

118

SEPTEMBER 2014

ARCHITECTURAL

STEEL INNOVATION

WITH BLUESCOPE

STEEL PROFILE



DREW HEATH ARCHITECT
OUTPOST 742713 9

MADDISON ARCHITECTS
CLOUD CANOPY

IN PROFILE:
DAVID ADJAYE

EDITORIAL

Welcome to *Steel Profile* 118.

We are, as always, proud to bring you a profile of the country's most remarkable steel buildings and glimpses into the inspired minds responsible for them.

BlueScope has launched a new website that features additional content to that found here in print. For the past few issues we have alerted readers about the presence of videos in which architects and other contributors further discuss their projects. In this issue, new icons on the pages indicate extra design resources for BlueScope's customer profiles. These can be found at steel.com.au/steelprofile

One project bearing such icons adorns our cover. Drew Heath's design for a modest bush retreat tempers the brutality of steel shipping containers with a graceful roof canopy.

We were also lucky enough to catch up with British 'starchitect' David Adjaye at the Australian Institute of Architects' National Conference in Perth and discussed his obsession with metal's elemental qualities.

We trust you will find both the print and online mediums enjoyable and useful. Please feel free to share your thoughts via info@steelprofile.com.au

Kristin Camery
BlueScope 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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Architect Drew Heath's mountain bike-inspired bush retreat combines the brutal posturing of prosaic shipping containers with the refined elegance of a soaring lightweight steel roof



The lively cladding of Phillips Smith Conwell Architects' performing arts venue alludes to the theatrics of its interior



With projects firmly rooted in place through analysis of geography, architect David Adjaye has become obsessed with the materiality and performative nature of metals



Maddison Architects has leveraged 3D software to create a marvellously ethereal, self-supporting steel canopy in Melbourne's Federation Square



Tzannes Associates has wielded a steel mega structure with surety and flair to redefine an existing coastal retreat



DesignInc's industrial vernacular for its Regional Community Health Hub in Geelong is expressed in steel knitted to glass and sends a bold, spacious statement



Townsend + Associates Architects sought an economical and tough material to finish the walls of a Canberra toilet block and found it in a material more commonly used for fencing

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COVER PROJECT

Outpost 742713 9

PHOTOGRAPHER

Brett Boardman

NUMBER 118, SEPTEMBER 2014

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OUT ON A LIMB

ARCHITECT

Drew Heath Architect

PROJECT

Outpost 742713 9

LOCATION

Central Coast Hinterland, New South Wales

Like the mountain bikes that inspired it, this tiny retreat in the bush combines aggression and elegance in its all-steel construction.

Words **Rachael Bernstone** Photography **Brett Boardman, Paul Bradshaw**



On a still autumn day, with big clouds rolling eastwards in the massive blue sky, it's hard to imagine anything spoiling the serenity of this setting. Birdsong – whip birds, bellbirds and the occasional interjection from a laughing kookaburra – is the only sound to break the silence.

So it seems somewhat incongruous to come across a tiny steel retreat made mostly from shipping containers perched above a sandstone outcrop, as if about to leap into the valley below. It's a building that shares many traits with mountain biking, the activity that brought its owners to this area of rugged bushland in the first place.

"Because it's a mountain bike camp, I saw the building as a machine, as a bicycle itself," says architect Drew Heath. "The bike has a steel frame and so does the building. There are various gizmos attached to the bike, same with this building, the bike has a seat, and this building provides somewhere to sit as well."

When it was first mooted, the concept for this base camp was not nearly so refined and daring, according to builder Daniel Girling-Butcher. "The client approached me in March 2013 and said he'd bought this property and was interested in putting some shipping containers – which he'd chosen for budget reasons – on the site," he explains. "I mentioned this to Drew, boasting somewhat in the pub about this job that had fallen into my lap, and Drew showed some interest. He gave the project quite a lift."

"I had a very simple scheme in the back of my mind: an image of a boat ramp with two singular tracks that head off into landscape, with a floating roof above"



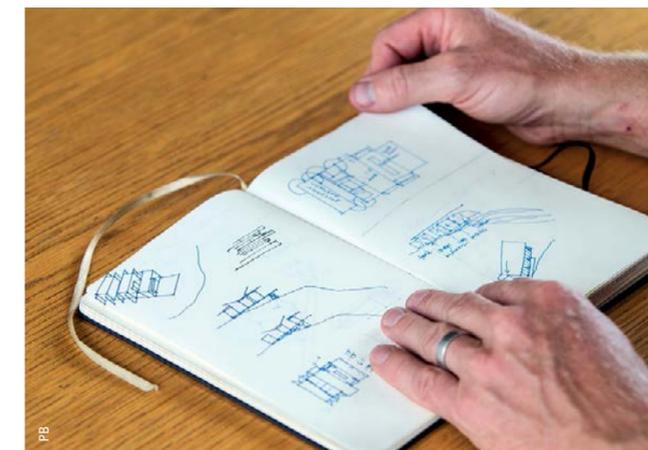
FRONT ELEVATION

Heath saw an opportunity to take the 'building blocks' and create something remarkable. He contacted the clients to outline his scheme. "The clients were people I'd already done a house for, and so when Daniel mentioned they had a block of land and were thinking about building a mountain bike base camp out of containers, I thought it sounded interesting," he says. "That same day, I did a sketch and emailed it to the clients, trying to invite myself into the job. They liked it, so I managed to muscle in on the project."

"Originally it was just going to be containers on the ground with a roof over the top – with much less budget than what was eventually spent – but Drew enhanced it," Girling-Butcher adds. "And the clients were ultimately quite happy that I'd had that conversation with him."

Driving onto the property via dirt road, the site slopes gently down hill, culminating in a teardrop-shaped turning circle, below which the ground drops away steeply. Upwards of the track, a couple of shipping containers used to store bikes and less often-used gear are plonked onto the ground. These continue to serve as a reminder that without Heath's intervention the new building would probably have been located close by them – and would look much the same. ➤

The design of the completed building barely deviated from Heath's original concept, as illustrated in his sketchbook (right)



Instead, he suggested that a sandstone outcrop near the cliff top was the best place to build. "To me it just said 'footing'; we could anchor a building onto it and do something that was adventurous, structurally," Heath says. "The idea of constructing a flat plane to sit the containers on – to get them off the ground and provide some deck space – arose because the site was so steep: you needed a platform floating above the landscape for respite from the landscape."

He carefully arranged three containers in one line to make the outlook over the gully and bush the hero. "The site has an orientation that looks out to a great view, which also has a northerly aspect, so that seemed the place to start," he says. "I had a very simple scheme in the back of my mind: an image of a boat ramp with two singular tracks that head off into landscape, with a floating roof above."

"To satisfy the brief for more space, I just kept adding containers behind the first one, to accommodate bedrooms, bathrooms and storage, and then inserted spaces in between for outdoor rooms."

"The idea was to relate the containers to their own individual outdoor space, and to claim that extra space between them," Heath says. "It also facilitates ventilation – the containers are essentially closed steel boxes that need ventilation on all sides – so from a thermal perspective, it was good to have them freestanding."

In fact the inherent qualities of the containers dictated the selection of materials for the whole

project, he says. "Once I'd seen the containers purely as steel boxes, I was determined to make every external element steel."

The interiors are cosy and inviting, with insulation, plumbing and electrical services installed behind timber lining. "The outside of the containers is all steel and all grey, so we wanted to make them warm and soft inside," Heath says. "We lined them with a warm-coloured plywood to create timber cocoons for people to live in."

Each of the containers was reconfigured with new openings and doors to suit their position in the project. The front unit – which contains the kitchen – has the largest openings, including a cantilevered deck on hydraulic hinges that closes to seal the container from the elements. It has sliding doors, opposite, that connect to a dining space. The sides of these can be enclosed by steel shutters on rollers.

Heath said the ability to close down the building against the elements was important, given its vast bush surrounds. "The fire risk at the location led us straight to steel. Being able to lock down the structure entirely with steel was a big advantage in terms of bushfire resistance."

The central container houses three bedrooms, with pivoting doors at both ends and a sliding door in the middle, while the rear container boasts two bathrooms and a storage space.

Having outlined his concept to Girling-Butcher and steel fabricator Brett Laker, the building was constructed in an unusually fluid manner.

"Luckily Daniel and Brett are people I know well and they know my work, so we didn't have to do a lot of detailing or drawing," Heath says. "A lot of it was spoken word, and a few sketches and images to convey the information. Everyone had a bit of free rein to do what they wanted, or what they thought was right."

"It's nice to be flexible from concept to finish, and to not be so dogmatic about detailing every single part," he adds. "It makes things easy."

The containers were largely fitted out in a warehouse in Botany in Sydney while the steelwork was prefabricated at Laker's factory on the Central Coast. "We tried to design it so that materials could come to site and go straight into the project: the less amount of work required on site, the better," Girling-Butcher says. "That was partly a budget decision – to reduce off-cuts – but also because working in the workshop was far more beneficial: we were undercover, closer to suppliers, and people didn't get lost trying to find the site."

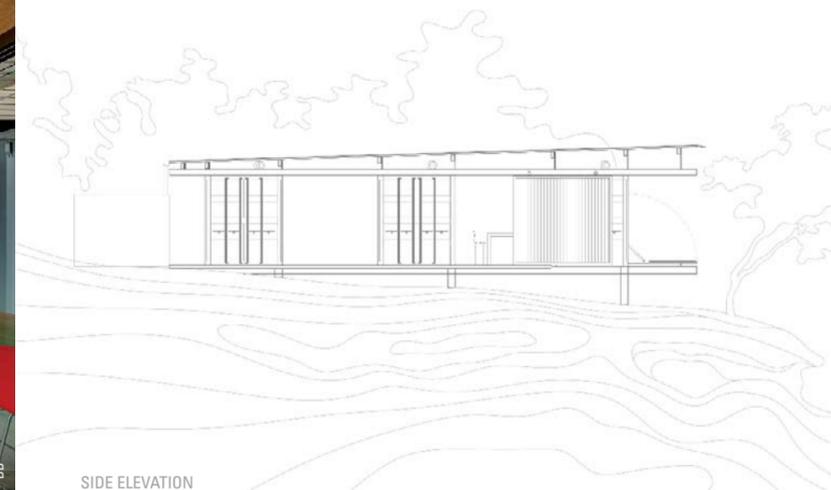
The elements were then trucked to site and assembled over a 10-day period leading up to Christmas in December 2013, with final touches completed over several weeks in January 2014. The structural steel supports – six 200 UC 46 sections – were drilled into the sandstone and secured with concrete footings. Beams were installed, then the shipping containers were craned on to the southern end of the platform and winched outwards to their final positions. Steel walkways were installed as

Sliding doors, pivot doors and hydraulic doors mean the containers can be configured in myriad ways depending on the season or time of day



The middle container is divided into three sleeping spaces: a double with bush views (far left), a double with mezzanine bed (left and above), and the bunk room (top left)

BOTTOM LEFT: The kitchen cabinets are made of the same warm coloured ply that was used to line the containers



SIDE ELEVATION

"Once I'd seen the containers purely as steel boxes, I was determined to make every external element steel"



FLOOR PLAN



Architect Drew Heath on the cantilevered front deck (this image), and preparing lunch with builder Daniel Girling-Butcher in the dining space (right)



PANEL SAYS

This is one of the most innovative and original projects we have selected to publish. Firstly, the siting on the sandstone outcrop creates a striking expression. We also appreciate the contrast of the harshness and colouration of the Australian bush – as echoed in the all-steel exterior – with the warmth of the plywood-lined interiors. The project might be perceived as being straightforward and quite brutal, but there is a fineness in its detailing, too. The roof made from COLORBOND® steel in LYSAGHT KLIP-LOK® 700 profile, in the colour Ironstone®, is beautiful and highly functional, giving the impression this project will last for decades without ageing at all. By far the best quality of the building is the way it encourages occupants to engage with their surroundings – by going outside to access the bathrooms, for example – which strikes a perfect balance between being immersed in, and being removed from, the natural world.

“The structure is simple and although this is a low-budget building, there is a sense of elegance in its simplicity”

the outer decks on the long sides. The roof frame – 200 UC 46s and RHS acting as purlins – was then topped with roofing made from COLORBOND® steel in LYSAGHT KLIP-LOK® 700 profile, in the colour Ironstone®.

The KLIP-LOK® profile roof – chosen for its wide spans and ability to be installed at low pitch – provides direct protection from the sun and rain, and also allows cross-flow breezes to draw hot air out of the containers because it is raised slightly above a series of ventilation points in the top of each box.

