welcoming environment that is sure to provide a great backdrop for learning

LEFT: Hassell has strongly combined a wide-ranging materials palette according to function and location

BELOW OPPOSITE: Art and architecture blended when artist Loreenna Grant collaborated with Hassell to produce a series of sculptures, which steel was fundamental in creating

“Rather than have a uniform verandah around the entire building, we tried to break out a series of spaces from the interior – such as pockets of verandahs – that aim to encourage flexible learning opportunities.

Dalyellup College’s roofing material is not reserved exclusively for that purpose. In many areas of the college, what begins as a primarily functional material becomes predominantly aesthetic, as steel flows over roof edges to become wall cladding.

The same LYSAGHT SPANDEK HI-TEN® profile made from ZINCALUME® steel and COLORBOND® steel, in the colour Shale Grey™, variously adorns the walls – sometimes blanketing, sometimes splashing, sometimes framing.

“The roof does float in some areas, such as the two-story section, but we didn’t want to have a distinctly separate feel for the roof and wall

cladding,” Gulland explains. “We wanted to link them, so in some areas we continue the roof by folding it down over the wall. Folding the roof plane down in areas such as the performing arts precinct helps establish a point of focus and gives a more civic scale to the building’s form.”

LYSAGHT SPANDEK HI-TEN® profile cladding made from ZINCALUME® steel and COLORBOND® steel comprises the lion’s share of the eastern facade of the college’s striking main entrance, where it provides a textural counterpoint to the vibrantly coloured prefinished villaboard panels lining the interior.

“We tried to work quite strongly with steel cladding in the elevations, where we’ve used it to convey a big shed-type approach,” Gulland says. “And we’ve used it to visually break up blockwork that would otherwise become impractical or overbearing.

“At the main entry point, the steel cladding provides a feel for the outside of the building and a focus for the entry, but we wouldn’t have wanted to carry it on any further than there. We felt there wouldn’t be the same interaction with steel if it was used that way in internal spaces – which is why the courtyard, for example, makes more use of glass.”

Another example of alternative material selection for interior spaces is inside the main entrance, where luxuriant colour dominates and provides a decadent dimension.

Unlike schools that often suffer from decoration being a hurried afterthought, careful consideration was given to Dalyellup College’s colour scheme.

In the main, the school’s colours are drawn from the greens, greys and yellows of the surrounding vegetation. These are judiciously interspersed with bright patches of colour in pass-through and specialist curriculum areas.

Joining the calmer hues of the school’s colour scheme is LYSAGHT PANELRIB® profile soffit cladding made from COLORBOND® steel in the colour Surfist®.

Primarily used for soffit linings to the verandahs, Gulland says the LYSAGHT PANELRIB® profile made from COLORBOND® steel was chosen for the clean and simple plane it provides. “And also because its ribbing helped cover up the odd wobble that crept in.”

It is remarkable how well Hassell has maintained human scale across such a large and complex mix of variously sized buildings. This is reflected in the school’s different “learning zones” and also the spaces between them. ➔



RIGHT: LYSAGHT SPANDEK HI-TEN® profile made from ZINCALUME® steel and COLORBOND® steel, in the colour Shale Grey™ folds from the roof, down over the wall to become cladding





For Hassell, the contribution to scale provided by spaces between Dalyellup College's multiple buildings was almost as important as the structures themselves. Rather than the college comprising a series of standalone objects, the architects aimed for an archipelago of buildings and trees to form an overall 'ribbon' across the site.

"We *do* think a lot about the space between buildings," Gulland says. "We were asking ourselves, 'How wide does it have to be before it starts feeling like leftover space between buildings?' and, 'How narrow does it get before you start feeling like it's a bit crammed?'"

Blurring boundaries is a cornerstone of Hassell's philosophy and one it applies across many levels.

"We ideally like to have a blurring between design and form. That includes between internal and external spaces, and across the boundaries of fields of design for all project contributors."

Indoor/outdoor connections are made via large, configurable walls, deep verandah rooms, informal work spaces and widespread use of transparent glass.

Verandah spaces overlook conservation areas on the southern side of the school and enormous folding glass doors can draw the outside in by opening up to frame different views.

Moveable glass walls also provide flexible configurations. A glass room that sits between the cafeteria and library can enlarge the library or cafeteria by opening into them.

Another example of Hassell endeavouring to mix project boundaries was through interdisciplinary collaboration.

"The more we can blur the boundaries between design disciplines, the better, so we talk with the other consultancies to help ensure we understand each others' vision and hope we can share goals."

Just as landscape architecture collaboration resulted in the college's signature treescape, Hassell was able to contribute to another facet of the project by liaising with WA artist, Loreenna Grant, who created a series of sculptures called *The Essentials of Flight*.

