126
AUGUST 2017
ARCHITECTURAL STEEL INNOVATION
WITH BLUESCOPE

STEEL PROFILE

FLIGHTPATH ARCHITECTS
INVESTIGATOR COLLEGE
SENIOR SCHOOL

BAMFORD-ARCHITECTS
FOREST HILL
POLICE STATION

IN PROFILE:
KEVIN LOW


JOHN MARMARAS

EDITORIAL

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Tanya Tankoska
BlueScope editor

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Steel Profile has an Editorial Advisory Panel to ensure that only projects of the highest calibre are selected for publication. The panellists are:

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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 prizes

PENNY FULLER

Penny is a partner at Silvester Fuller, established in 2008. Silvester Fuller's first built projects have been awarded for their creativity and design sensibility. Penny's work draws on experience gained across a broad range of international projects. She is a previous recipient of the Australian Institute of Architects' Emerging Architect Prize

MATTHEW HYLAND

Matthew Hyland works with Woods Bagot. He obtained a Master of Architecture from the University of Tasmania and was awarded the 2015 BlueScope Glenn Murcutt Student Prize.

Having a preoccupation with enriching the ordinary, Matthew is continuing to develop and refine design processes though observation, research and experimentation

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COVER PROJECT
Investigator College

PHOTOGRAPHER
John Marmaras

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ON THE BEAT

Melbourne's Forest Hill Police Station is among the latest to turn the clock forward rather than back to the era of the local lock-up. The steel fin facade – Bamford-Architects' signature design expression – offers so much more than the arrested development of bare, resolute box.

Words **Peter Hyatt** Photography **Paul Bradshaw (PMB); Peter Bennetts (PBB)**

PMB

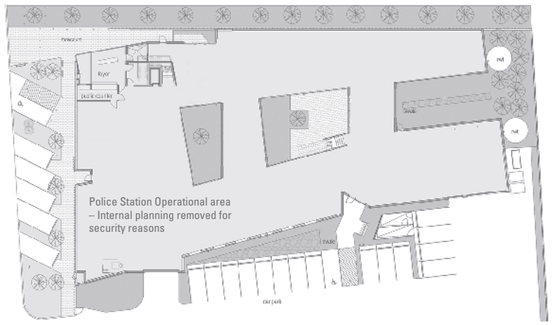
ARCHITECT
Bamford-Architects

PROJECT
Forest Hill Police Station

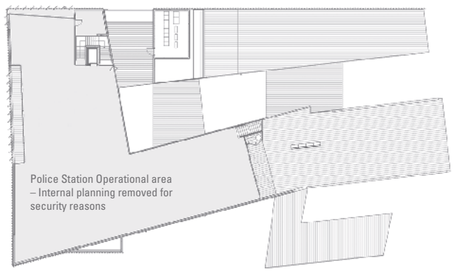
LOCATION
Forest Hill, Victoria

PMB

ABOVE: Presented as low-key highlight, the station bristles not with design affectation but functional purpose



GROUND FLOOR PLAN

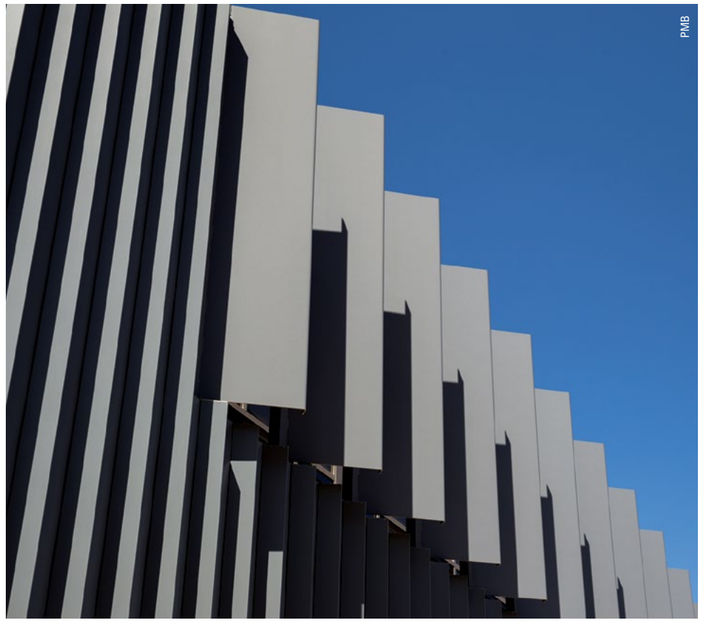


FIRST FLOOR PLAN

Many suburban police stations are crimes of poor design. But hard and ugly needn't be a pre-requisite for buildings that house a tough business. This is typically a type that is forced to appear institutional rather than extravagant as hero or villain.

Of course it's not simply 'crims' as temporary occupants, but also officers who usually end up 'doing time' in such buildings. But every now and then a more enlightened example emerges to help light the way and provide a workplace more in keeping with modern-day policing. Bamford-Associates' Forest Hill Police Station blends rigour with art to create a bold civic gesture and an uplifting environment in which to work.

This new 24-hour facility – located adjacent to parkland on busy Springvale Road in Forest Hill – blends design strength and flourish. If an officer's job requires apprehending criminals, the architect's role is to apprehend function and elegance.



PMB

ABOVE AND BELOW: Angled blades capture morning light and deflect hot afternoon sun, while enabling the added benefit of morale-boosting connections to bushland reserve

Architect Barbara Bamford said she and her colleagues searched far and wide for references to guide the winning solution. "We certainly looked at lots of other police stations. We looked at everything through to Alvar Aalto's Forest Pavilion (1939), which we were quite enamoured by. But it's important to view those examples as inspiration, rather than direct cues."

Despite any preconceptions of being complicated and tied to a universal standard, she praises her clients for their willingness "to adopt almost every good idea we had".

"They showed no fear – nor needed to," says Bamford. "They backed us, and the project reveals the benefits of that belief."

Of all the design constraints they faced, security topped the list. Rather than accept the default position of security as a non-negotiable absolute, Bamford proposed a building with a tough-ish shell and a soft, light-filled centre. The result is quiet, daylight-filled courtyards linked to workplaces that are fully engaged with a calm internal oasis.

Bamford says the project's success can be found in its synergy with the adjacent parkland: rather than simply hammering an ill-fitting stereotype into the

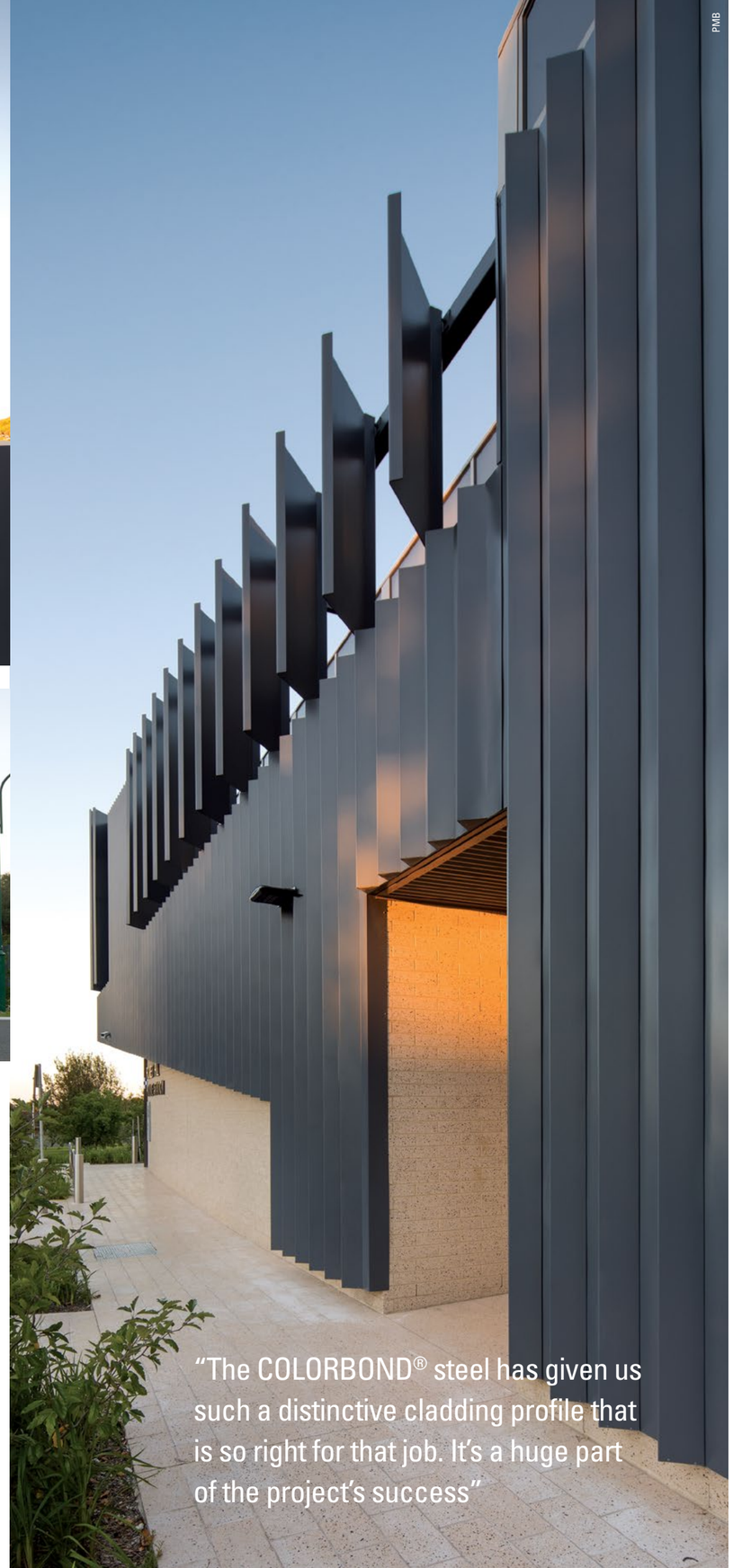
"They showed no fear – nor needed to. They backed us, and the project reveals the benefits of that belief"