The building came together so easily that the second time Heath visited the site, Outpost 742713 9 as it's now called – after the serial number on one of the containers – was practically complete. It may be modest in size – just 40m² internally – but it sleeps six and has two bathrooms. It is fully self-sufficient: collecting and storing rainwater in three tanks, generating and storing sufficient solar power to run a small fridge, LED lights and to charge devices, and treating waste water in a septic system located slightly down the slope.

While the concept may be simple – steel platform, steel shipping containers, steel roof – there is a

refined elegance to its execution that sits comfortably alongside the building's brutal posturing. “I see this scheme as an aggressive construction – our early name for it was ‘Desert Storm’, because, in a way, it's like an outpost of humanity,” Heath says. “The big cantilevers of the deck and the roof give the building a sense of aggression, like it is perching on the edge of the cliff, ready to leap off,” he continues. “But the spans and the overhangs are lightweight. The structure is simple and although this is a low-budget building, there is a sense of elegance in its simplicity.”

For his part, Girling-Butcher is glad he had that fortuitous conversation with his mate in the pub about an unusual project that he'd just taken on. “In its entirety, this job was fantastic because the client gave us a lot of space,” he says. “He was involved in the layout and was of course interested in what we were doing, but he gave Drew and everyone else a lot of freedom to work as they liked.”

And because the team – architect, builder and steel fabricator – had worked together on previous projects, they shared an unspoken understanding and sense of familiarity in relation to construction methods, detailing and expectations around build quality, which enhanced that sense of freedom.

For Heath, the process of working on a small building in a bush setting that didn't require the same level of documentation as regular projects was extremely satisfying, and the results are no less spectacular than his earlier works. “I love the surprise and drama of dropping down the front deck and going out on to that handrail-free perch overlooking the valley,” he says.

Unorthodox it may be, yet the building is an elegant metaphor for mountain biking. Sitting on the cantilevered deck taking in the broad sweep of the valley is akin to taking up position on mountain bike saddle, at the top of a hill, ready to hurtle down into the unknown. SP



ABOVE: The central container gave the project its name

BELOW LEFT: A cantilevered deck hydraulically closes to seal the kitchen container



View a video of the architect and builder discussing this project at steel.com.au/steelpoint

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CAD files, textures, technical drawings and product brochures are available at steel.com.au/steelpoint

PROJECT Outpost 742713 9 **ARCHITECT** Drew Heath Architect **BUILDER** Daniel Girling-Butcher **STEEL FABRICATOR** BML Steel **PLUMBING** PZ Plumbing **ELECTRICIAN** Rapid Sparks
PRINCIPAL STEEL COMPONENTS Roofing made from COLORBOND® steel in LYSAGHT KLIP-LOK® 700 profile, in the colour Ironstone®. Containers: three 20-foot shipping containers. Structural steel: Six 200 UC46 stub columns anchored direct to sandstone (with cross bracing in same). Roof frame: Two 200 UC46 beams spanning length of structure with RHS beams acting as purlins. Steel decking walkways **PROJECT TIMEFRAME** Three months to prefabricate and install **AWARDS** 2014 Australian Institute of Architects Awards NSW Chapter – Sustainable Architecture **BUILDING SIZE** Containers: 44m², Containers and decks: 156m². Total roof area: 180m² **TOTAL PROJECT COST** \$260,000 including supply of containers

A SOUND INVESTMENT

The playful elongated-harlequin patterns of this new performing arts venue create a lively geometric camouflage effect and allude to the theatrics of its interior.

Words **John de Manincor** Photography **Scott Burrows**



ARCHITECT
Phillips Smith Conwell Architects
PROJECT
St Peters Lutheran College
Performing Arts Centre
LOCATION
Indooroopilly, Queensland



Educating children is not an easy task. Teachers, administrators, carers and parents invest enormous amounts of energy to ensure future generations are given every opportunity to learn and excel. Beyond the 'sweat equity' of family and faculty is the vast fiscal investment required to fuel the pedagogical fire.

St Peter's Lutheran College in the Brisbane suburb of Indooroopilly was established in 1945 and has since grown at a steady rate. The College understands that good things take time and that investment in its infrastructure will yield dividends. Importantly, there is a great tradition of the College community investing in quality architecture. In 1966 parents and friends raised \$60,000 and the College borrowed \$70,000 to build a new chapel by the

famous Viennese-born, Brisbane-based architect Karl Langer. Completed in 1968, the chapel sits at the apex of the campus, metaphorically and topographically.

In 1995 the College community once again embarked on an ambitious fund-raising program, this time for a major facility for the teaching and performance of music and drama. Brisbane architects Phillips Smith Conwell (PSC) won an invited design competition for a scheme that was somewhat different to what was built as the College's flagship facility. Eventually the project brief expanded to include a 1000-seat performance venue, rehearsal and tutorial rooms, and associated support spaces.

The back-of-house is a crisply detailed 'box' with cladding made from COLORBOND® Metallic steel in Stramit Longspan® profile, in the colour Facade®.

Steep terraced embankments with luscious planting designed by the College's own landscape team lead to an elevated court which is the true heart of the campus.

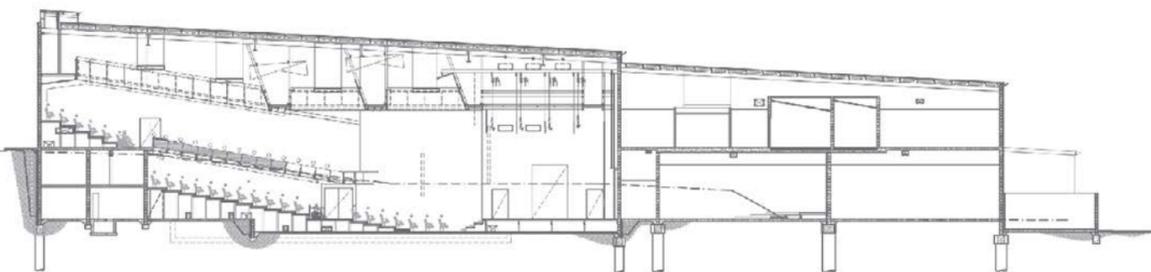
From here the diagram of the new performing arts facility is immediately clear; two cubic volumes are separated by a two-storey glazed facade that defines the entry and the primary circulation spaces. During a tour of the venue with the College's director of music, Christine Taylor, the place was

buzzing with students. First stop on our tour was the main auditorium where a solo flautist was playing "un-plugged". In any performance venue, acoustics are paramount, and for this building PSC's project director Philip Ward says the architects undertook: "A first principles analysis of the functional requirements of the music and drama program... to create a natural acoustic with minimal reliance on technology."

"A lot of energy went into getting this space right; the acoustics and the experience of this space were really important to us," adds Taylor. "There was not a lot (of money) left over for the outside."

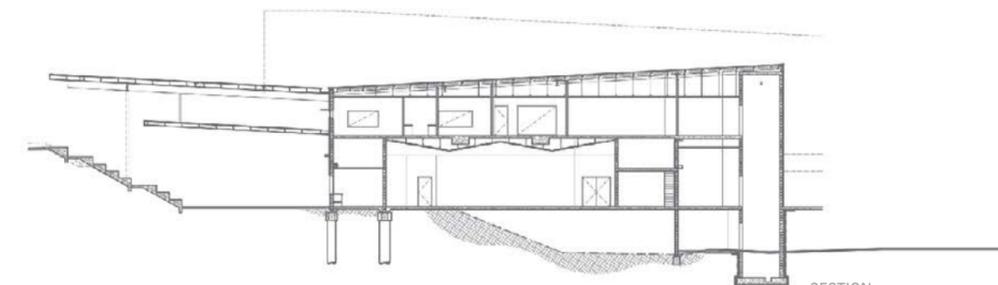
Indeed, the sheer quantum of accommodation and the complexities associated with acoustic treatments put considerable pressure on the project budget. With the modest funds available, this fabulous asset for St Peter's was made economically feasible through the architect's thoughtful integration of steel building products.

One of the project's great successes is a new covered amphitheatre carved into the hillside. Two crisp, white horizontal canopies define the double-height ceiling space lined in perforated Stramit® Acoustic Panels made from COLORBOND® steel in the colour Surfmeister®. ➔



SECTION

ABOVE: Two crisp white horizontal canopies define the double height entry space



SECTION

PANEL SAYS

This simple graphic facade – created entirely with a restrained palette of COLORBOND® steel colours – articulates what is essentially a big shed in an elegant and dynamic way. We admire the simplicity of the oversized entry canopy, where it is clear that the project team has taken considerable effort to reveal only the largest steel members while concealing secondary structural elements. This canopy provides an expansive yet intimate space – like a town square – for students and the wider school community, thanks to its lightness and permeability. We think this clever and generous building is a terrific project that achieves spatial richness with modest means.

BELOW: Crisply detailed canopies provide shade and shelter to the amphitheatre

BOTTOM: Horizontal trusses brace the tall, slender block walls and double as lighting gantries

The upper part of the expansive white planes rests on an expressive gloss black structure comprising 530 UBs elegantly connected to 220 CHS columns. The lower plane is suspended from above on slender 100 RHS hangers, a strategy that minimises the number of columns in the active entry space. To minimise the bulk of the canopy, the primary structure is expressed while sub-framing is concealed.

The auditorium volume cladding is made from COLORBOND® steel in Stramit Longspan® profile, in a clever combination of colours including Monument® and the COLORBOND® Metallic colours Axis® and Facade®. These form a playful, elongated harlequin pattern.

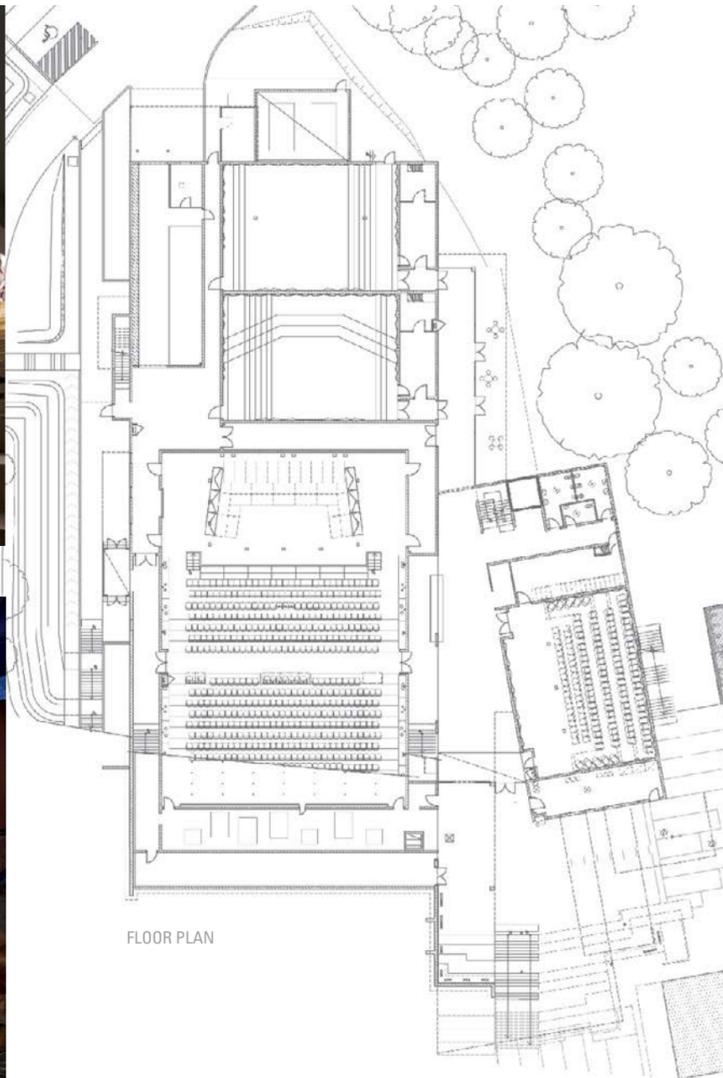
The result is a geometric camouflage effect that animates what might otherwise have been a lacklustre shed – demonstrating that modest funds can indeed produce exceptional results with a little creative thinking.

Phil Ward explains the contractors followed PSC's documentation very closely. "We did a lot of three-dimensional detailing of the junctions. The flashings are fairly standard, it was the overall sequencing that was important," he says. "It went together like giant shingles." The workmanship on the facade is excellent: in some parts, up to eight folded COLORBOND® steel flashings come together and align consistently.

Business development manager Colin Gifford from cladding company Haggarty Roofing says the wall cladding system was unusually intricate. "It was challenging but very rewarding as the project progressed," says Gifford. "From the first time we saw the drawings it was apparent that this project would have people talking. The design criteria really highlighted the flexibility of COLORBOND® steel and how it can be used to create a unique and eye-catching appearance."