"It wasn't like we just said, 'here's the building, you go and do a piece of art and stick it on the wall'," Gulland asserts, "There was a lot of interaction between Loreenna and our team. We talked with her about where we thought there might be some opportunities that would allow for her work to interact with the building design and vice-versa."

Grant agreed, saying that intertwining the seams of art and architecture provided rewarding results. "The convergence of professional languages is very

important to me. When you have many thinkers projecting ideas from cross-disciplinary positions, the results can be daring," she says. "I work in an integrated way. My sculpture is often found incorporated into different areas of a building and its surrounds, so it was valuable to share cues and progress designs with Hassell."

Grant drew inspiration for her works from the site's natural systems such as the black basalt vein that runs through the ground, the surrounding forest, and the black feathers of the local birds. Steel was fundamental in resolving the works, which include sculpture, gates and lounging platforms.

"Longevity is a requirement in public art, so steel was an obvious choice of material," she says. "Steel also works well as an integrating material because it is a large component of the architectural palette."

"While I often work with more ephemeral materials, in the instance of public art that ephemerality also informs how I work in steel. For example, the way it transforms through reflection of light."

The remarkable contribution Dalyellup College makes as a civic landmark was recently recognised when it was awarded the Western Australian 2009 Australian Institute of Architects Public Architecture Award. It is assured to remain a source of pride for its students and teachers and the wider community, long into the future. **SP**

PROJECT Dalyellup College **CLIENT** Department of Education and Training **ARCHITECT** Hassell **PROJECT TEAM** Principal: David Gulland; Design: John Crabtree, Eleni Gogos, Simon Pandal Architect (SD Stage); Team: Clem Mitchell, Tony Naso, Mark Ainsworth **CONSULTANT TEAM** Structural/Civil: Capital House Engineering; Hydraulics: Hutchinson Associates; Mechanical: Steens Gary and Kelly; Electrical: Aecom; Landscape: Urbis; ESD: Gabriels Environmental Design; Quantity Surveyor: Ralph Beattie Bosworth; Project Artist: Loreenna Grant **BUILDER** Perkins Builders **STEEL FABRICATOR & SHOP DRAWING CONTRACTOR** Metro Lintels **PRINCIPAL STEEL COMPONENTS** Roof cladding and external steel cladding: LYSAGHT SPANDEK HI-TEN® profile made from ZINCALUME® steel and COLORBOND® steel in the colour Shale Grey™; Metal soffit cladding: LYSAGHT PANELRIB® profile soffit cladding made from COLORBOND® steel in the colour Surfmist® **PROJECT TIMEFRAME** 24 months **AWARDS** Architecture Award, Public Architecture category, WA 2009 Australian Institute of Architects Awards **BUILDING SIZE** 9,120m² **TOTAL PROJECT COST** \$25.35 million

WILD AT ART

A panoramic, windswept plateau in central western New South Wales inspired Duc Associates to create an unorthodox solution for a couple and their art collection. Words **Rob Gillam** Photography **Bob Seary**

It's hard to miss the dominating sandwich panel at the crux of the Wild Residence. As well as forming the south-facing roof, the structure ingeniously provides insulation and internal cladding.

Bondor Equitilt® sandwich panels made from COLORBOND® Metallic steel in the colour Citi® have been used externally and COLORBOND® steel in the colour Citi® internally. Other roofing and walling consists of LYSAGHT CUSTOM ORB® profile, made from ZINCALUME® steel.

Such an extreme incarnation was born of the site – southerly winds with the potential to ravage the house had to be subdued. And so, Duc Associates was forthright in its approach: the steeply angled roof isolates the house from unwanted elements. This expansive plane is relieved by operable louvered openings near its base which align with louvered windows in the adjacent wall to welcome breezes into the house in summer, and exclude winds in winter.

Louvres placed high on the house's north side pair with those found down low on the south side to provide full cross-ventilation, meaning no other cooling system is needed.

Further harnessing the climate, the northern louvres can channel sunlight on to a long central east-west oriented concrete wall that provides thermal mass for winter warmth. This wall also acts as a gallery surface for much of the clients' art collection. The position of the louvres avoids direct solar exposure to the artwork.

Duc Associates has a long history of sandwich (or, structural insulated) panel solutions, having first used the product in 1979 to clad an entire house in Chatswood, NSW. However, the firm has never used it in such an extensive and unconventional fashion, as principal Edward Duc explains, "The product is normally used purely vertically. By putting it on an angle, we had to take a bit of care with the joints to ensure they were watertight. The angled panels ensure the strong undesirable southerly winds are diverted over the top of the house: there's no exposure, no rattling – it's locked down tight."

The client's owner/builder status was another reason to use the sandwich panel. "Because they were using subcontractors, it was logical that we designed a simple sequence of events that they could control," Duc says.