PMB

PANEL SAYS

This new police station in Melbourne's east has a strong civic presence but is not forbidding, thanks to the custom-folded cladding made from COLORBOND® steel, which provides a versatile language that allows for moments of openness and transparency. In another gesture of goodwill, the base of the building is embedded into its park-side location while the upper section cantilevers towards the street. The obvious design clarity that underpins the folded steel facade is evident inside, too, where bright and welcoming public spaces and offices are naturally lit and connected to the landscape, via a series of clerestory windows and internal courtyards that run through the building's length. The elegance of the carefully detailed and boldly profiled steel cladding creates a crisp edge to the sky, and imbues this important new community asset with appropriate strength and gravitas

The pleated steel facade produces an animated, textured result



site, the design steps deftly from a rock-solid base to a lightweight sculpture rising on the northern elevation. The use of a reinforced concrete block provides ground-level security while the upper level is handsomely wrapped in cladding made from 1mm base metal thickness (BMT) COLORBOND® steel in the colour Ironstone®, which was custom folded from flat sheet into a distinctive profile.

Bamford says there really was no contest in material selection. "The COLORBOND® steel has given us such a distinctive cladding profile that is so right for that job," she says. "It's a huge part of the project's success."

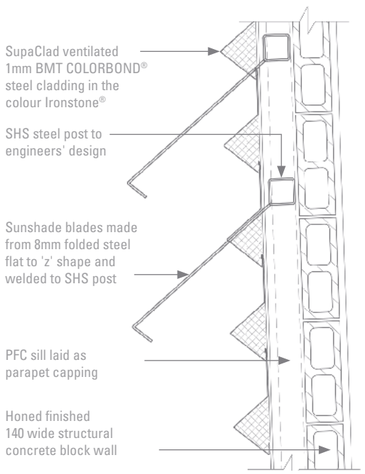
The firm invested in research with a local steel fabricator – Australian Rollforming Manufacturers – to design and develop a custom cladding profile specifically for this project.

She explains the prototype steel profile grew and grew to the point where it finally bristled with the right appearance and environmental attitude. "We wanted a deep profile to provide depth to those facades, given it was otherwise going to be a pretty flat flank.

"When we started, the profile we were shown was called PointyClad and now its name has changed to SupaClad, so it's a super-clad police station," she says.

The appearance of the newly minted SupaClad profile – with its feathered edge and shadow patterns – is especially elegant and striking.

The dark and moody tones of the Ironstone®-coloured cladding may echo the deep bluestone walls of police stations of old, but used here with crisp, wafer style, the effect is of caped crusader

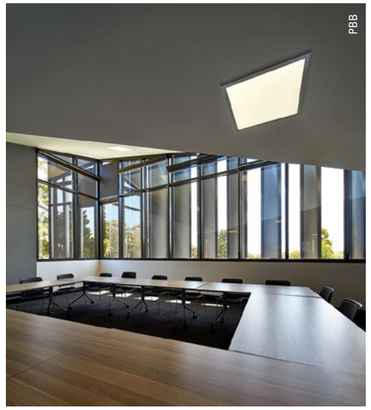


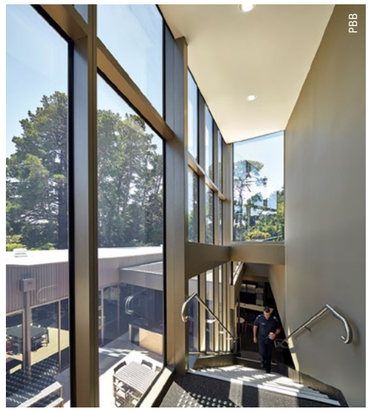
FIRST FLOOR SUNSHADES

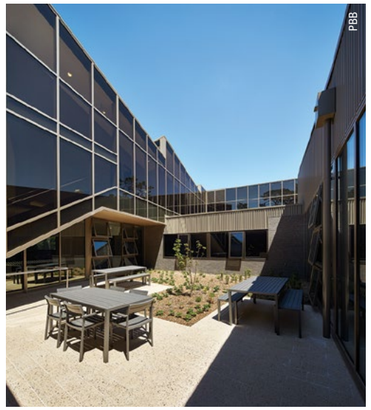
"The COLORBOND® steel has given us such a distinctive cladding profile that is so right for that job. It's a huge part of the project's success"

LEFT: COLORBOND® steel provides tough yet delicate fenestration on all facades

BELOW: Facades appear and feel permeable despite high security needs. Cool and dark on the outside, the building is light and light-filled, within







rather than shadowy, deeply-flawed villain. As cop shops go, this latest iteration is a very nice thing.

At the upper level of the building the folded COLORBOND® steel transforms to steel sunshade fins, protecting large areas of glazing and terraces.

The play of a bespoke, broad steel profile demands a deft touch to create the right rhythms for a big idea. Bamford appears entirely within her comfort zone, achieving a pleasing visual beat to this fluted metal skin. The fenestrated surface appears richly detailed and an inherent rhythm flows from the surface pattern.

Bamford says the need for security is something that could very easily have suffocated the building, “but our aim was to liberate the design as much as possible”.

This is an architecture that speaks of playfulness and rigour. Part light and part shade, Bamford delivers on the massing and security where it’s needed. She describes it as: “A kind of jumping backwards and forwards between transparency and solidity. Obviously the cladding has multiple roles. It’s not simply a plain, dull envelope. It’s enlivening and responsive to passers-by whether in cars or on foot, whether staff or visitors.

“This was a real achievement,” she argues, “and one we could have lost given that high fencing is usually the default position for such facilities. We addressed the roadway for a civic presence and the result is more gatehouse, or pavilion within the park.”

The building also aimed to be a good neighbour rather than a dysfunctional one, so it is as open as it reasonably can be. Extensive glazing internally and ceiling glass all contribute to a light-box quality, surprising many visitors whose first glimpse is of a bristling, animated steel shell.

Upholding and administering the law can have its upsides. Decent design should be a given rather than privilege. Police stations can reflect much more than grim times, emergencies and unpleasant statistics. Aesthetics might seem a strange and distant consideration in the delivery of resources needed to respond to criminals both hardened and petty, but good design can help to shape hope and optimism.

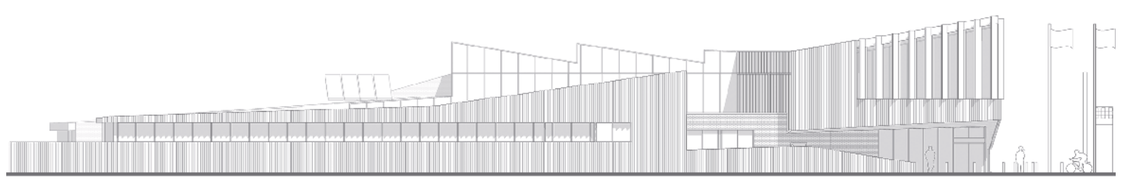
It’s a truism that considered design ends up costing much less than its poor cousin. In the longer term this is clearly borne out, particularly in the quality of workplaces, which in this case has the capacity to boost the morale of police force members.