The harlequin-patterned facade of the auditorium disguises the scale of the theatre and animates the public domain



FLOOR PLAN

Volume roofing is made from COLORBOND® steel in Stramit Speed Deck Ultra® profile, in the colours Shale Grey™, Surfist® and Monument®. Stramit's FarLap® roof lap joint system was used for longer roof sheets.

Ward and the consultant team developed a clever hybrid structure capitalising on the versatility of structural steel. Concrete block walls, some as tall as 12 metres, are braced with both vertical and horizontal steel trusses that reduce their vertical span. Horizontal steel trusses form the floor of the access gantries that wrap the perimeter of the interior. A series of four metre-deep pairs of Vierendeel trusses span the main auditorium space. The trusses are used as the lighting rigs, accessed from the perimeter gantries.

Ward modestly states this strategy "is one of the reasons it is a very economical building". This integration of steel has eliminated the need for any major columns in the auditorium. The vertical trusses also support pleated acoustic panelling. These sculptural elements appear playful and add to the overall composition but they are also highly practical. "There is not one element in the hall that is not there for a functional purpose," Ward adds.

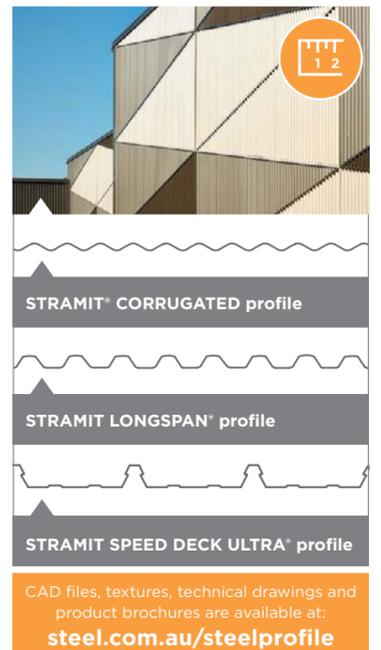
At St Peters, what appears internally to be decoration is highly functional; the folds of the ceilings and walls along with the jauntily angled pipework are all vital to the acoustic performance of the space.

While the patterning of the decorative facade has no pragmatic role, it adds interest and a unique identity

While the patterning of the decorative facade has no pragmatic role, it adds interest and a unique identity to an important facility on the campus.

The new Performing Arts Centre is a fabulous asset for St Peters Lutheran College, which will reap the return on its investment for years to come. The clever use of steel, both structurally and decoratively, is integral to the project's success.

A peek inside the auditorium before leaving reveals a dozen or so flautists marching on stage in preparation for an Anzac Day commemoration. Akin to the harlequin pattern of the building, the troupe is a little out of step yet delivers a most impressive effect. SP

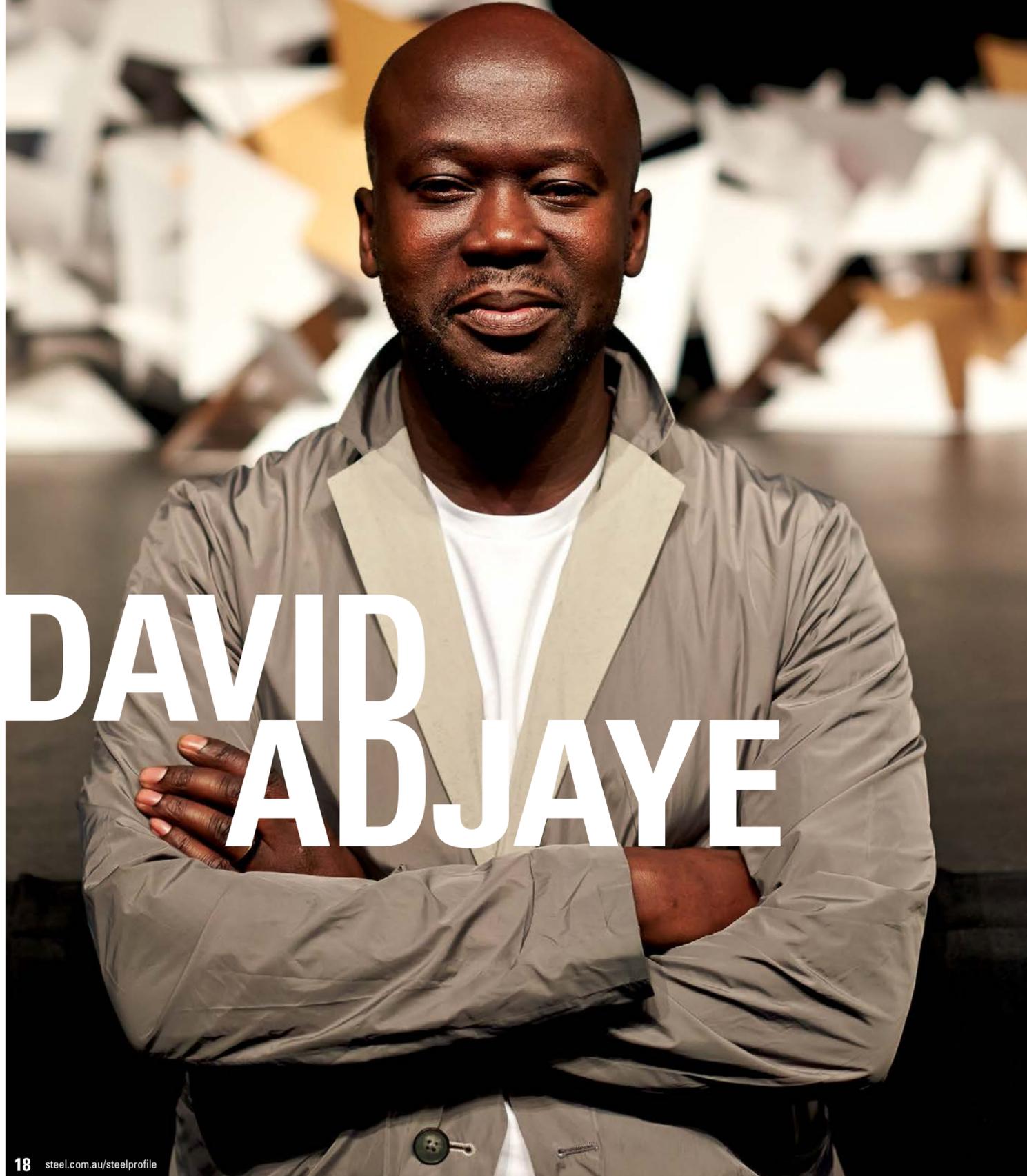


CAD files, textures, technical drawings and product brochures are available at: steel.com.au/steelprofile

PROJECT St Peters Lutheran College Performing Arts Centre **CLIENT** St Peters Lutheran College **ARCHITECT** Phillips Smith Conwell Architects **PROJECT TEAM** Project Director, Phil Ward; Project Architect, Camilo Echeverry; Documentation, Camilo Echeverry and Luke Cox **STRUCTURAL & CIVIL ENGINEER** Opus (Structural Engineer), Bornhorst + Ward Consulting Engineers (Civil) **BUILDER** DGW Group **STEEL FABRICATOR** Kyst Engineering **SHOP DRAWING CONTRACTOR** Timeline Drafting **CLADDING CONTRACTOR** Haggarty Roofing **LANDSCAPE ARCHITECTS** Gamble McKinnon Green **ACOUSTIC ENGINEER** James Heddie **PRINCIPAL STEEL COMPONENTS** Roofing: made from COLORBOND® steel in Stramit Speed Deck Ultra® profile, in the colours Shale Grey™, Surfist® and Monument®. Stramit's FarLap® roof lap joint system was used for longer roof sheets. Walling: made from COLORBOND® steel in Stramit Longspan® profile, in the colour Monument® and the COLORBOND® Metallic colours Axis® and Facade®. Soffits: made from COLORBOND® steel in Stramit® Corrugated profile in the colour Surfist® and made from COLORBOND® steel in (perforated) Stramit® Acoustic Panel System profile, in the colour Surfist®. Structural steel: 530 UBs, 220 CHS columns, 100 RHS hangers **PROJECT TIMEFRAME** 2.5 years (design to completion) **AWARDS** 2014 Australian Institute of Architects Queensland Chapter Awards – Public Architecture – Commendation **BUILDING SIZE** 4995m² **TOTAL PROJECT COST** \$12.6 million

Curiosity about the world and its diverse people and places lies at the heart of David Adjaye's work, which appears on four continents and extends from the domestic to the monumental. *Steel Profile* met him in Perth. Words **Rachael Bernstone**
 Photography **Peter Bennetts (portrait)**

DAVID ADJAYE



As a child, David Adjaye quickly learned to appreciate, interrogate and seek out difference. Born to Ghanaian parents in Tanzania, he lived in 12 African countries – following the path of his diplomat father – until the age of 14 when the family moved to London. He studied architecture at London South Bank University and the Royal College of Art, and continued his engagement with the African continent after graduating, eventually visiting 53 major African cities over the course of a decade.

"I was visiting the continent almost every other month between 2000 and 2011, so a sort of double-world was happening," he recalls. The images he captured during those travels – of cities, buildings, people and landscapes – form the basis of his seven-volume book, *Adjaye Africa Architecture*, which divides the continent into six geographic zones. These zones generate similar approaches to architecture and building, irrespective of political and cultural differences, Adjaye says.

His accomplishment in completing this mammoth and unprecedented task demonstrates that Adjaye possesses an unusual ability to get to the nub of a place through analysis of its geography. Unlike other 'starchitects' – whose buildings often share a similar aesthetic and palette of materials no matter where they are in the world – Adjaye's projects are firmly rooted in the local.



ABOVE: The glass and steel curtain wall of Denver's Museum of Contemporary Art sits in stark contrast with the black weathering steel cladding of the also Adjaye-designed LN House next door (below)



"I'm fundamentally interested in the way that specificity-to-geography and climate can create meaning and reason in architecture," Adjaye says.

After graduating, Adjaye worked for Chassay Architects (1988-90), David Chipperfield Architects and Eduardo Souto de Moura Architects (both 1991) before partnering with William Russell to launch Adjaye & Russell in 1994. He then established his own firm – Adjaye Associates – in London in 2000. His practice began on a typical footing, starting with small-scale residential alterations and additions, and single-family houses.

One of these, for actor Ewan McGregor (2000) featured steel columns and beams that enabled Adjaye to create larger volumes to contrast with the smaller, segregated rooms of the original Victorian terrace.

"Steel work was very important in the early parts of my career when I was dealing with the existing city and trying to remodel and create contemporary life," he says. "That was about using steel to reinforce or create exoskeletons into masonry structures, to create new spans and new possibilities for contemporary life. Without steel, it would have been impossible to do any of that work."

Having undertaken several small public building projects in London, including the Stephen Lawrence Centre and two public libraries called Idea Stores, the scope and reach of the practice started to shift in 2004, when Adjaye won his first commission in the USA. The new Denver Museum of Contemporary Art is a modest 2320m² building over three storeys that hosts temporary exhibitions. It features naturally lit galleries bounded by steel-framed, double-glazed curtain walls, which accentuate permeability and transparency. They offer a stark contrast with the house he also designed next door – for MCA board



ADJAYE ASSOCIATES

member and donor Marc Falcone and his wife – which presents a windowless face to the street and is clad in black weathering steel.

“I’ve become quite obsessed with the materiality of metals, not just as skins but the performative nature of metals,” Adjaye says. “They have their own ecology, they oxidise and have their own power. I love cast metals or metals that have properties that naturally oxidise and patina.”

Adjaye’s success in winning overseas projects was cemented when his scheme for a new business school in Russia won a design competition. Where other entrants opted for campus-style accommodation, Adjaye proposed a single 150m-wide disc with ‘boxes’ and cantilevered ‘rods’ on top. Inspired by “the power of futurists, including historical Russian constructivist imagery”, he put the entire program of school, car park, hotel, gym and conference centre under one roof, to protect occupants from the six-month long winters with their sub-zero temperatures and deep snow cover.

“We won the Moscow School of Management in 2006, and it was our first big international competition,” Adjaye says. “It changed the office from small- and medium-scale to doing large projects around the world.”

Other global projects since then include the Nobel Peace Centre in Oslo (2005), the Arario Gallery in New York (2007) and post-Hurricane Katrina housing in New Orleans (2007). In February 2014, Adjaye’s Piety Street Bridge and Crescent Park projects were unveiled in the same city.

Piety Street Bridge is a curved pedestrian structure made from weathering steel that re-connects the neighbourhood to the Mississippi River, crossing railway tracks which prohibited access to the water’s edge for more than 100 years. The material selection

references the railway trucks and container ships that serve the port of New Orleans, a city “absolutely made by its river,” Adjaye says.