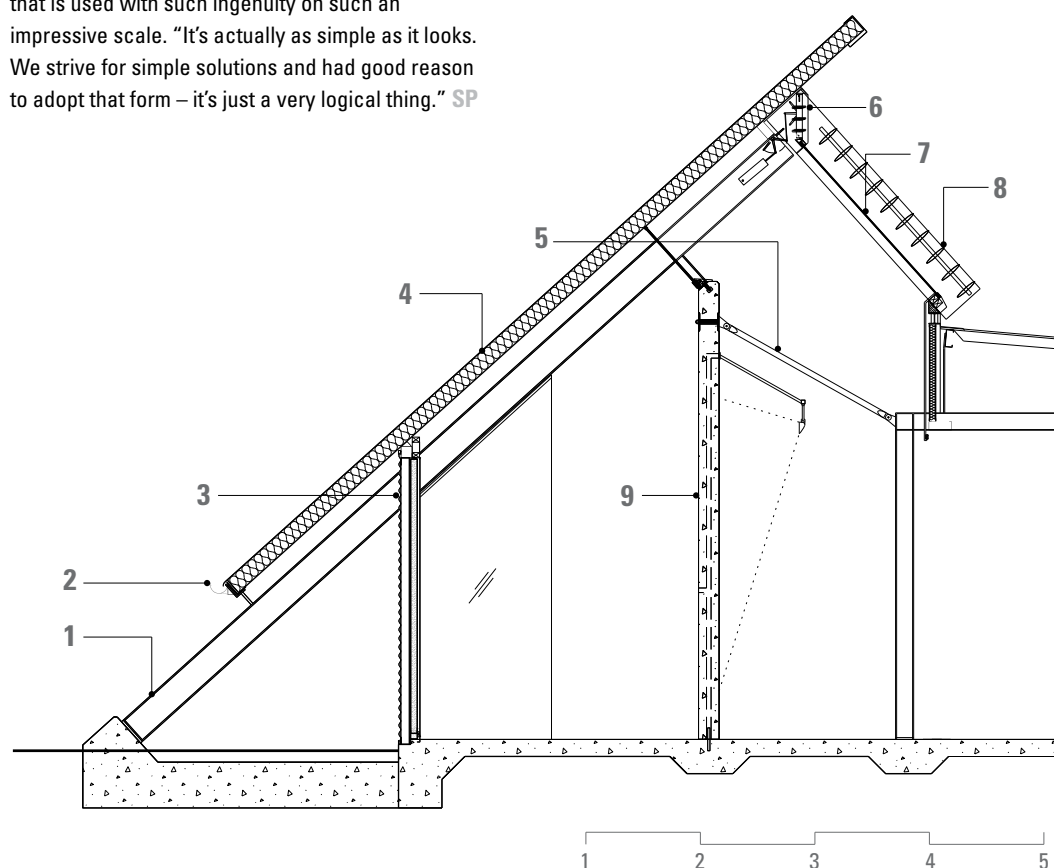
"We could have framed something up, put in some purlins, some sheeting and some internal lining on the substructure underside, and then paint. But we avoided all that by using the prefinished sandwich panel that installs just by using standard fixing methodology.

"The panel immediately provides an outside wall and inside wall. It provides the structure and excellent insulation to the building. It simplifies the building process enormously, which fits with our pragmatic design approach."

Duc is quite candid about a multipurpose element that is used with such ingenuity on such an impressive scale. "It's actually as simple as it looks. We strive for simple solutions and had good reason to adopt that form – it's just a very logical thing." **SP**

WILD RESIDENCE SECTION DETAILS

- 1 Expressed structural steel 250mm universal column
- 2 Gutter
- 3 Wall panel
- 4 Sandwich panel
- 5 Structural steel tie
- 6 Adjustable glass louvres
- 7 Double-glazed glass panels
- 8 Adjustable aluminium louvres
- 9 Precast concrete tilt panel



PROJECT Wild Residence **CLIENT** Cameron and Sue Wild **ARCHITECT** Duc Associates **PROJECT TEAM** Edward Duc **STRUCTURAL & CIVIL ENGINEER** Fozzards Consulting
BUILDER AND CLADDING CONTRACTOR Cameron and Sue Wild **STEEL FABRICATOR** Skeltech Fabrication **SHOP DRAWING CONTRACTOR** Tranlos **LANDSCAPE ARCHITECTS** Anthony Fitzsimmons
PRINCIPAL STEEL PRODUCTS Roofing: Bondor Equitilt® sandwich panels with COLORBOND® Metallic steel facings in the colour Citi® externally and COLORBOND® steel in the colour Surfmist® internally;
 Roofing and walling: LYSAGHT CUSTOM ORB® profile made from ZINCALUME® steel **PROJECT TIMEFRAME** Three years **BUILDING SIZE** 235m² GFA **TOTAL PROJECT COST** \$430,000

The sandwich panel is the structure.
It provides an outside wall, an inside
wall and excellent insulation, simplifying
the building process enormously



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STEEL PROFILE #104



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