Bamford is right: this new police station is super-clad, indeed. And beyond that, its liberated interiors, quiet courtyards, and relationship to parkland and community all help the long arm of the law to offer an open embrace to the people it serves. **SP**

Bamford says the need for security is something that could very easily have suffocated the building, “but our aim was to liberate the design as much as possible”

A design grounded for security with projections and apertures to invite sunlight and dusk deep into the building

PBB



NORTH ELEVATION

SOUTH ELEVATION

PROJECT Forest Hill Police Station **CLIENT** Victoria Police **ARCHITECT** Bamford-Architects **PROJECT TEAM** Barbara Bamford, Vanja Joffer, Sajid Khalfe, Mandy Tori, Tony Parker, Leto Tsolakis **STRUCTURAL & CIVIL ENGINEER** Hive Engineering **BUILDER** Johns Lyng **CLADDING FABRICATOR** Australian Rollforming Manufacturers **SUNSHADE FINS** Riband Steel **STEEL DETAILER** Quantech **CLADDING INSTALLER** NJM Roofing **PRINCIPAL STEEL COMPONENTS** Cladding and sun-shading fins made from 1mm BMT COLORBOND® steel in Australian Rollforming Manufacturers SupaClad profile, in the colour Ironstone® **PROJECT TIMEFRAME** Completed August 2015 (one year in construction) **AWARDS** 2016 Australian Institute of Architects Victorian Chapter Awards – Public Architecture (New) Award. 2016 Australian Steel Institute Awards – Steel Clad Structures – High Commendation **BUILDING SIZE** 2500m² **CONSTRUCTION COST** $3000 per square metre

MODERNISED MID-CENTURY

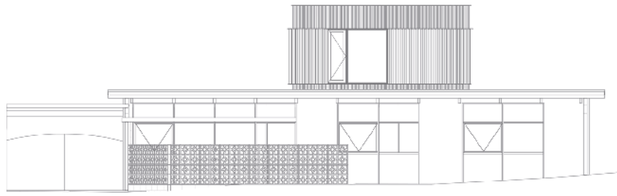
Inventive handling of structural steel and steel cladding by Nest Architects sensitively modernises and extends a treasured mid-century family home.

Words **Verity Campbell** Photography **Lauren Bamford; Paul Bradshaw; Jesse Marlow**

ARCHITECT
Nest Architects
PROJECT
Rosanna House
LOCATION
Rosanna, Victoria

LEFT AND BELOW: COLORBOND® steel in Stramit Longspan® profile, in the colour Nightsky®, wraps sympathetically around the existing timber and concrete-block envelope

SOUTH ELEVATION



NORTH ELEVATION

"We wanted the connection between the ground floor and the first floor to be slender and slim. Steel's the best thing to do that"

There is renewed zeal for mid-century design in Australia, aided by comedian Tim Ross' recent documentary, *Streets of Your Town*, which screened on ABC television in late 2016. In it, Ross pays tribute to the spirit of optimism that fuelled the design and build of well-considered, affordable homes that were sensitively in tune with the landscape.

This 1960s home in Melbourne's leafy Rosanna is a classic example of the era: light-filled, unadorned, surrounded by greenery and hidden from the street by a fabulous breezeblock garden wall. Bursting at the seams with two growing teens, the family was looking for an architect who could extend and modernise the home, yet respect its philosophical and architectural integrity.

Nest Architects' adept handling of a previous mid-century home addition – with the challenging brief, "just don't touch it" – reassured these clients that they could entrust their own gem to director Emilio Fuscaldo and his team.

Although there were similarities, the family's brief to Fuscaldo allowed a little more wriggle room. "They wanted the home renovated sensitively, without it becoming a simple homage to mid-century architecture and interior design," explains Fuscaldo. It was to be affordable, able to evolve with changing family needs, and to allow a varied, engaging occupancy experience. No one-trick ponies here.

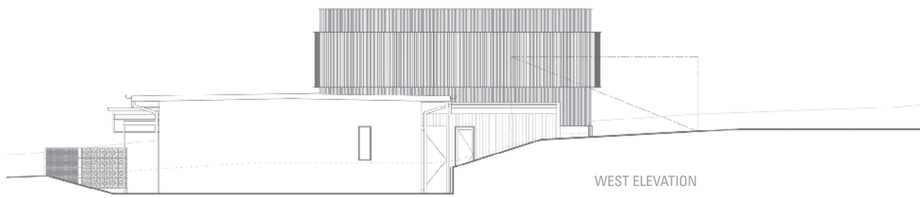
To realise the project and accomplish the brief's requirements, the use of steel was crucial. It was the one material, Fuscaldo calculated, that could help bring to life the clients' trio of aspirations for the project: spirit of place, dynamism and affordability.

The design revolves around a sizeable two-storey central "core", inserted into the existing floorplan, that houses a new kitchen and service areas on the ground floor, and two bedrooms for the teenage children upstairs. Structural steel and steel cladding sensitively connect old with new, ensuring the interventions are responsive and considered.

Holding up the first-floor structure above the kitchen, two angular structural steel columns in a V-shape form one corner of the room. Specified as 90mm circular hollow sections (CHS), their strength allows the kitchen to remain open to the expansive living areas while, without undue bulk, creating a sense of separation. "We wanted the connection between the ground floor and the first floor to be slender and slim," explains Fuscaldo. "In my opinion steel's the best thing to do that. It's the most appropriate material for achieving forms that are slight and slender, yet really strong."

Steel also plays a role in mediating the spaces, when moving inside to outside, from old to new. Black timber framework battens in the new kitchen link with the external cladding on the addition in what seems a single movement. Cladding made from COLORBOND® steel in Stramit Longspan® profile, in the colour Nightsky®* forms a simple steel skin teamed with areas of painted turquoise and undulating metal slat screens, a motif from

EAST ELEVATION



WEST ELEVATION

TOP LEFT: Considered use of steel cladding establishes a connection between ground and first floor

LEFT: Circular steel columns pierce through kitchen joinery with dexterous detail

ABOVE: The Nightsky®-coloured cladding recedes into the shadows of a gigantic elm in the back garden

OPPOSITE: The dark-coloured cladding made from COLORBOND® steel in Stramit Longspan® profile, in the colour Nightsky® contrasts with the light-coloured roofing – which is done in COLORBOND® Coolmax® steel in Stramit Speed Deck® 500 profile, in the colour Whitehaven® – forming an effective heat barrier

LEFT: The addition nestles into the home's lush landscaping, barely visible from the street

the kitchen that continues outside along the exterior wall. The Nightsky®-coloured cladding recedes into the shadows of a gigantic elm in the back garden, contrasting with the light and permeable, floor-to-ceiling glazing of the existing home. From the street, the new second-storey addition is barely visible against the verdant canopy. "People think black tends to stick out, but when you have shadow-play on a facade, as this one does, black will recede the form," says Fuscaldo.

As self-described "nest" architects, Fuscaldo sees his practice's work as analogous to the way a bird forages for useful objects to construct a stable and safe home, which also happens to fit beautifully into its environment. This principle is clearly articulated throughout this project.

Central to Nest's work is a philosophy that each project should be more about the client than the architect. "If you're designing for them, for their perceptions and for their experience, then ultimately it's their house," asserts Fuscaldo. "If you're designing for you or the camera angle or the hero shot or the one tactic, I don't think it's representative of the client, I think it's representative of you. I'm not sure that that's our job."

In this home, steel's strength and versatility has enabled the achievement of the client-centric dynamism both architect and client were after: forging an architectural experience that slowly reveals itself over time. "We didn't want to have a one-hit wonder that our client would get bored of," says Fuscaldo.

From a distance, the oblique angles of the V-shape are difficult to align with the eye, offering countless new perspectives and views into and out of the kitchen. Look closer and the expert marriage of circular steel columns piercing white Corian- and American Oak-veneered joinery demonstrate a craft and material dexterity that stretched the abilities of both the design and construction teams. "It's quite a bit of work to achieve a nice detail at that junction. You can imagine a circular post on an angle going through joinery and bench tops is difficult to detail, let alone construct!" says Fuscaldo.