The weathering steel structure cost no more to build than a typical industrial bridge, but its poetic shape and rustic materials give it a transformative quality. “It’s a very simple form – it’s clipped together – but it creates this moment where, at the top, you look to the city, then the water, and it releases a view of the waterfront as you come down,” he adds. “Suddenly you are in this landscape that was once completely forbidden to residents.”

ABOVE: The National Museum of African American History and Culture in Washington DC – due for completion in 2016 – is Adjaye Associates’ most important project to date

BELOW: The weathering steel ‘rainbow’ of the Piety Bridge in New Orleans, completed in February 2014, provides access to the waterfront for the first time in 100 years

OPPOSITE BELOW: Winning the competition to design the Moscow School of Management made Adjaye Associates a global architecture firm



ADJAYE ASSOCIATES

In Crescent Park, a series of weathering steel and cast red concrete pieces create a walkway, a jetty, benches and walls – all of which invite habitation of the space. “It’s a way to give back to the city using stuff that’s already there, to give people back their own collective memory and their own industrial past,” Adjaye says, “but also to create fiction and future, which I think is really important.”

Those are sentiments echoed in his biggest and most ambitious project to date: the National Museum of African American History and Culture (NMAAHC), currently under construction for the Smithsonian Institute in Washington DC. Six years into an eight-year build, the museum is the last “palace of culture” within the city’s Pierre Charles L’Enfant masterplan dating from 1791. It sits alongside 23 other cultural institutions which Adjaye collectively calls “the great depository of the world’s civilisations”.

“Steelwork was very important in the early parts of my career. That was about using steel to create exoskeletons into masonry structures. Without steel, it would have been impossible to do any of that work”

With its brise soleil cladding – reworking the traditional cast iron screens of Washington DC – and crown-like form, the museum pays homage to the Yoruba people of West Africa, who were transported to America as the country’s first slaves.

“This is not a museum in the traditional sense of an archive, or an experience of phenomena,” Adjaye says. “This is a museum that’s trying to deal with – for the first time – the way in which history removes certain narratives from its trajectory. It achieves that by placing another narrative into it.

“The lens is about understanding what the United States is, so I became really excited by this project when we won it,” he adds. “And the building needed to signify a different narrative right from the outside.”

Rather than elevating the museum on a monumental plinth, like its Greco-Roman style neighbours, Adjaye buried its bulk underground. “The plinth is submerged with a cube on top, to make an urban room,” he says. “The steelwork is coming out of the ground now for the cube, which will contain the biggest exhibition space in Washington. You’ll be able to dive into the whole of African American history from 200 years in one room.”

Having worked all over the world, and on many building types, Adjaye deliberately sets himself apart from his peers who enjoy similar international standing. “I don’t think there’s anything wrong with the term generic,” he says. “Sometimes buildings are just about making stuff that just has to happen, and that’s actually an amazing part of what we do. Sometimes there are moments when an element of innovation is required, but these approaches are totally equal.

“We’ve become obsessed with the avant garde as a signature of design,” he adds, “but it’s not really about that. It’s about understanding exactly what’s appropriate for each condition.

“As young architects trying to make the city, I think we believe that architecture is about trying to do stuff, but actually design gives us an opportunity to show restraint. It’s about: ‘How much can you not do?’. That’s the art of architecture.”

Speaking at the same conference in Perth, South African architect Jo Noero acknowledged the value of Adjaye’s travels through and curiosity about Africa. “David’s work is wonderful and the research he has done on the African city has been a shot in the arm for African architects,” Noero says. “It took someone who is not living in Africa to come with very clear eyes, and to write the books that you wrote, which have fundamentally shifted the way we think about African architecture. We are very grateful for that.”

In closing, Adjaye is asked whether he has a favourite place or project, or has found a building type or location more stimulating or thought-provoking than others, and he laughs. “If I was to say I prefer somewhere, I would flout my entire argument,” he explains. “I’m a great lover of the planet and all its diversity, so it’s continually about discovering new ways in which the planet has evolved to its geography that is fascinating.

“It’s why I love travelling, why I love going to new places,” he adds. “It’s not simply to just tour, but to really experience the kind of multiplicity of the way in which the planet has evolved, and people have evolved on it, and how they use it. So no, no favourites, just continually enjoying it.”

The world of contemporary architecture is richer for his incredible inquisitiveness and ability to translate his new knowledge into buildings that – wherever they are in the world – blend geography and location with cultural and historical meaning to create their own unique qualities. Through his intuitive understanding and analysis of place, the global architect David Adjaye creates buildings that provide local resonances for the people who experience them. SP



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A steel and glass canopy at Melbourne's iconic Federation Square pushes the boundaries of engineering and construction to create an otherworldly shelter.

Words **Alex Taylor** Photography **Trevor Mein**

ARCHITECT
Maddison Architects

PROJECT
Cloud Canopy

LOCATION
Melbourne, Victoria

Having undertaken several hospitality projects at Melbourne's Federation Square, Maddison Architects had an intimate knowledge of the precinct's landmark architecture. So when it was asked to tackle an underperforming section, the team welcomed the challenge (albeit with some reservations).

"The eastern corner wasn't working so well: it was a jumble of loose umbrellas and pedestrian flows were not smooth, so Federation Square management came to us seeking improvements," explains Kim McLaren, architect at Maddison.

The architects suggested three main additions in their response: a performance stage, a new urban LED screen, and the canopy, which was then selected as stage one of the revitalisation project.

As well as providing shade for café patrons and directing pedestrians into the atrium beyond, McLaren wanted the new insertion to read as a sculptural element. "We needed to design a standalone object that would be strong enough – with sufficient bulk and critical mass – to not disappear or get lost in that space," he says. "We took some early cues from Foster and Partners' steel-framed glass roofed structure at the Smithsonian Institution [in Washington DC], which uses an elegant diamond-shaped glass lattice to create an enclosed courtyard space.

"We also liked the crazy stuff by Belgian artist Arne Quinze, whose giant red sculptures of tangled sticks are wild, bright and in your face," McLaren adds. "We found a middle ground between that and Norman Foster's approach with the design we pitched for the canopy."

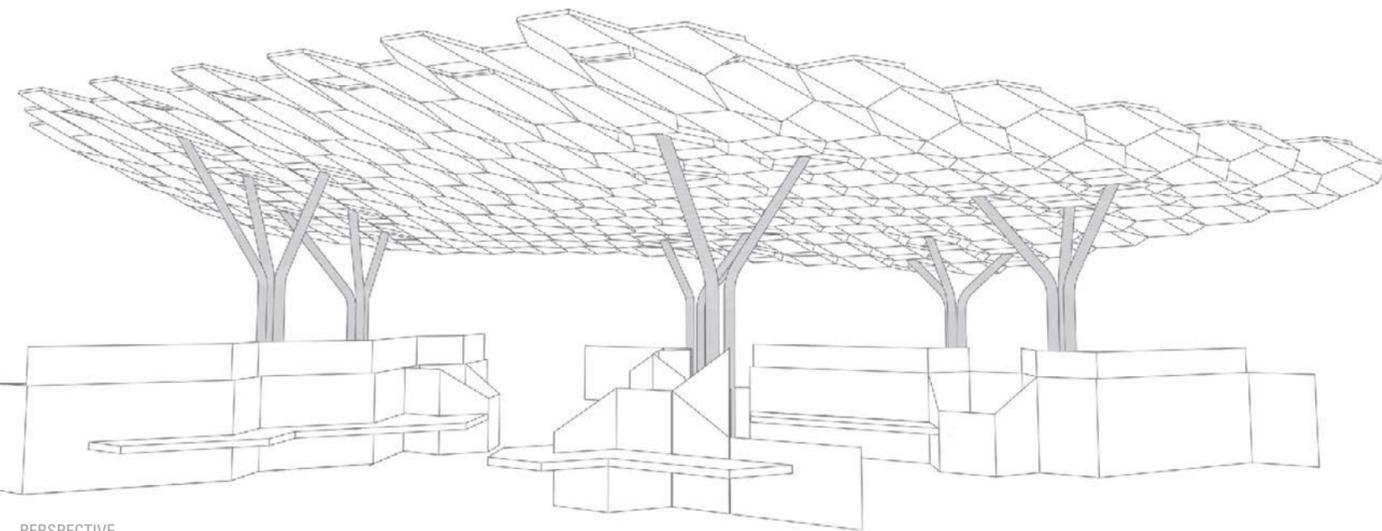
There were several key constraints that guided the design, including a short timeframe for on-site construction, difficulty accessing the site, and weight limits that result from Federation Square's concrete platform foundation, which straddles railway tracks below.

"Essentially we had to develop a system that could allow the canopy to touch the ground plane as lightly as possible, without relying on any of the surrounding buildings for support," McLaren says. "So we investigated different structural systems, and which forms would give us good cantilevering ability from column supports with big spans.

"That's how we came across the hexagonal or honeycomb lattice, which has a great inherent structural strength, strength-to-weight ratio and rigidity in its form, and allows that flexibility of design," he says.

The architects then began discussions with structural engineers at Hyder Consulting to refine the honeycomb shape for optimal solar performance. "In winter, you want to limit the amount of shade cast by the structure, but in summer people want to retreat into the shade, particularly during heat waves such as Melbourne experienced this year," McLaren says. "We looked at ways of filtering dappled light through the glass for winter and summer conditions, and started playing with how to extrude the honeycomb structure in a northerly direction, in response to the sun's lower angle in winter." ↗

A lot of people don't realise that there are no big steel beams, it's completely self-supporting using just BlueScope XLERPLATE® steel welded together

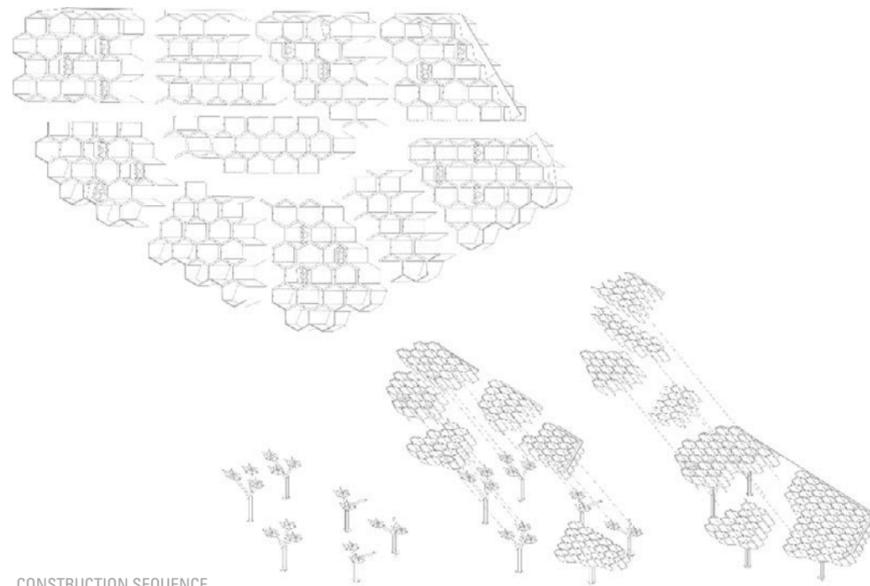
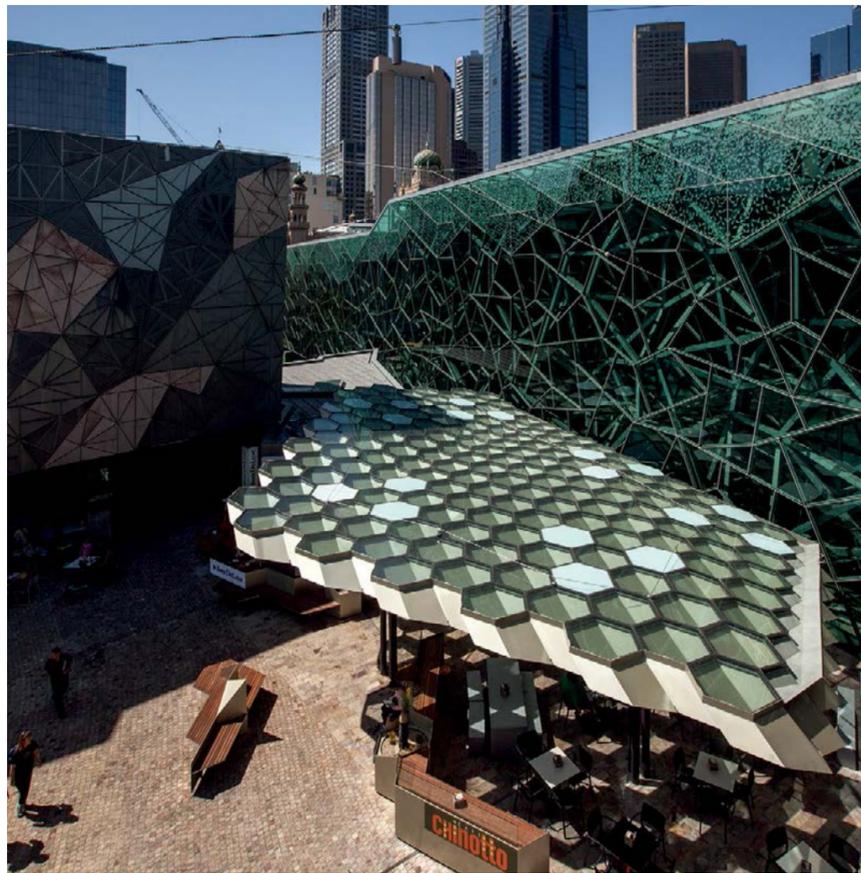


PERSPECTIVE



ABOVE LEFT: Public art installation *The Sequence* (2008) by Belgian artist Arne Quinze outside the Flemish Parliament in Brussels, Belgium
ABOVE RIGHT: Smithsonian Institution by Foster + Partners in Washington DC, United States





CONSTRUCTION SEQUENCE

ABOVE: From a birds-eye perspective, the uniformity of the hexagons is evident, whereas from below (opposite), the openings appear irregular because the angle of the pitch varies between six and 12 degrees

“The structural engineers weren’t delighted with our proposal,” he recalls, “because once you start squashing the structure over – rather than using a perpendicular extrusion – it becomes much less efficient.”