> "People think black tends to stick out, but when you have shadow-play on a facade, as this one does, black will recede the form"

The undulating slat screens on the facade of the insertion help ensure the home reveals itself over time. At different times of the day, under different lighting conditions and from different angles, the building offers new perspectives and views. The screens are spaced such that the colour behind can be seen at certain angles and blocked out at other angles, heightening the feeling that there is a bit more to this simple building than first thought.

Nest Architects also chose COLORBOND® steel for the exterior cladding for its appearance, and for its longevity and ease of maintenance qualities that were especially relevant for the second-floor addition. "We didn't want our client to be in a position where they'd have to employ an overly rigorous maintenance regime on their house," Fuscaldo says.

The architects specified a contrast for the roofing, which is made from COLORBOND® Coolmax® steel in Stramit Speed Deck® 500 profile, in the colour Whitehaven®. The team was able to combine the material with insulated plasterboard, adding a touch of sustainability in the form of a cool roof without blowing their budget, says Fuscaldo.

"We're proud of the fact that we were able to design a house that punches above its weight in terms of its look and feel, for quite a low budget," he says.

Fuscaldo credits the adaptability and strength of steel as instrumental to an innovative design that was achieved with current building practices. The casual, open, friendly and unfussy home has retained its pavilion-style mid-century grace while at the same time reflecting and responding to the people who live in it. 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.*

PANEL SAYS

In this alteration and addition to a modest mid-century house in Melbourne's northern suburbs, Nest Architects has skillfully used COLORBOND® steel in the colour Monument® to perform two distinct but equally important tasks. Firstly, from the street, the new steel-clad second-storey addition appears to float and recede into the established tree canopy, minimising its visual impact above the original house and within the streetscape and neighbourhood. From the back, however, the crisp steel cladding imparts definition and a contemporary character to the new addition, and the wrap-around effect integrates new and existing fabric. The simple and understated interior contrasts with the steel exterior to create a refined domesticity. This is a clever blend of past and present, where each era accords respect and deference to the other, where steel plays a key matchmaking role, to bring them both together

PROJECT Rosanna House **ARCHITECT** Nest Architects **PROJECT TEAM** Emilio Fuscaldo (project architect) and Imogen Pullar (Design Architect) **STRUCTURAL & CIVIL ENGINEER** Deery Consulting **BUILDER AND CLADDING CONTRACTOR** TCM Building Group **STEEL FABRICATOR** Heidelberg Lintels **PRINCIPAL STEEL COMPONENTS** Cladding made from COLORBOND® steel in Stramit Longspan® profile, in the colour Nightsky®. Roofing made from COLORBOND® Coolmax® steel in Stramit Speed Deck® 500 profile, in the colour Whitehaven®. Structural steel including 90mm circular hollow sections (CHS) columns supplied by Heidelberg Lintels **PROJECT TIMEFRAME** November 2013 – August 2014 (design and documentation); January 2015 – November 15 (construction) **AWARDS** 2016 Australian Institute of Architects Victorian Chapter Awards, Alterations and Additions – Shortlisted **BUILDING SIZE** 187m²

KEVIN LOW

Architect Kevin Low says there's no point fighting nature; instead, he uses steel to handcraft design solutions that can work in harmony with it.

Words **Rachael Bernstone**

Portrait by **Peter Bennetts**

All other images courtesy of **Kevin Low**

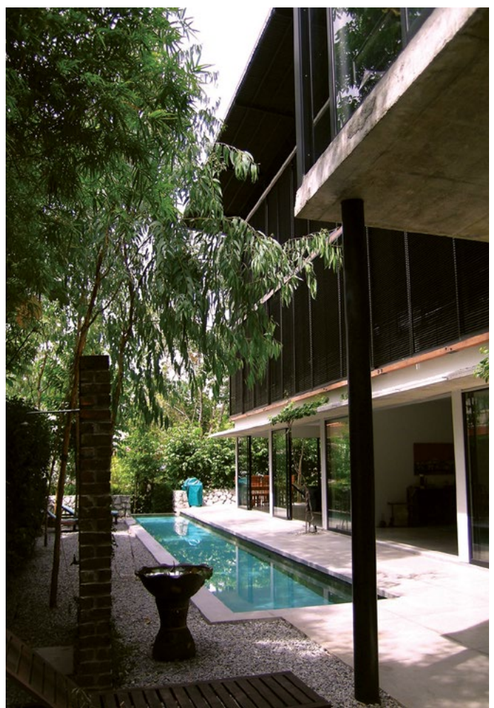
In Malaysia, the prolific tropical landscape always attempts to colonise the pristine finish of newly completed buildings, according to architect Kevin Low. Plants and spores can take hold on surfaces of new structures, a condition he has chosen to embrace and accept as the norm, rather than to struggle against it.

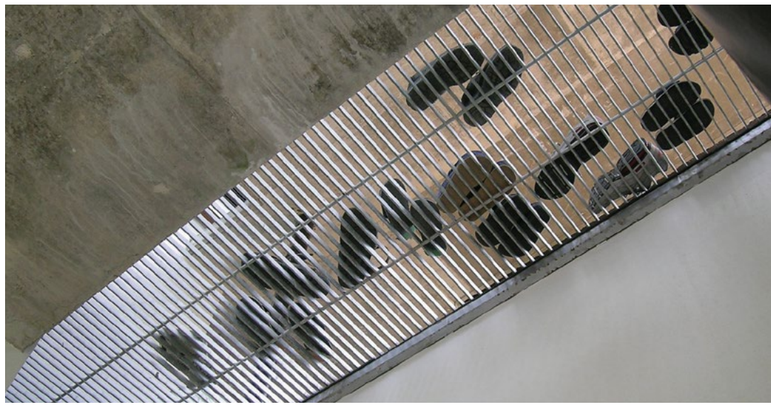
"With the sun and water and humidity of our climate, things grow and die and decay at a phenomenal rate," he says. "That wild process of wetness and growth creates certain circumstances which could be called context. In Malaysia, we build concrete that is absolutely awful, with honeycombing and all that, but it doesn't catastrophically fail; and we have awful brickwork, but it doesn't matter how bad it looks because everything gets covered over with a thick covering of plaster.

"We've got great carpenters who build really nice formwork, and wonderful welders – the steel guys I work with are really good – but this wild thing of accretion, this growth and decay on man-made surfaces is a really powerful thing in Malaysia. These are the things that I call 'building culture'," he explains.

Low was born in Malaysia and studied architecture, and art and architectural history in the USA. Upon his return to Kuala Lumpur he worked with GDP architects for 11 years, before starting his own firm, Small Projects, in 2002. He now works alone on architecture projects, product design and master planning, a deliberate move that Low says "helps keep him honest".

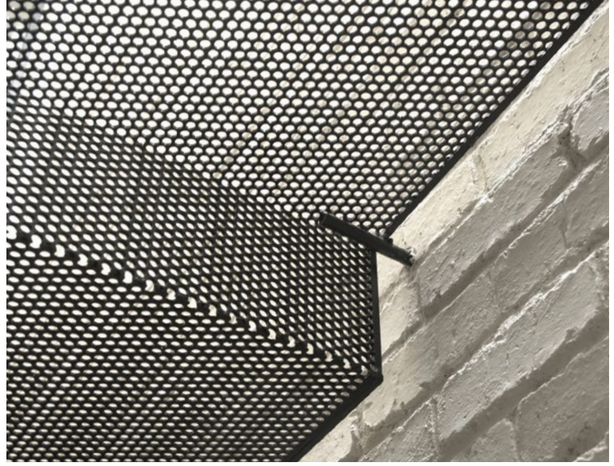
"Quite recently I learned that, for composers, the piano is the only instrument of choice because it can mimic every other instrument and the human voice," he says. "You can't get someone else to play the piano for you, and I feel that drawing is like the piano: If I had someone else to do the drawing for





TOP AND LEFT: The Louvre Box House uses steel louvres on the upper bedroom levels, with living and dining spaces in the undercroft area, traditionally an under-utilised space in Malaysian homes

ABOVE: The galvanised steel entry mat – or 'shoeshelf' – at Louvre Box House allows light from the glazed entry box to filter to the lower level



LEFT AND TOP: At the Aviary House, perforated steel was folded to create the treads and risers of the staircase, that was hung from the walls using mild steel pins. The perforations allow light from the skylight above to penetrate to the lowest level of the home

ABOVE LEFT AND RIGHT: The 'onion valet' – a set of perforated steel drawers – ventilates fresh produce, while the curved base of each drawer means the contents naturally roll towards the centre, making them easy to find

BELOW LEFT AND RIGHT: Made using folded plate steel, this bench doubles as an access ramp and can be easily deployed as such when needed

me, I'd be less involved in the process of designing and more involved in the act of managing it."

Low also teaches at University of Malaya and was a keynote speaker at the Australian Institute of Architects National Conference in Adelaide in April 2016, where he spoke with *Steel Profile*.

One of the main factors that set him on a different path, he says, was the 'culture shock' he experienced when he returned home from the USA after nine years away. "In the Northern hemisphere, you have distilled formal systems – the things you learn in school such as composure, sanitisation, exactitude and form – but in the Tropics, you don't need formal systems," he says. "If you want to survive, you plant a tree and pick the fruit.

"Architecture in Malaysia therefore becomes dilutions of formal systems, everything becomes weaker because everyone is trying to intensify what we learned in the West, so I thought: 'Why don't we throw that out and replace it with other things?'"

So while many of his peers design with materials that can be kept relatively clean – walls that are painted and lacquered, and then regularly washed down – Low uses building fabrics that encourage the growth of plants and mosses. "That way, the surface become the architecture," he says. "You let the garden take to a building the way nature takes to a ruin, subconsciously and passionately."

He also works with steel in various forms – mild plate, punched stainless steel, steel grating and structural steel sections such as beams and columns – to create unique design solutions. Collaborating with the makers, the 'blue-collar workers', Low celebrates traditional techniques and aims to simplify construction methods where possible.

Low has worked with steel to create unusual solutions, including the Onion Valet, the Post-Tensioned Stair (which overcomes the uneven spaces between two walls and allows light through); and the brackets on the Threshold House, which contain "the spaghetti of services" as they pass across the facade. "It's about leaving well enough alone," he says, "With these steel arms, you lift them a bit graciously, and then they go to spaghetti again. You're not fighting the flow of the tide, but letting it happen."

A disabled access ramp exemplifies his inventive streak: it doubles as a bench for people to sit on while they put on their shoes and can be unfolded to provide access to the house. Used in the latter configuration only intermittently, the bench – made of folded plate steel – occupies minimal space outside the entry. "To use it, the top section flips one way, the bottom flips the other, and you can then roll up the ramp," Low explains. "When you've finished you fold it up and it becomes a bench again."

Low aims to produce steel work that is honest and humble in its origins, and which often conveys his ironic sense of humour. "When I'm producing steel work, I try to leave the workmanship of the contractors evident, so we try not to paint any of the steel work," he says. "We give it a coat of lacquer to help preserve the surface – I like to leave the manufacturer's prints in my columns as a means of engaging with blue-collar art.

"I'm not thinking of architecture as something that's perfect, but something that ages and that is as human and imperfect as its occupants," Low adds.

For Low, one of the most satisfying indicators of whether a building works well and is fit for its occupants can be gleaned from the way contractors and cleaners interact with and engage with the built spaces. "Having a contractor or an engineer understand me – that process of connecting with people who are making the building - is very gratifying," he says. "Take for example the blue-collar workers who are busy struggling to survive: for them to appreciate what I'm trying to do and to invest in getting it right, that process of sharing ideas and information helps to cross bridges.

"It hasn't happened yet, but for me, having a cleaner of a building that I designed tell me that the drain cover I created had made their life easier would be the best accolade," he says. "To think that my design simplified the job of someone's mother, a user of my building, would be the greatest honour, and I think it's awfully tragic that as architects we don't think about those end users of our buildings enough when we are designing."

Low's humility and desire to connect with both people and nature are clear traits that come through both in his formal presentation and in the conversation afterwards with *Steel Profile*. His approach to architecture is summed up in a simple phrase that contains hidden complexities and unknowns. Architecture is "the act of asking relevant questions," Low says.

Low is also fully cognisant that the form of any new building he designs and constructs in Malaysia will likely be obscured by vegetation soon after it's completed, which only strengthens his resolve to design from the inside out. "The act of creativity happens in one of two ways," he explains. "You can start with a form, or you can start with content. When I start with form, it begins to control how I design, and how I try to stuff content into it, but when I start with content, things are guided in a much more powerful way: it makes me 'design' more than 'style'." SP

"When I'm producing steel work, I try to leave the workmanship of the contractors evident"

TOP: Custom-made steel door hardware at the Threshold House adds a rich tactility to the highly bespoke design

ABOVE: The facade of the Threshold House features custom-made steel brackets, taming a collection of cabling

UNDER COVER

One of the very first projects to feature COLORBOND® steel Matt for wall cladding and roofing, Investigator College's new Senior School in Victor Harbor makes an elegantly soft architectural statement in the small coastal town, with its understated form and robust materiality.

Words **Leanne Amodeo** Photography **John Marmaras**

ARCHITECT
Flightpath Architects

PROJECT
Investigator College Senior School

LOCATION
Victor Harbor, South Australia

A robust material palette of COLORBOND® steel Matt in the colour Monument®, glass, spotted gum makes for a striking gateway to Investigator College

Victor Harbor has long been a favourite holiday and day-trip destination for many South Australians. The pretty seaside town, located on the Fleurieu Peninsula, is laidback and unassuming, with good surf beaches, charming tourist attractions and friendly locals. It's popular during the summer months with families and groups of friends chasing cool respite and that feeling of getting away from it all, even though they're only a 90-minute drive from Adelaide.

This new 2049 square-metre building at Investigator College is the third project to be realised as part of Flightpath Architects' masterplan for the College's campuses at Victor Harbor and Goolwa. The two-level structure was completed in early 2017 and occupies the otherwise vacant far south-east corner of the Senior School Victor Harbor campus. Its rear aspect takes in views of the bluff, but most importantly the building accommodates the entire senior student body, which was previously split across both campuses.

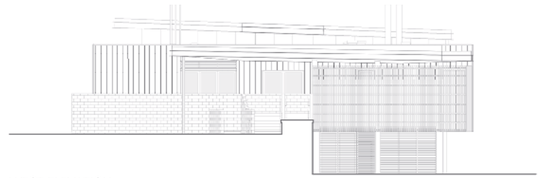
Skewed to overlook the oval and existing middle school buildings to the north, it's the first thing parents and other visitors notice when entering the campus by the service road. Principal Don Grimmett and Deputy Andrew Panozzo hoped it would provide the College with a refreshed identity and it has. The building's bold form is reassuring yet modern and sets the tone for an open learning environment based on collaboration, creativity, integration and communication. As Flightpath's senior architect James Plunkett notes: "Don and Andrew were determined to showcase excellence in education and that starts with a well designed building."

The new gateway stands alone, atop a plaza that ensures connectivity with the rest of the campus. As part of the design team, landscape architects Oxigen delivered a generous common area that's shared by the entire school community. It's an elegant study in space-making, comprising terrace seats, a little knoll and a series of planter boxes containing herb gardens. During lunch and recess, the plaza is a bustling hub of activity and at student pick-up and drop-off times, it allows parents an opportunity to gain some insight into the social dynamics of the campus. Such a subtle, considered gesture goes a long way in reinforcing the College's pedagogical commitment to openness and transparency; values evident throughout the entire project's design.

This outdoor area also serves as a promenade to the new building, ensuring all eyes are on the Senior School. It does loom large in this context, yet its steel, timber and prefinished fibre cement exterior is thoughtfully modulated on this northern elevation by the ground floor's full-height windows.

NORTH ELEVATION

EAST ELEVATION



WEST ELEVATION

"My preference was for the COLORBOND® steel Matt finish because it's subtle, it absorbs the light yet attracts your eye and makes a statement"

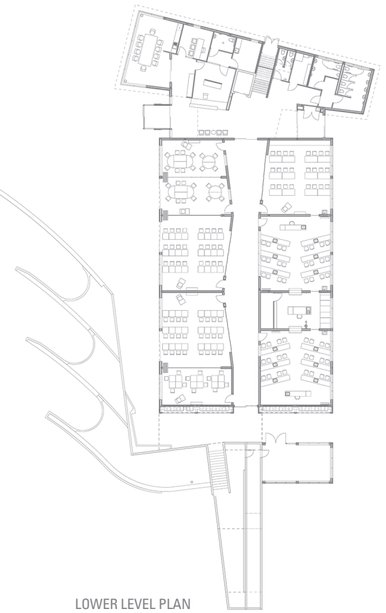
Not only do they allow for views of the oval and plaza, they let the outside in, extending the sense of connectivity.