The project progressed through many computer programs, firstly at Maddison where the original concept was created in *SketchUp*. Design was undertaken in *Rhino* and documentation in *AutoCAD*, then at Hyder, where *Strand7* was used for structural analysis, and finally at Two Feathers, the shop drawing detailer, where *Inventor* was used for the steel work. McLaren says it was a demanding process to determine the spans and a uniform steel thickness that would support the entire canopy.

“When we brought the scheme to Hyder it was fairly well developed but it was difficult for the engineers to intuitively say: ‘Yes, that span will work,’ or ‘We can use this thickness of steel,’” McLaren says. “They imported our 3D model into their 3D modelling system to look at every element in terms of deflection and stresses on it.

“We’ve got beautiful images from Hyder’s 3D model that show how stresses are increasing as the canopy tries to cantilever out further away from its supports,” McLaren continues. “We would have had a dozen different schemes going back and forth where we adjusted the size of the hexagons, and how far they were stretching from one column support to another, so the engineers could give us detailed feedback.”

The hexagons are a uniform size on top of the canopy – they had to be in order to install identical glass panels over each one – but the roof pitch changes on three angles (12, six and 12 degrees respectively) making them irregular underneath.

“Hyder were fantastic in enabling us to refine that structural system down to just eight millimeter-thick steel plate throughout.” McLaren says. “A lot of people don’t realise when they look at the structure that there are no big steel beams, there’s nothing hidden to hold it up: it’s completely self-supporting using just 8mm thick BlueScope XLERPLATE® steel welded together.

“There are not many structures that do that,” he adds. “Hyder had never tested it before, and it was new for us, so they did a great job resolving it to such an extent.”

For structural engineer and Hyder associate director Dominic Li, working on this project was a career highlight. “This is one of the most challenging projects I have been involved in because of its geometry,” he says. “I don’t know how we could have done it without the aid of 3D design and documentation software.”

The team initially considered two possible construction materials for the canopy, but, with input from the fabricator, eventually settled on BlueScope XLERPLATE® steel 250 Grade 8mm-thick plate. “We were conscious of keeping the total weight of glass and structure down, because the project cost would have doubled if we’d had to reinforce the supporting columns at railway track level,” McLaren says. “That’s why we looked at aluminium as an alternative for the structure, but our research revealed that steel was the most economic and logical, in terms of ease-of-fabrication and welding on site.”



“We’ve got beautiful images from Hyder’s 3D model that show how stresses are increasing as the canopy tries to cantilever out further away from its supports”

PANEL SAYS

The architecture of Federation Square is so rich and complex that it’s a difficult proposition to design new spaces that will sit comfortably within the existing built form. This all-steel canopy proves, though, that it is possible. The honeycomb structural steel system that was developed to achieve precise sun control is particularly effective. We like both the scale of the canopy and the up-tilt of the front edge, a simple gesture that alerts people in the plaza below to its presence from afar. These qualities help the Cloud Canopy to assert its own unique presence while integrating with the architectural fabric of Fed Square. As a small yet highly detailed insertion, we think it makes a compelling contribution to Melbourne’s urban playground.

To meet the requirement of a short on-site construction period – a mere 10 weeks from September to November 2013 – the team worked hard to refine the pre-fabrication process to streamline construction, treatment, delivery and assembly on site. “To the architect’s credit and with Fed Square management’s support, we had a shop drawing detailer – Julian Featherstone from Two Feathers – on the design team,” Li says. “His shop drawings were part of the tender and contract documents, so the fabricator could start fabrication soon after the construction contract was awarded.

“The whole process of working with the steel detailers was incredibly important to make sure we had designed something that was feasible and buildable, but we didn’t make the fabricators’ lives completely easy,” McLaren adds. “The simplest solution would have been to allow the fabricators to bolt it together, but we never gave them that option because we were looking for something that was seamless.

“We did a lot of work to determine how to site-weld these junctions in an efficient way, because each junction is three plates of steel meeting together in a ‘Mercedes Benz symbol’ star formation,” he explains. “We produced full-sized prototypes to work out whether to weld on all three sides, or weld them together in one go – and we managed to figure out a way to do that – while still ensuring it was done within the tolerance of the whole structure, within a few millimetres of accuracy.”

The original shop drawings had the canopy divided into 10 sections for transport and delivery but the steel fabricator Rob Nealy from Custometal Engineering, chose to divide it into 20 pieces. “Getting the different pieces to the painter, then to site, required a pilot escort and driving through the city was an exercise in patience,” Nealy says. “Also, the weight limitations of the concrete slab foundation required us to work out which size crane to use, which then dictated how heavy each section could be.”

The decision to use BlueScope XLERPLATE® steel was made primarily by the fabricator, although architect and engineer stipulated the thickness of the plate and to ensure the chosen product would perform to specification. “It really was our choice,” Nealy says. “While it’s recommended that we use Australian product, we can make a decision to use a different supplier. But, we didn’t want to gamble on quality and wanted to ensure compliance to all the necessary standards and codes, so we chose what we know to be a quality, consistent product.”

The hexagonal canopy is supported by six ‘trees’ or columns, each with three ‘branches’. Four of the ‘trunks’ were made using mild steel and two were constructed with stainless steel: they function as integrated downpipes. All of the steel was treated with a four-layer paint system that is expected to last for 50 years: the canopy was finished with a metallic gold paint in the colour FX 41/089, which gives it the impression of glowing or sparkling

depending on the sun’s angle, while the ‘trees’ were painted in grey, so they appear to recede into the background.

At night, each of the 180 hexagons are lit with LED lighting: three strips on the northern sides throw light onto the gold steel surface, giving the impression the honeycomb cells are ‘glowing’. Beneath the canopy, joinery was constructed with mild steel plate and timber to demarcate three distinct zones on the ground – the cafe tenancy, public access to the atrium and public seating outside the café.

The canopy lifts up slightly at its western edge, which McLaren says was a deliberate attempt to draw people up from the plaza, and to welcome them into the space. “We thinned off the profile on the leading edge to expose the belly of the canopy, to create a sense of intrigue, of ‘What’s going on under there?’,” he explains.

The name Cloud Canopy is derived from the initial design inspiration for an ethereal object that appears to float freely above Federation Square. “It has soft edges, an irregular and fluid form, and is partially transparent, when looking up through it to the sky,” McLaren says. “We also liked that the name references the weather, which was another key design consideration.”

McLaren believes the canopy has met its functional brief, in terms of activating a previously under-utilised section of Fed Square. “The day it opened, I was doing my usual defects inspection, and within half an hour of the barriers coming down, there were dozens of people walking straight up the square and into the atrium, and I’d never seen people do that before, because it was perceived to be private café space,” he explains.

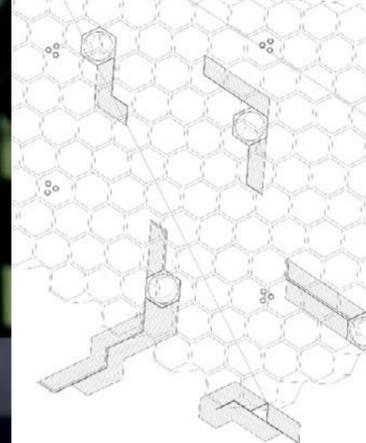
The canopy provides some unexpected delight too, as McLaren discovered after it was finished. “The ability to look up through the lightweight steel and glass windows is otherworldly, and I hadn’t expected how powerful it would be before I did it myself for the first time,” he says.

And as for Fed Square’s original architects? They like it too, McLaren says. “One thing I feel quite proud of as far as the design goes is that we had some lovely comments and feedback from LAB Architects,” he says.

“That was always a big concern for us, because naturally there were a lot of eyes on us in that space, and we didn’t want to interfere with LAB’s vision,” McLaren says. “It can be a scary prospect going into someone else’s territory.”

So despite the Cloud Canopy being challenging on myriad fronts, not least of which is its complex steel geometry, Maddison Architects has produced a spectacular result. “Fed Square management wanted something special in that place, and so while what we’ve created is not the simplest, most rational or cheapest shade structure,” McLaren says, “they were willing to set budget aside for the sake of a high quality, crafted object.” **SP**

PROJECT Cloud Canopy **CLIENT** Fed Square Pty Ltd **ARCHITECT** Maddison Architects **PROJECT TEAM** Kim McLaren **STRUCTURAL & CIVIL ENGINEER** Hyder Consulting
BUILDER & STEEL FABRICATOR Custometal Engineering **SHOP DRAWING CONTRACTOR** Two Feathers **PRINCIPAL STEEL COMPONENTS** Hexagonal roof structure: Eight mm-thick BlueScope XLERPLATE® steel 250 Grade plate; mild steel structural columns and integrated stainless steel drainpipes **PROJECT TIMEFRAME** Three months to site assembly
AWARDS 2014 Australian Institute of Architects Victorian Chapter Awards – Commendation for Urban Design **BUILDING SIZE** 210m²



CLOUD CANOPY ‘GREEN’ CRED’S

As well as being an architectural and engineering marvel, Cloud Canopy incorporates many sustainable design attributes across the triple-bottom line of environmental, social and financial aspects. The design embodies the concept of bio-mimicry – where built forms take their cues from the natural world – by replicating the effects of deciduous trees. In this case, the unique structure – with its angled steel-plate roof supported by six steel ‘trunks’ – offers shade in summer yet allows the sun to reach the ground in winter, just like a cyclical forest.

The use of lightweight, self-supporting steel columns and steel plate provides both financial and environmental advantages. The steel is durable and has been treated to provide a maintenance-free life span of 50 years, and it has the capacity to be recycled in future, should requirements change. Also, because the Canopy employs the ultimate passive solar design strategy, there is no need for daytime lighting, which reduces energy consumption.

Socially, the canopy contributes to the overall quality of Fed Square by creating a new place for people to gather and connect. The wide spans made possible by the use of steel allow people to congregate underneath, or walk through and around the structure, without impediment. At the same time, Cloud Canopy exerts its own unique presence and builds upon the ethos of place-making that was intrinsic to the design of Fed Square from the outset.

In short, Cloud Canopy is an exemplar of climate adaptive design. Climate responsive projects such as this are perfectly designed to provide shelter as future climate changes take effect.

“The ability to look up through the lightweight steel and glass windows is otherworldly, and I hadn’t expected how powerful it would be before I did it myself for the first time”

LIGHT & FREE

This relaxed and elegant hinterland residence uses steel and glass to redefine the traditional lightweight coastal retreat.

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

ARCHITECT
Tzannes Associates and
Bosanquet Foley Architects

PROJECT
Byron Hinterland Residence

LOCATION
Coorabell, New South Wales

In a career spanning more than 30 years Alec Tzannes has developed a solid name for a certain kind of residence – the classic urban beauty clothed in subtle shades of render. But it is just that – a reputation rather than a predisposition – as a closer review of the practice’s work reveals.

Since 1983 Tzannes Associates’ architectural timeline has been punctuated at regular intervals with steel buildings. There is a clear thread, from the Kinsella House, which was awarded *Steel Profile* House of the Decade in 1991 as well as the Wilkinson Award, to the more recent Sherman Studio, which was an Australian Steel Institute and Australian Institute of Architects Awards winner.