Unsurprisingly, the brief's programmatic requirements defined the Senior School's form and the outcome is as logical as it is efficient. "It called for flexible, interactive spaces of varying sizes and specialties, interconnected with central circulation and break-out areas," explains Plunkett. "So we divided them into two sections, one for learning and the other for administration." This division results in a T-shaped plan that locates the classrooms in the long rectilinear part, whereas all the administrative spaces are housed in the hammerhead at the eastern end.

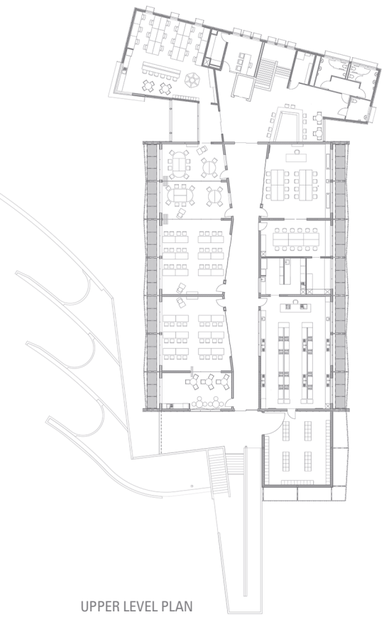
The glazed entry foyer separates each zone and while they're discreetly differentiated by a change in carpet, the exterior's demarcation is much more dramatic. Plunkett wanted the School's administration, which includes the staff room, sick bay and senior co-ordinator's room, to read differently to the learning area because of its prominent position at the site's corner. It needed to make a statement and so he selected COLORBOND® steel Matt in Revolution Roofing's Maxline® 340 profile, in the colour Monument®, for the hammerhead's upper-level cladding.

It's the first time this new COLORBOND® steel Matt finish has been used on a major Australian project and for Plunkett it was the premier choice for the job. "My preference was for the COLORBOND® steel Matt finish because it's subtle, it absorbs the light yet attracts your eye and makes a statement. I wanted to use it as cladding because it gives the impression of continuity and makes the building seem all the more deeply embedded within its context," he says.

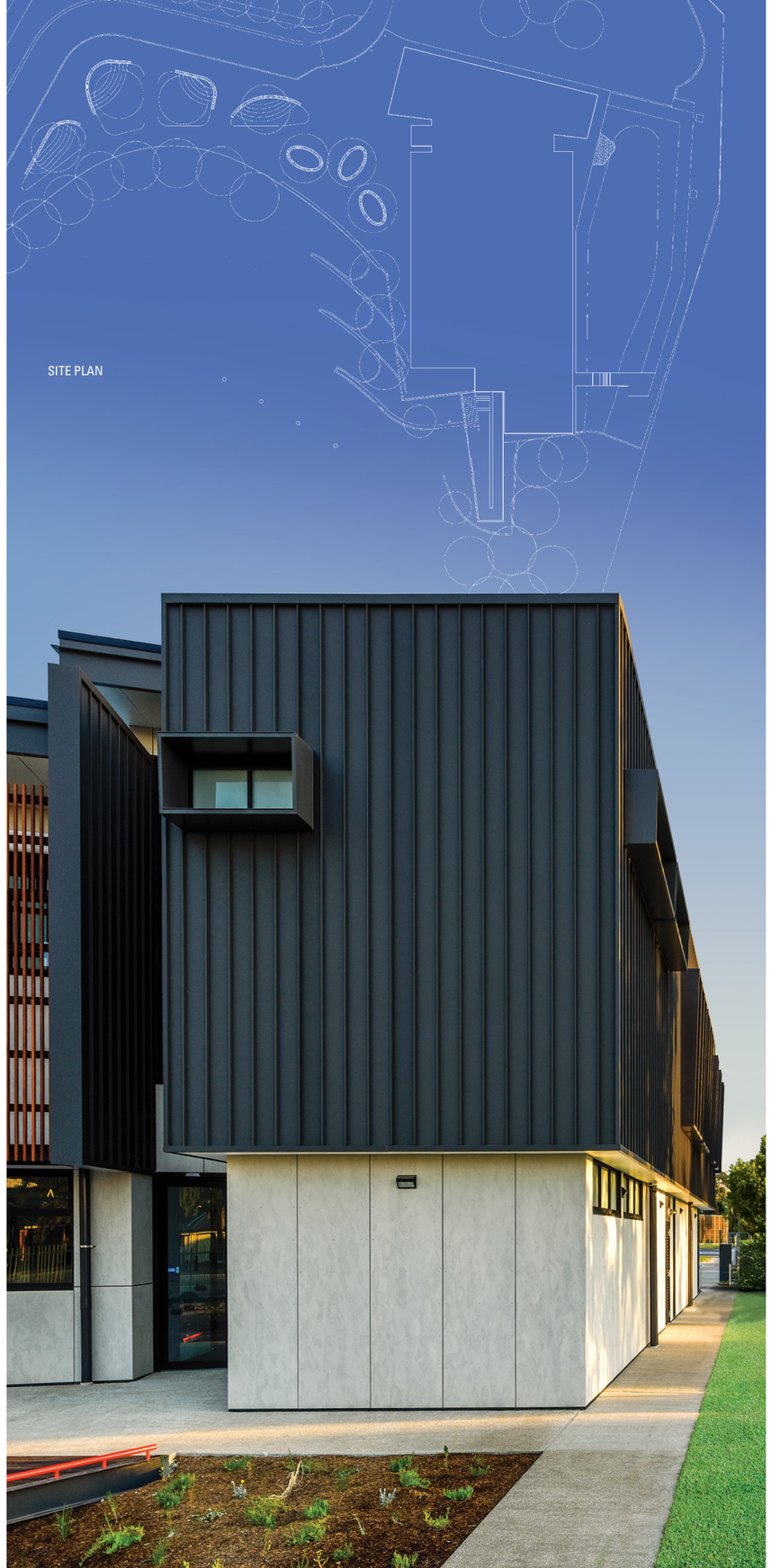
The COLORBOND® steel Matt finish also serves to emphasise the Senior School's meticulous detailing, especially evident in the hammerhead's eastern elevation where folded steel boxes frame the eleven upper-level windows. Elsewhere, the COLORBOND® steel Matt finish, in conjunction with the profile, highlights clean surfaces devoid



LOWER LEVEL PLAN



UPPER LEVEL PLAN



SITE PLAN

RIGHT: Plunkett and his team achieved a high level of detail with the cladding made from COLORBOND® steel Matt in Revolution Roofing's Maxline® 340 profile, evident in the building's box windows and blade walls

of fixtures. And as cladding for the blade walls that bookend the entry foyer, the product injects just the right amount of definition into the internal scheme, without overpowering it. But for all its aesthetic merits, the COLORBOND® steel Matt finish proves an advantageous choice because when correctly specified it's able to withstand environments such as this.

Cement cladding on the administrative part's ground level is likewise hard-wearing and its pale grey colour stands in stark contrast to the Monument® Matt, creating a graphic dynamism. Plunkett echoes the light hue in the main roofing, which is made from COLORBOND® steel Matt in Revolution Roofing Rev-Klip™ 700 profile. The raised roof-form can be viewed from higher ground, so it was important to deliver an attractive, strong line to complement the building's crisp angles and exact details.

Although the plan's two parts each have their own distinct identity, there's definite cohesion between them. The timber battens of the learning zone's upper-level shading device (at the front and rear) echo the verticality of the Revolution Roofing Maxline® 340 profile. While the cantilevered timber screens' exposed structural steel supports and facias visually balance the administrative spaces' cladding. "The natural subtlety of the COLORBOND® steel Matt finish is matched by the organic elegance of the spotted gum," notes Plunkett. "And this playful screen offsets the solidity of the hammerhead form."

The building's hammerhead-shaped eastern end houses the administrative spaces, with the staff room's corner window providing views across the plaza and oval

"The natural subtlety of the COLORBOND® steel Matt finish is matched by the organic elegance of the spotted gum"

The sun-shading device's gentle undulations are articulated internally, where the walls of the 'learning street', on both upper and ground levels, are on seven-degree angles. According to the architect, this is the optimum angle to create usable space and to also allow for passive supervision via operable glazed walls. It softens the corridors and makes the classrooms on the northern side and the specialist food, science and art spaces on the south, seem all the more approachable, as does the fun zig-zag lighting in both upper-and ground-level corridors.

Plunkett's design creates a relaxed learning environment, informed by current pedagogies that prioritise collaboration. As a result, modular tables allow for different desk configurations and the operable walls provide flexibility. This more informal, less prescriptive scheme helps bridge the gap between high school and university and ensures students are comfortable, in order to promote greater productivity.

The learning spaces' plan is repeated on the upper level and Plunkett has made the most of the foyer's central void by installing an upstairs battery bar around it. Using spotted gum here, as well as for the staircase, adds warmth to the interior and makes it a favourite nook amongst students, allowing them to recharge their phone, check emails and work together in small groups. It also has the best views of the bluff and of the School's Water Sustainable Urban Design feature at the building's rear, which manages the site's stormwater retention issue.

While the project's hardy material palette is certainly its most compelling design expression, the soft, textured finish of the COLORBOND® steel Matt roofing and cladding is what ultimately defines the architecture. And for Plunkett, the outcome was reliant upon inspired product selection because the building needed the understated visual distinction the COLORBOND® steel Matt offers. As he reflects: "Maintaining the original concept and a simplicity of form was only possible with this unique cladding product and it enabled us to deliver a well detailed, refined exterior that's not only an attractive advertisement for a great learning environment, but for the College as a whole." SP

PANEL SAYS

This new secondary-school campus south of Adelaide, employs a limited material palette to create a rhythmic play of solid, semi-transparent and transparent surfaces. These various treatments provide subtle hints about the different types of teaching and learning spaces within the building. On the main northern elevation, an indented entry with expansive canopy creates a welcoming arrival point, whilst on the southern elevation, a series of carefully placed horizontal and vertical boxed windows punctuate the crisply detailed facade. The use of COLORBOND® steel Matt enhances the clean lines of the design and accentuates the deliberate contrast between solid and transparent forms

PROJECT Investigator College Senior School **CLIENT** Investigator College **ARCHITECT** Flightpath Architects **PROJECT ARCHITECT** James Plunkett, Senior Architect **STRUCTURAL & CIVIL ENGINEER** Walbridge & Gilbert Consulting Engineers **BUILDER** Partek Construction + Interiors (Managing Contractor), LUCID Consulting Australia (Building Services), Katnich Dodd Building Certifiers (Building Surveyor) **STEEL FABRICATOR** Advanced Steel Fabrications **SHOP DRAWING CONTRACTOR** Steel Planning **CLADDING CONTRACTOR** Zinctech Cladding **LANDSCAPE ARCHITECTS** Oxigen **PRINCIPAL STEEL COMPONENTS** Roofing made from COLORBOND® steel Matt in Revolution Roofing Rev-Klip™ 700 profile. Cladding made from COLORBOND® steel Matt in Revolution Roofing Maxline® 340 profile, in the colour Monument® **PROJECT TIMEFRAME** 11 months (construction) **BUILDING SIZE** 2049m² **TOTAL PROJECT COST** $7.39m

PAINTED SAINT

Weaving together contemporary education insights, careful siting, function-sensitive design and heritage components, St Columba's Primary School offers a uniquely nourishing early learning environment.

Words **Lorenzo Logi** Photography **Brett Boardman**

ARCHITECT
Neeson Murcutt Architects

PROJECT
St Columba's Primary School

LOCATION
Leichhardt North, New South Wales

From its inception, the development of St Columba's Primary School was auspicious. Located on a generous site adjacent to St Columba and the Holy Souls Catholic Church in Sydney's inner-west, the school is a few hundred metres from the head office of Sydney Catholic Schools (SCS), the organisation responsible for all of the Catholic Church's educational developments in the Archdiocese of Sydney. As such, it was an ideal opportunity to showcase a new generation of schools that reflect the latest in pedagogical research and considered design.

Unconvinced by a first design response, the Head of Facilities at SCS approached Rachel Neeson of Neeson Murcutt Architects. Frances Stewart, Principal at St Columba's at the time of the design and build, recalls that they were hoping to find "something a little bit fresh and different".

"We had a pretty detailed brief," Stewart says. "I had been to look at lots of schools, and in the back of my mind I knew what it was I was looking for. We needed the spaces to be very flexible so that the learning, for the diverse needs of the children, could be addressed by the spaces."

SCS worked with principal architect Rachel Neeson and project architect Giles Parker to develop the design, exploring a handful of different concepts before settling on the final iteration. A central element in this was how the new build would interact with the existing structures, which had earned the architects' affection. "I know that Rachel always loved the original 1928 building. It sat really beautifully next to the church," Stewart reflects.

"We needed the spaces to be very flexible so that the learning, for the diverse needs of the children, could be addressed by the spaces"

The resulting new build begins behind the existing structure and branches out to its side, retaining the height of the old building along its entire section while expanding the footprint. The dramatic 'ceilingscape' of the structure is the project's architectural fulcrum. This roofscape made from COLORBOND® steel in LYSAGHT CUSTOM ORB® profile in the colour Manor Red®, relates school and church as an assemblage of pitches, creating a uniting thread across the project.

Designing the roof to both link separate structures and tilt and extend to accommodate the volumes within was a particularly challenging process. "It was mostly done on physical models," says Giles Parker. "We were able to test that it wasn't beyond the physical capability of the steel sheet. That was when we realised we were twisting the material in a significant way, that all of the elements had to be worked out and that it was going to be an interesting build.

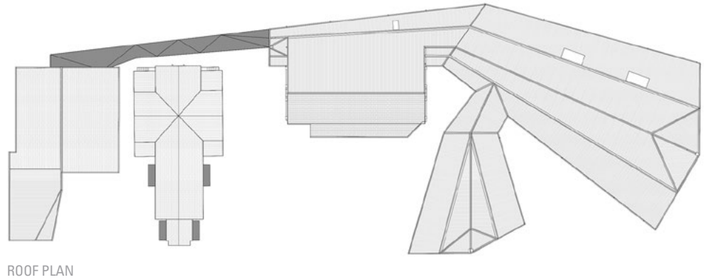
SITE PLAN

NORTH ELEVATION

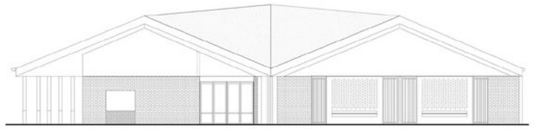
OPPOSITE LEFT: Steepled awnings at the school's main entrance evoke church roofs, and introduce a motif revisited in the interiors

ABOVE: Expansive windows and an open layout create generous interior volumes, which can be sectioned-off into discrete learning zones as required

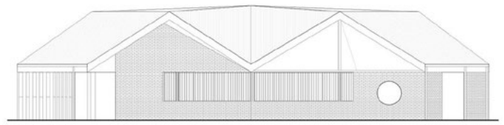
TOP AND BOTTOM RIGHT: Inside and out, the ceiling's intersecting panes construe an intricate three-dimensional topography, uniting the school's various structures and areas



ROOF PLAN



SOUTH ELEVATION



WEST ELEVATION

"The top and bottom of the roof are parallel," Parker says, "but the length of the steel spans posed a challenge. The roofers initially had concerns the edges might be slightly awry." Thankfully, challenging briefs often bring out the best in people and this example was no exception. Despite the significant demands imparted on the COLORBOND® steel; any preconceived misgivings proved unnecessary. Careful design and execution has yielded an intricately faceted roof that is beguiling in its precision.

Reflecting on the choice of roofing material, Parker says: "I think we came to choose it for a number of reasons: we considered it to be a quick way to install the roof against the steel structure and provide a waterproof working area underneath; the fact that it's a common material for this area, referenced the tin-roofed workers' cottages that are all around; and it's a very strong COLORBOND® steel colour that made a strong statement in a simple way."

More practically, steel was a material that offered the right combination of properties for the project, allowing single spans large enough for the planned spaces while keeping costs down. "Given the complexity of the geometry and the project budget," adds Parker, "it could not have been done in any other way. In addition, there is a lot of glass, and particularly highlight glass. Without the steel frame it would have been very difficult to achieve the lightness."

"Natural light, good ventilation, beautiful colours – that all plays into having a good learning environment for the children"

Internally, the design focuses on the importance of having expansive spaces that can be opened and closed as needs require. Facilitating this flexibility are 'hero' pieces of furniture that can also be moved and manipulated to fulfil different functions. This fits with the latest ideas of education design internationally, as Stewart explains. "Worldwide research talks about the importance of flexible spaces for children. Gone are the days where the teacher is the expert and the teacher tells the child what to do," she says. "We have Google. You have to teach these children the skills needed to find information. That doesn't have to be done sitting at a desk with a chalkboard in front of you. That's just not used any more… natural light, good ventilation, beautiful colours – that all plays into having a good learning environment for the children."