“Relative to volume of work, our steel homes only occur once every two or three years,” says Tzannes. “It’s not what we’re known for, it’s not what our media profile is like, but people who know our work intimately know we can handle steel.”

The owner of this Byron Hinterland Residence, having experienced a number of Tzannes’ projects in the ‘flesh’, was fully apprised of that body of work and was drawn to the practice for its attention to detail and specification, rather than a desire for a house in one material or another. Having purchased the Coorabell acreage more than a decade ago, the brief simply stipulated a family home with a relaxed attitude to living.

However, there was the small matter of the squat and suburban existing brick home on the site to overcome first. Commanding the best vantage point with the worst of intentions, it had little regard for local climate or modern living. Tzannes saw an opportunity to use the base of the original building and then impose a mega-structure of steel over it in order to provide the aspect and scale required to take advantage of the prevailing winds and deliver the client’s desired approach to space. Faced with the additional constraint of budget, Tzannes opted for a more utilitarian typology than his usual oeuvre.

“We used a very simple way of building,” he explains. “I would almost call it a factory technology. We just built a long-span truss, steel framed, with a lot of pre-fabrication offsite and a very quick erection time. There’s a big simple skillion roof which collects all the water at one end. So in the end we got a lot of volume and a lot of space with the simplest form of construction.”

“Steel gives you maximum span for minimum material... you can create a very glassy home because of the nature of the structure”



ABOVE: The superstructure was constructed from a variety of RHS, UC, UB, EA, UA, PFC and T beam steel sections and topped with an over-size roof to create a zone through which to run banks of climate-modifying louvres

BELOW: The steel-framed long-span trusses were pre-fabricated off-site, allowing for quick on-site assembly



Drawing inspiration from the vernacular architecture of the area and the double roofs found in tropical Asian environments, Tzannes made the roof larger than customarily needed in order to enclose and create a zone through which to run banks of climate-modifying louvres. Following the typography of the site, it connects the whole building and its various rooms to their surrounds. Roofing made from COLORBOND® Ultra steel in LYSAGHT TRIMDEK® profile, in the colour Shale Grey™, was specified for multiple reasons.

“It’s a very simple, inexpensive, durable and low-pitch material,” says Tzannes. “It’s extremely practical and fit-for-purpose, and probably the best choice for this type of application.”

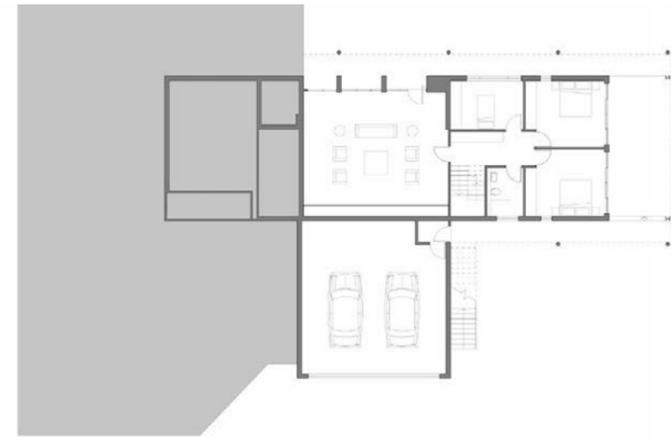
The vast roof demanded oversized accessories to match. A custom-made gutter made from stainless steel 316 and measuring 900mm across runs along the narrower dimension of the roof. It forms an architectural element in itself, as well as collecting rainwater which is recycled to irrigate the extensive gardens.

Beneath the roof, the super-structure was constructed from a variety of RHS, UC, UB, EA, UA, PFC and T-beam steel sections. Steel was chosen for its structural properties but also for its dimensional stability.

“Steel gives you maximum span for minimum material, in other words you can create a very glassy home because of the nature of the structure,”

says Tzannes. “To try to make this out of timber or aluminium, they’re more volatile materials and tend to move around a lot more, which makes moving glass elements and other moving elements such as louvres more difficult to manage simply because they jam. So the project was definitely tailor-made for steel and no other material.”

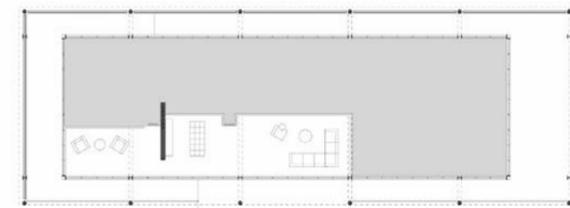
Tzannes sees skills transference as an important part of the architect’s role and used local steel fabricators on the build. He also engaged a regionally-based architect to do the documentation and contract administration. Sarah Foley, of Bosanquet Foley, had first-hand knowledge of Tzannes’ approach having spent time in his practice as a work experience student and then more comprehensively in her year out



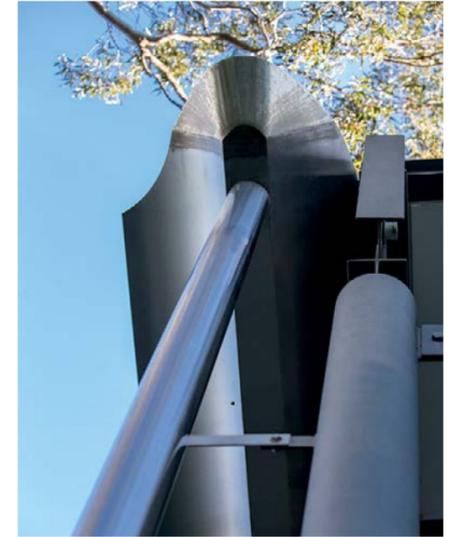
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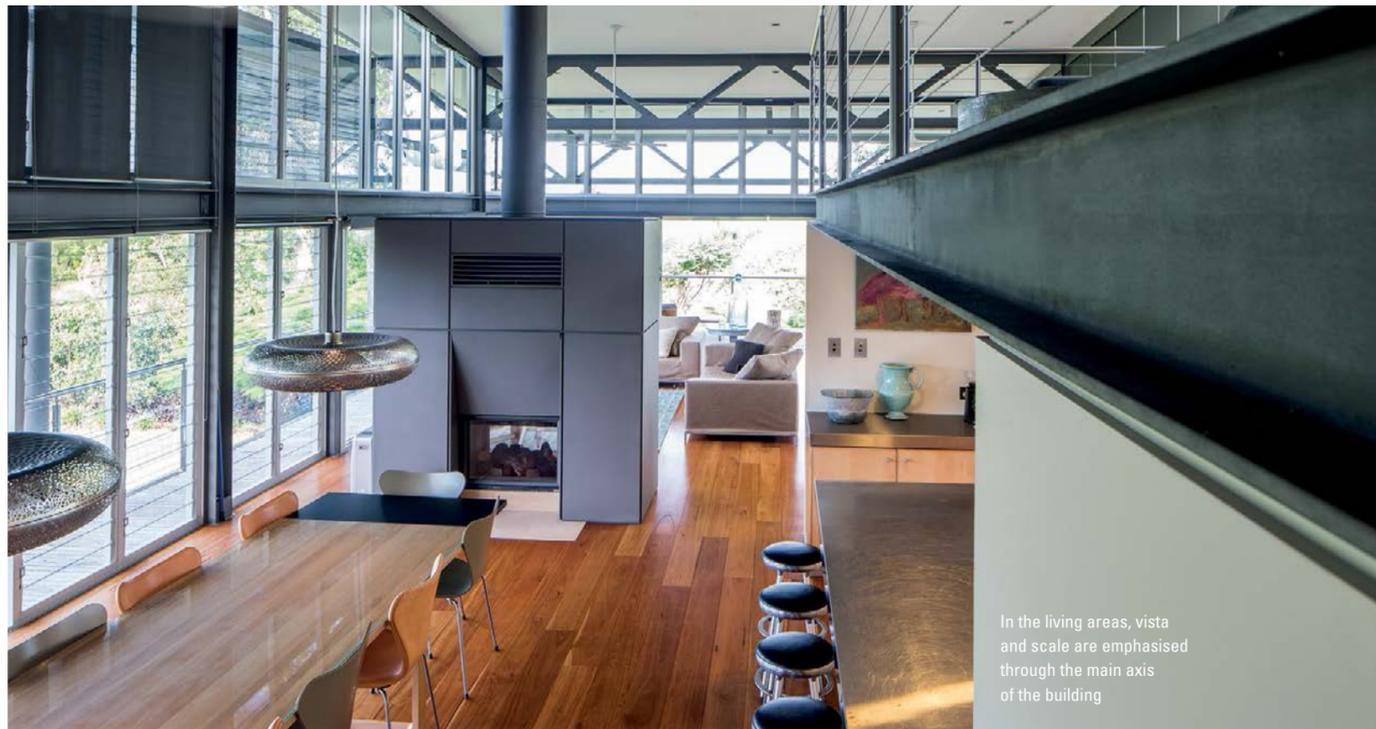
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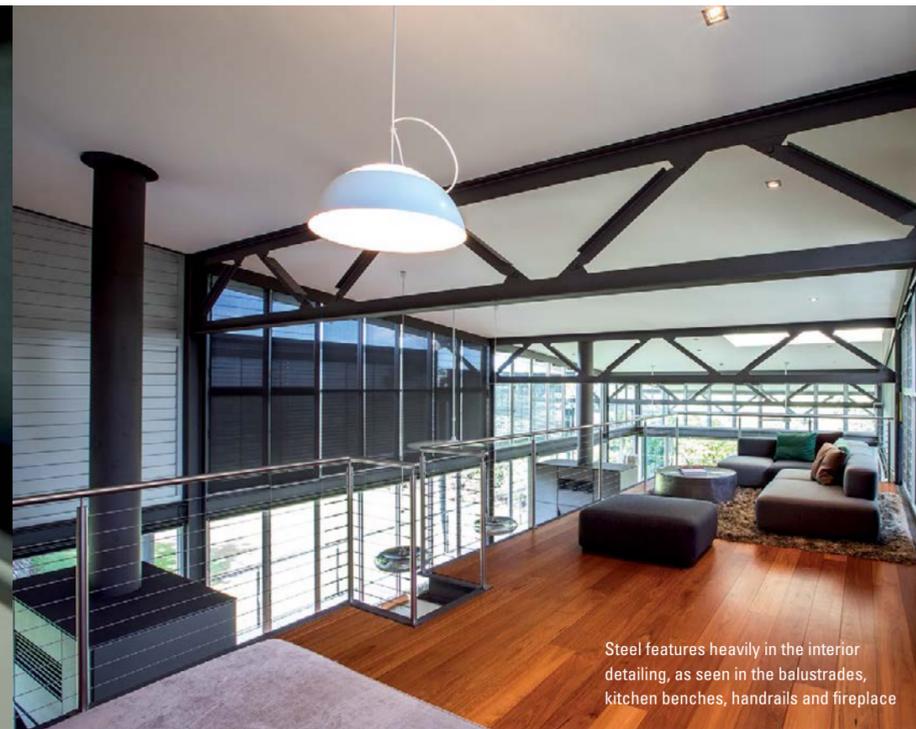
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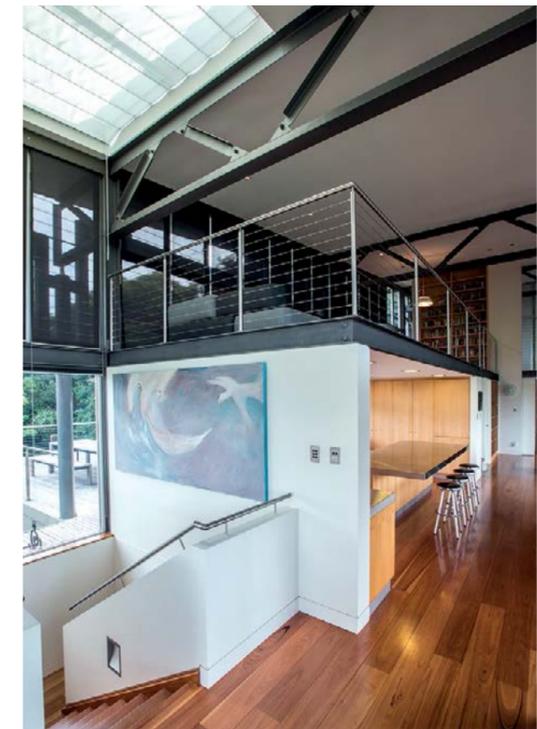
TOP: A custom gutter made from stainless steel 316 and measuring 900mm across runs along the roof, forming an architectural element in itself



In the living areas, vista and scale are emphasised through the main axis of the building



Steel features heavily in the interior detailing, as seen in the balustrades, kitchen benches, handrails and fireplace



PANEL SAYS

This is a fine example of an all-steel renovation and extension that combines exposed steel columns, beams and trusses with large sections of glazed curtain walling to create a light-filled interior space with mezzanine level. It's even more remarkable when you consider the brick and tile house that preceded this transformation: the previous dwelling didn't take advantage of the lush and verdant sub-tropical site. Holistically, this striking house is at one with its landscape, offering myriad opportunities to enjoy the garden from its many and varied rooms and spaces.

between architecture degrees. Tzannes describes Foley as an 'exceptional' young architect who was an effective and collaborative design partner, and who understood the level of detailing and the quality of work that they wanted to achieve. For her part Foley relished the opportunity to work with her early mentor once again.

"The experience was great and it was critical to have had that year of working with Alec in Sydney so I could translate his ideas into the structure," says Foley. "I knew the level of finish that they generally aimed for and the palette of materials and the palette of fixtures to incorporate into the building. So I could take that sketch design and translate it fairly easily – it was about trying to keep the integrity of what Tzannes Associates would have followed through with had they done it all from Sydney."

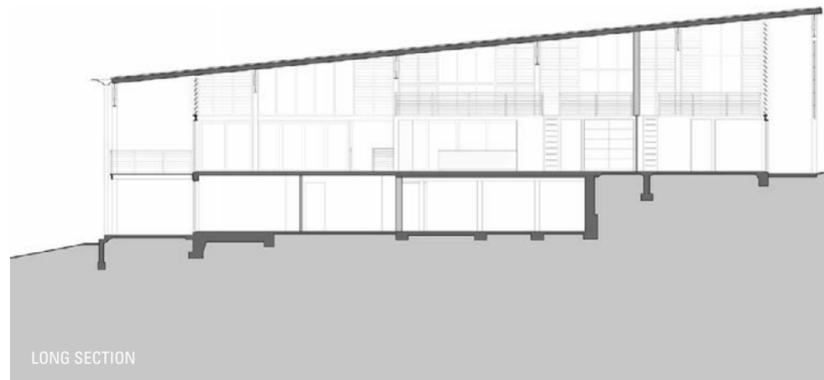
Steel features heavily in the interior detailing, too, from the balustrades and handrails to the kitchen benches and fireplace surrounds. It was a deliberate aesthetic choice, and part of an intention to integrate the interior and the exterior as much as possible. "If it was possible to build a building out of one material I would," says Tzannes. "I think that consistency of detailing from small elements to large elements reduces visual noise and makes everything hang together as a simpler element."

This light-filled and well-ventilated building has a direct dialogue with the landscape and climate, and the interaction between inside and outside is further enriched by wrap-around verandas and the internal arrangement of spaces. In the upper living areas, vista and scale are emphasised through the main axis, creating an expansive, elegant and inspiring environment. While on the lower level, hewn from the base of the earlier masonry house, the more intimate spaces of bedrooms and a children's retreat work to the cross axis.

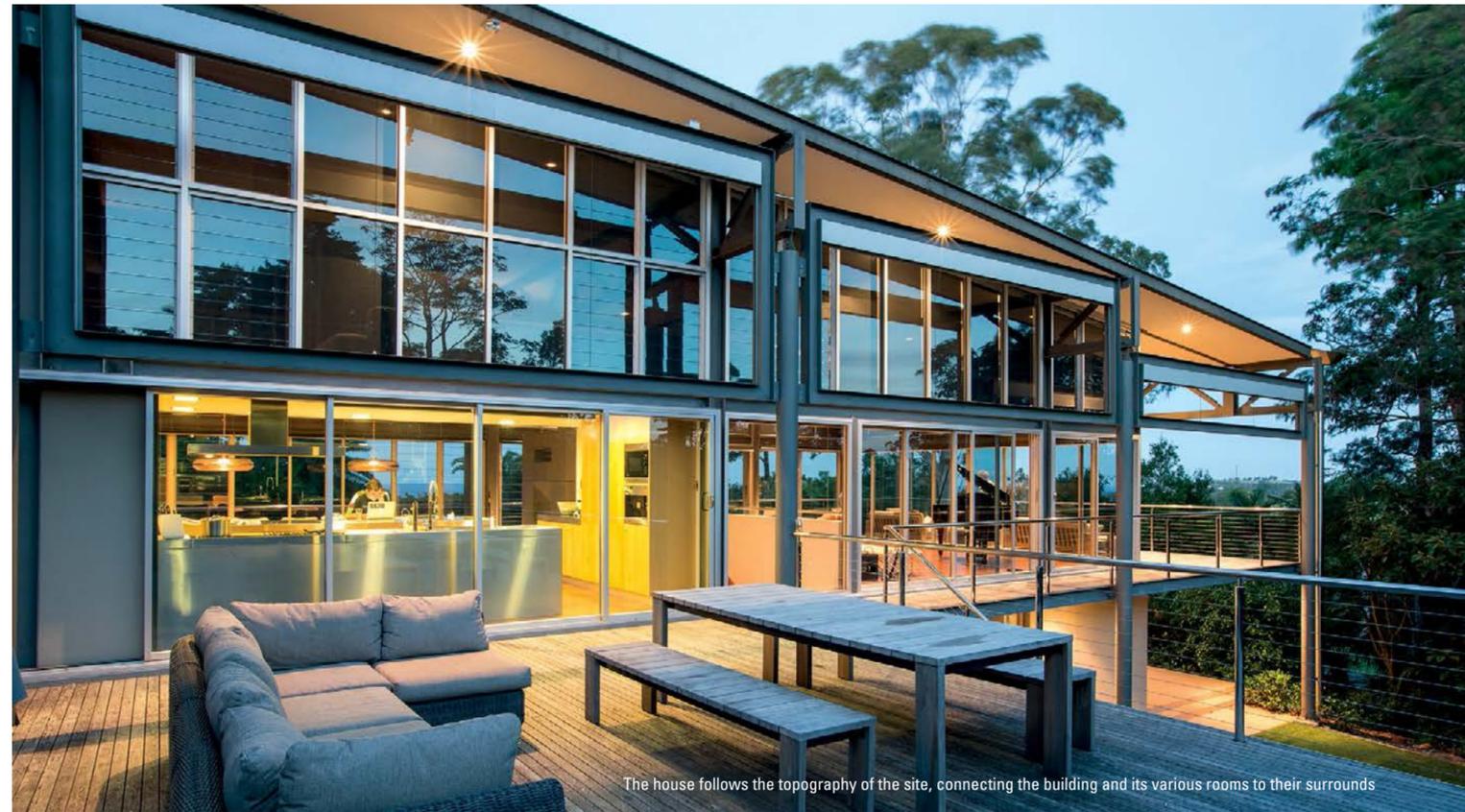
The end result is a building that is light-years away from the original, transforming the clients' way of living and their relationship with their surrounds. Tzannes is equally pleased with the outcome.

"The thing I like most about the building is its clarity and simplicity as a structure and as a spatial idea. And just the feeling that you're in Byron and not anywhere else," he says. "I call it a sense of the architecture as free because the way you want to live is free. You feel as though you are in the space and the synergy between inside and outside creates variations which affect your moods and emotions, and qualities of experience."

Whether it's a luxurious Sydney manse or a simply built coastal retreat, Tzannes' intimate appreciation of place, space and form is plain to see and provides further evidence of the transcendental power of architecture. **SP**



LONG SECTION



The house follows the topography of the site, connecting the building and its various rooms to their surrounds

PROJECT Byron Hinterland Residence **CLIENT** Roderick Peters **ARCHITECT** Tzannes Associates and Bosanquet Foley Architects **PROJECT TEAM** Alec Tzannes – Tzannes Associates, Sarah Foley – Bosanquet Foley Architects **STRUCTURAL & CIVIL ENGINEER** Bill Short **HYDRAULIC ENGINEER** Doug Flannery **BUILDER** Owner Builder (John Dickford assisting) **STEEL FABRICATOR AND SHOP DRAWING CONTRACTOR** Mullumbimby Engineering **LANDSCAPE ARCHITECT** Lisa Hochhauser **GLAZING** Phillip Robin, Millennium Glass **PRINCIPAL STEEL COMPONENTS** Steel structure – assortment of RHS, UC, UB, EA, UA, PFC and T-beam sections. Roofing: COLORBOND® Ultra steel in LYSAGHT TRIMDEK® profile, in the colour Shale Grey™. Balustrade and handrails made from stainless steel 316 RHS and cable; bespoke gutter and downpipes made from stainless steel 316; kitchen bench made from stainless steel 316; fireplace surrounds made from mild steel plate **PROJECT TIMEFRAME** 2007-2010 **AWARDS** 2014 Australian Institute of Architects NSW Chapter Awards – shortlisted **BUILDING SIZE** 420m² **TOTAL PROJECT COST** \$2,000,000

2020 VISION

Reprising the traditional college quadrangle with a lightweight, cloaked twist of steel roofing, this part cave, part tree-house education building provides a great sense of space, airiness and volume.

Words **Peter Hyatt** Photography **Sarah Louise; Peter Hyatt**



ARCHITECT
DesignInc
PROJECT
Regional Community Health Hub
(REACH) Building, Deakin University
LOCATION
Waurm Ponds, Victoria

Australia is at the forefront of a global education-led development boom with a crop of signature buildings rising like freshly seeded fields. Once considered higher education fringe-dwellers, many regional universities now boast facilities that peg them squarely alongside their blue-chip CBD cousins. A case in point is Deakin University's Waurn Ponds campus on the outskirts of Geelong, where the new Regional Community Health Hub (REACH) bristles with clever connections.

A history of working at Deakin University's Waurn Ponds' campus for the past 15 years clearly helped DesignInc with its project funding submission. "We were fortunate to be involved in the project from conception to completion," says DesignInc director and project architect Rohan Wilson. This continuity of involvement assisted in making the project what it is."

As the first project to be built under the university's expanded campus master-plan, REACH is intended to accommodate new courses in community health disciplines, including optometry, science and nutrition. From its position on a semi-rural campus, its primary role is to help address the shortage of doctors and allied health professionals in country areas.

Originally planned as a campus 'icon' project, it was later designated with 'gateway' status, and one of the big challenges for DesignInc was to meet that brief while maintaining an interactive and human scale.

REACH houses a bustling education community in two connected wings – research labs and teaching spaces are offset from staff offices and common-room – with both wings connected symbolically and physically via a three-storey naturally lit atrium, and a powerhouse of a steel staircase.

As headquarters for 1500 students and 172 staff, the project's 8000 square-metre floor space is arranged across four levels and springs from a thoughtful thesis and blueprint.

DesignInc's initial brief called for a future-proof, generic research building to allow expanded research capabilities for the next decade.

Sited near the university's eastern entrance, REACH is flanked by a lake that lends a distinctly rustic edge and is a haven for birdlife. Such an idyllic setting provides every opportunity for the architecture to reflect and reveal itself. A wedge of treed landscape on three sides of the building invites architecture of interaction. Not content with open, permeable interiors, DesignInc provided a roof deck overlooking the campus green.

Steel is the project's signature, says Wilson: "It's the champion. It allowed evocative building shapes and an innovative, raked facade," he explains. In the final analysis DesignInc's architecture is all about the yin and yang of two counterbalanced volumes of concrete and steel. Concrete anchors the laboratories, while steel is the superstructure for administration and recreation spaces.

Wilson says the practice had to juggle competing needs for academic offices and dynamic learning spaces. "I'm not sure we used anything especially new, but we certainly used existing elements in new and ingenious ways," he says. He points to the lecture theatres, which are typically tacked onto the edge of buildings, fully enclosed, or buried deep within, to create light-proof spaces.

"The brief required flexible, multiple learning spaces. It needed to function as a standard lecture theatre where the room can be blacked out for use with projections, or for small groups in a normal classroom setting." Referring to the glass lecture theatre that looks out across the fields and lake: "It's a big glass box," he explains with a mixture of defiance and pleasure. "It isn't the usual response at all."

This part cave, part tree-house dichotomy provides a great sense of space, airiness and volume despite the charcoal-toned interior of the atrium and administration.

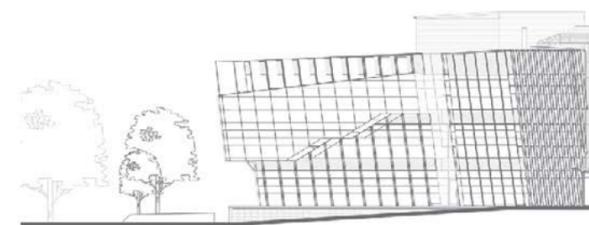
The architecture reprises the traditional college quadrangle with the lightweight cloaked twist of a roof made from COLORBOND® steel in Stramit Speedeck Ultra® profile, in the colour Windspray®.

Wall cladding made from COLORBOND® steel in LYSAGHT KLIP-LOK 700 HI-STRENGTH® profile, in the colour Shale Grey™ features on the project's northern and southern facades.

The generous central atrium that separates east and west is illuminated by a saw-tooth roof and engenders much of the building's character. Framed by a series of broad meeting spaces, pods and circulation zones, an easy spatial flow is established and highlighted by a full-height cascading plate-steel staircase. More than mere circulation driver, the staircase acts as a social network conduit to the point that the dual lifts are rarely put to work.

While design and fabrication of the internal plate-steel staircase was straightforward, Wilson says the external raked staircase wrapped around the building on the north and east elevation – where it acts as a wintergarden – was more complex. Part of a dual facade and thermal buffer, Wilson says that knitting together the steel and glazing was a real challenge.

"We thought it was fully resolved in design development and documentation and would work perfectly, but at the shop-drawing stage we identified some connection and fit issues," he recalls. "We were able to address those before they became problems in the workshop, or at installation. In the end it all went together beautifully, but it required real attention to detail." ➔



NORTH ELEVATION A



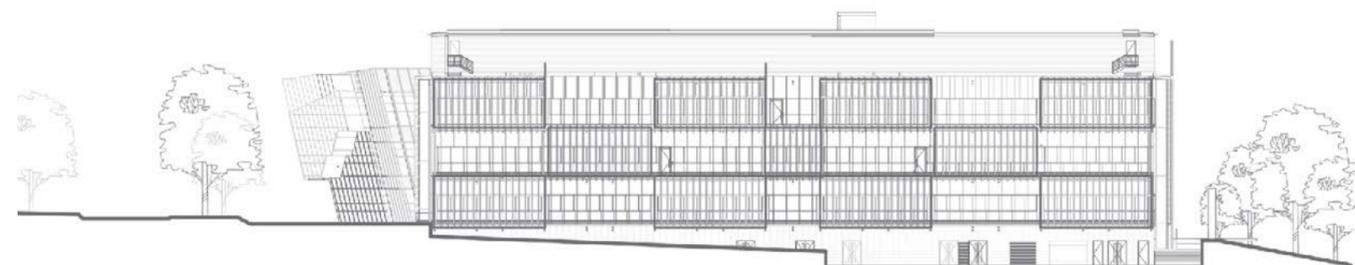
NORTH ELEVATION B



The architects sought a visually pleasing cladding with a colour-inherent finish that could provide necessary span sizes and require low maintenance. Thus the project's western, northern and southern walls are adorned with COLORBOND® steel in LYSAGHT KLIP-LOK 700 HI-STRENGTH® profile, in the colour Shale Grey™.

Illuminated by a saw-tooth roof that engenders much of the building's character, the three-storey central atrium connects east and west wings via a cascading plate-steel staircase revealed by spearing raked glass.

REACH was planned as a campus 'icon' project, while maintaining an interactive and human scale



WEST ELEVATION



LEFT: Steel's role as skeleton and envelope is especially evident in the main atrium volume, where it knits with glass

BELOW: REACH will accommodate new courses in community health disciplines, including optometry, science and nutrition



ABOVE: Expressed on the service walkways, steel continues the project's industrial, saw-tooth vernacular

RIGHT: More than mere circulation driver, the staircase acts as a social network conduit to the point that the elevators are rarely used



Wilson says that the project reflects the firm's ethos about everything needing to be multi-purpose. He cites the wintergarden and atrium staircases as examples of elements that boast multi-purpose roles.

"If a feature only has one idea, or a single function, then it's not really providing a full benefit or efficiency. Everything has to perform multiple roles or it's out," he says.

"The non-air-conditioned atrium allows vertical circulation; it unites the two main structures and brings light and air into the space. It also functions as a thermal chimney with ceiling louvres, and is heated as needed by a thermal rock store," Wilson explains. "It's the communication and break-out space that is the heart and soul that glues the whole place together.

"Everything we propose and do has to be defensible," Wilson adds. "If we can't defend our idea then what we're proposing is incorrect. Is there a rationale behind it? If all you can say is: 'Because I like the shape', that simply isn't a strong enough defence. It has to respond to the topography, or to the function and then you may have something. It doesn't mean as architects we must always be defensive, but we need a good reason to justify those major choices. That internal rigour means we're more likely to have a defensible position for our design."

Steel's role as skeleton and envelope may be especially evident in the main atrium volume but is expressed right along the service walkway on the west elevation. "We have walkways on the roof and right along the west facade that really continue that industrial vernacular of the saw-tooth roof," he explains. "But it's highly practical. Deakin has a very strict OH&S policy that plant is not to be exposed on the roof, but screened. All maintenance is about safe access and access that does not disrupt classes or administration."

And then there's the spearing signature of a raked glass and steel facade belonging to academic offices on the north-east corner which greets visitors with a beguiling clarity and transparency.

Wilson says this integrated expertise is vital. "The facade comprises secondary steelwork raked in two directions. You don't just design a primary structure and clip-on glass," he asserts. "That supporting secondary grid of steelwork involves a lot of complexity and the builder, Cockram, did a fantastic job. They made it appear quite effortless."

Wilson says steel's utilitarian qualities are a huge part of its appeal and understated 'wow' factor. "We needed a very utilitarian finish that looked good with very low maintenance and had an inherent colour rather than applied finish,

which could provide the necessary spans. The inherent nature of steel and the finish of COLORBOND® steel, in particular, means it will look just as good in 10 years' time.

"We want people who enter the atrium to feel comfortable," he adds. "Other materials could easily have felt quite oppressive, but steel has an inherent capacity to be extremely refined and elegant and we think that is achieved here."

All construction can essentially be viewed as toy blocks writ-large and REACH is a statement building that clearly expresses its kit of parts. Is it 'gateway' or 'icon'? Perhaps what matters more is DesignInc's gift of a social and cultural dimension that will not be easily outmoded. The opportunity to educate health professionals destined for rural and remote locations, in a building that is carefully situated in such a setting, is now within REACH. SP

PANEL SAYS

This project demonstrates a masterful combination of steel, glass and timber: it's a considered investigation of how those materials might be harmoniously deployed without relinquishing any of their individual performative strengths and characteristics. Two open staircases – one in the central atrium and one that hugs the glass facade – provide rich spatial experiences framed by steel structure, as well as visual connections within the building and to the broader campus outside. With its carefully orchestrated plan and strong detailing to the external elevations, this is a welcome addition to Deakin University's Wauron Ponds campus.



FLOOR PLAN

LEGEND

- | | |
|----------------------|---------------------|
| 1. Lab | 8. Lift |
| 2. Stair | 9. Prep classroom |
| 3. Tutorial | 10. Atrium |
| 4. E-Hub | 11. Reception |
| 5. Consult | 12. Offices |
| 6. Clinical exercise | 13. Lecture theatre |
| 7. Student common | |

PROJECT Regional Community Health Hub (REACH) Building, Wauron Ponds Campus, Deakin University **CLIENT** Deakin University **ARCHITECT** DesignInc **PROJECT TEAM** Rohan Wilson, Christon Batey-Smith, John Loftus-Hill, Roger Schmidt, Tim Walpole-Walsh, Costa Papadopoulos, Sonya Montgomerie, Peter Whiter, Philip Weatherlake, Wilson Heng, Kylie McQualter, Afrodite Moulatsiotis, Christopher Free, Travers Cunningham **PROJECT ENGINEER** Irwin Consult **PROJECT ENGINEER (SERVICES)** Umow Lai **BUILDER** Cockram Constructions **ROOFER** (supply and install) Geelong Roofing **LANDSCAPE ARCHITECTURE** GBLA **PRINCIPAL STEEL COMPONENTS** Roof cladding made from COLORBOND® steel in Stramit Speedeck Ultra® profile, in the colour Windspray®; Wall cladding made from COLORBOND® steel in LYSAGHT KLIP-LOK 700 HI-STRENGTH® profile, in the colour Shale Grey™; Gutters, support brackets & stop ends, downpipes & fixing brackets made from COLORBOND® steel in the colour Shale Grey™ **PROJECT SIZE** 8000m² **TOTAL PROJECT COST** \$40 million

OVER THRONES

In the search for a recognisable material that resonated with the public (yet could withstand public vigour), the architects of this toilet block harnessed a prosaic steel product reminiscent of humble timber weatherboard.

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



Floriade is a key event on Canberra's calendar, attracting 400,000 visitors each year who come to admire over one million flowers in bloom. While portable toilets were adequate in the early years, the popularity of the event has since demanded more permanent amenities at various intervals throughout the venue at Commonwealth Park. Townsend + Associates Architects was thus engaged by the local authority to produce a multipurpose building which would house three disabled toilets and provide shelter, not just for Floriade visitors, but for locals throughout the year.

Starting with the context and site, the architects felt that the proposed building needed to respond to a nearby bank of hills and so a rising, slightly folded roof was developed, providing an expansive gesture and an open and inclusive form. From the outset the structure was imagined in steel, for its economy and low maintenance attributes. Apart from a timber soffit and perforated aluminium shading panels, the entire building is made from steel – from its roof made from COLORBOND® steel in LYSAGHT CUSTOM ORB® profile, in the colour Shale Grey™, through to the built-in steel table-cum-bench.



What we really like about the steel cladding is that it gives the skin of the building depth and interest

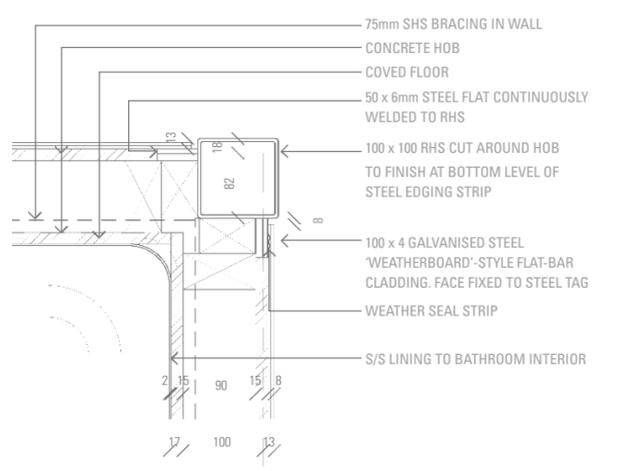
Influenced by the early modernists, Bruce and Catherine Townsend are interested in using structural materials in an expressive and elemental way. This approach, combined with the desire for the building to look more domestic and less toilet block-like, led them to workshop cladding options for the building.

"We did originally look at using big steel panels which might have included some kind of decoration," explains Catherine. "But in the end we felt that this would have been unnecessary – it just becomes another decorated sheet to be vandalised. What we really like about the steel cladding is that the

proportion of each bar is a lovely size, and when you put it together like this it gives the skin of the building depth and interest," Catherine says. "It gives it a more human scale via the repetitive use of a really common material."

The final result provides the low cost, low maintenance and impact-resistant structure sought by the client, while avoiding the visual sins of the ubiquitous breeze block. It also showcases a very simple but nonetheless innovative way of using a readily available material more commonly found in fencing and framework. **SP**

PROJECT Commonwealth Park Multi-Purpose Structure **CLIENT** Australian Capital Tourism, National Capital Authority, Territory and Municipal Services
ARCHITECT Townsend + Associates Architects **PROJECT TEAM** Bruce Townsend, Catherine Townsend, Alessandro Rossi **STRUCTURAL ENGINEER** Northrop Consulting Engineers **BUILDER** G E Shaw & Associates (ACT) **STEEL FABRICATOR** Baxter Engineering **CLADDING CONTRACTOR** G E Shaw & Associates (ACT)
LANDSCAPE ARCHITECTS Redbox Design Group **PRINCIPAL STEEL COMPONENTS** Prefabricated fully welded base structure from 100 SHS and 100 x 50 RHS members; BlueScope 150 UC structural columns; BlueScope 300 PFC roof fascia beams with fully welded continuous flashing plate; C200 24 roof purlins; prefabricated hot dipped galvanised roof water gutter & spitter fabricated from 150 x 10 angle; 100 x 4 thick galvanised flat bar cladding; sunshade screen from perforated aluminium panels on hot-dipped galvanised 100 x 50 x 4 RHS and 100 x 100 x 4 SHS framing; privacy screen from perforated aluminium panels on 75 x 75 x 4 SHS framing; roofing made from COLORBOND® steel in LYSAGHT CUSTOM ORB® profile, in the colour Shale Grey™; prefabricated steel seats and table **PROJECT TIMEFRAME** October 2010 to January 2011 **BUILDING SIZE** 257m² **TOTAL PROJECT COST** \$410,000





STEEL PROFILE 118



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