Parker interprets this from a design perspective, echoing the principles of agile workplaces when he observes that "there's a whole range of what's called the 'learning landscape'".

"Every space is a learning space: you don't say that a classroom is where you learn and outside, you don't learn," he explains. "You can learn everywhere and children are able to learn in different modes – from individually, to small groups, to large groups. Those spaces allow for a great variety of learning opportunities, in different sizes, in different ways. That was intrinsic to the project."

Consequently, the design replaces discrete classrooms with open learning spaces organised into three distinct zones – Stage 1 north, and Stages 2 and 3 south, divided by an administration and staff area. Spaces become larger and more connected in relation to the age of the children they host, allowing for closer supervision of the younger children, and greater freedom for the older ones. The learning resource centre (or library) lies at their junction. The administration wing extends towards the street, offering a controlled yet welcoming first point of contact for visitors and parents alike. On either side, external learning courtyards are visually open to the community.

Animating the space and creating a subtle link to the adjacent church is a motif of naughts and crosses on the ceiling, which relates both to the Catholic Ionic cross and to the pressed metal ceiling in the church.

The material palette revolves around local, natural colours and textures – cork floors and warm cork-coloured walls internally, red metal roof and terracotta toned brick externally – metaphorically extending the terracotta of the original school building. Vegetation similarly references that of the surrounding context and extends it into the courtyard spaces of the school.

The response to the project has been overwhelmingly positive. From the teachers' point of view, Stewart enthuses: "It's a beautiful space. It works in every way for us. The children love it and make their own spaces. It's so functional. I think the height and the light is a joy to be in and to work in."

And, as SCS undoubtedly hoped, St Columba's has also attracted attention for all the right reasons. "We've had a lovely response from lots of people," Stewart adds. "It is starting to wind down now, but in the first six months we had lots and lots of people through," she recalls. "We've had an architect come through to look. We've had a group of teachers from Thailand. A big group from Brisbane came down. Everybody who comes through is blown away by it. They can't believe how beautiful it is."

But perhaps most telling are the words of the architects; when asked what his favourite aspect of the project is, Parker responds without hesitation that he loves the height of the spaces. "Schools are not quite a public institution, but they are still an institution in a way," he says. "We should value such places with more space and more equality than a standard approach provides." **SP**

PANEL SAYS

The apparent simplicity of this big red roof – as ubiquitous in inner city neighbourhoods as the children's school hats that are mandatory for outdoor play – is the chief defining quality of this project by Neeson Murcutt Architects in Sydney. Unlike the other red roofs in the area, though, this one – made from COLORBOND® steel in the colour Manor Red® – is carefully sculpted and folded to inject light and spatial delight into the rooms below. As well as providing shaded places for children to play under its large overhangs, the roof unifies disparate parts of the school, seamlessly incorporating the original school building. Most importantly, though, it creates innovative spaces for teaching and learning below the folded and pitched forms of its ceiling, and these create a comfortable and complex scale for the kids

OPPOSITE: The COLORBOND® steel roof anchors the school in its local context, evoking the tin-roofed workers' cottages common in Sydney's inner-west

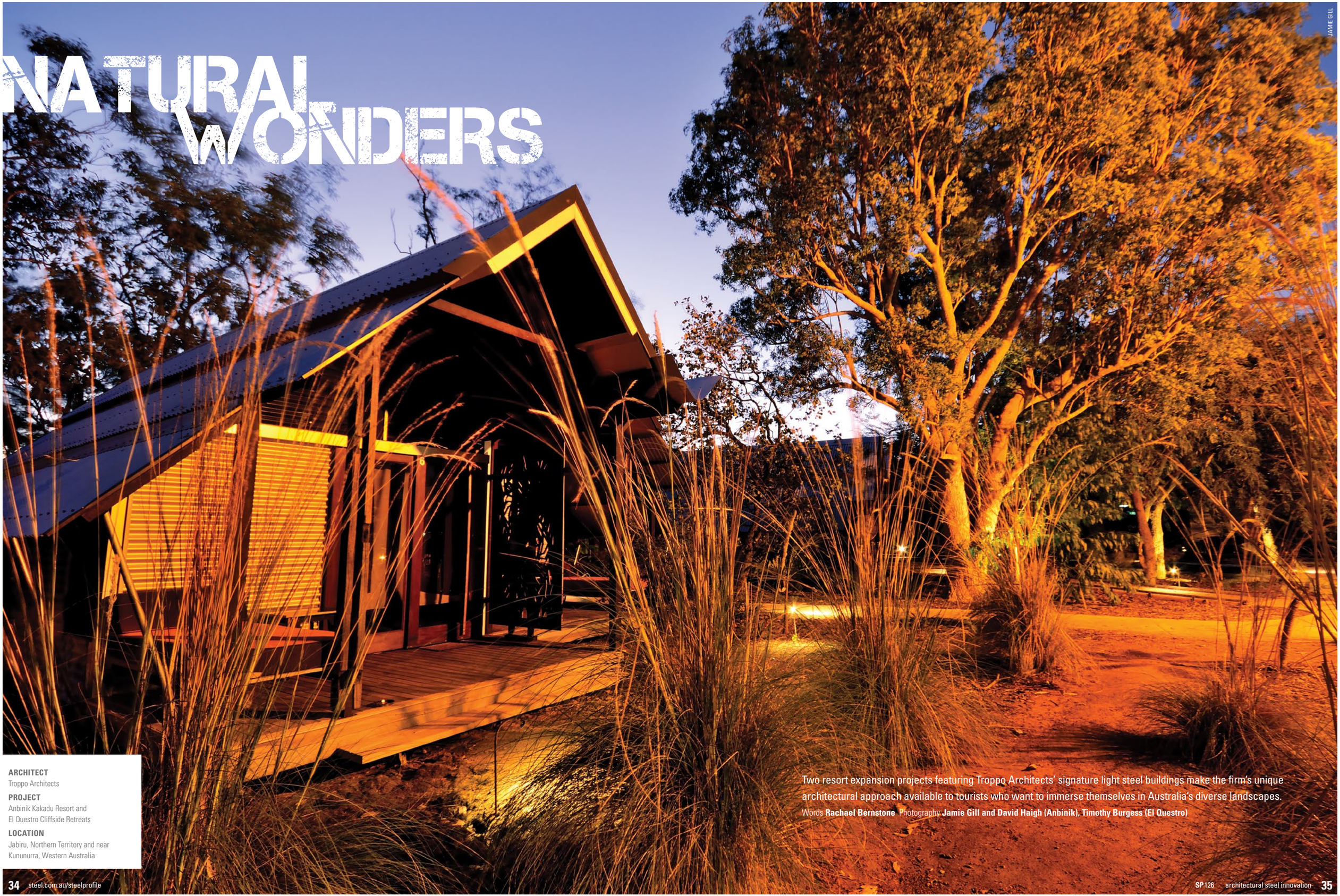
TOP LEFT: Modular furniture in the school's shared areas provide functional versatility and make for engrossing props for children at play

LEFT: The courtyard allows for internal areas to transition externally, and has been designed to allow for easy supervision by teaching staff

BELOW: The collection of earthy red, brighter crimson and lighter brickwork form a compelling chromatic ensemble, and nod to the school's earlier terracotta materiality

PROJECT St Columba's Primary School **CLIENT** Catholic Education Office, Sydney - now 'Sydney Catholic Schools' **ARCHITECT** Neeson Murcutt Architects **PROJECT TEAM** Rachel Neeson, Giles Parker, Simon Stead, Joseph Grech, Dominic Broadhurst, Anne-Kristin Risnes **STRUCTURAL & CIVIL ENGINEER** Birzulis Associates **BUILDER** Reitsma Constructions **LANDSCAPE ARCHITECT** James Mather Delaney Design **PRINCIPAL STEEL COMPONENTS** Roofing made from COLORBOND® steel in LYSAGHT CUSTOM ORB® profile, in the colour Manor Red®. Gutters and flashings made from COLORBOND® steel in the colour Manor Red® **PROJECT TIMEFRAME** Three years to completion **AWARDS** 2016 Australian Institute of Architects New South Wales Chapter – Educational Architecture Award **BUILDING SIZE** 1680m² (gross floor area) **TOTAL PROJECT COST** $5.4 million

NATURAL WONDERS



JAMIE GILL

ARCHITECT
Troppo Architects

PROJECT
Anbinik Kakadu Resort and
El Questro Cliffside Retreats

LOCATION
Jabiru, Northern Territory and near
Kununurra, Western Australia

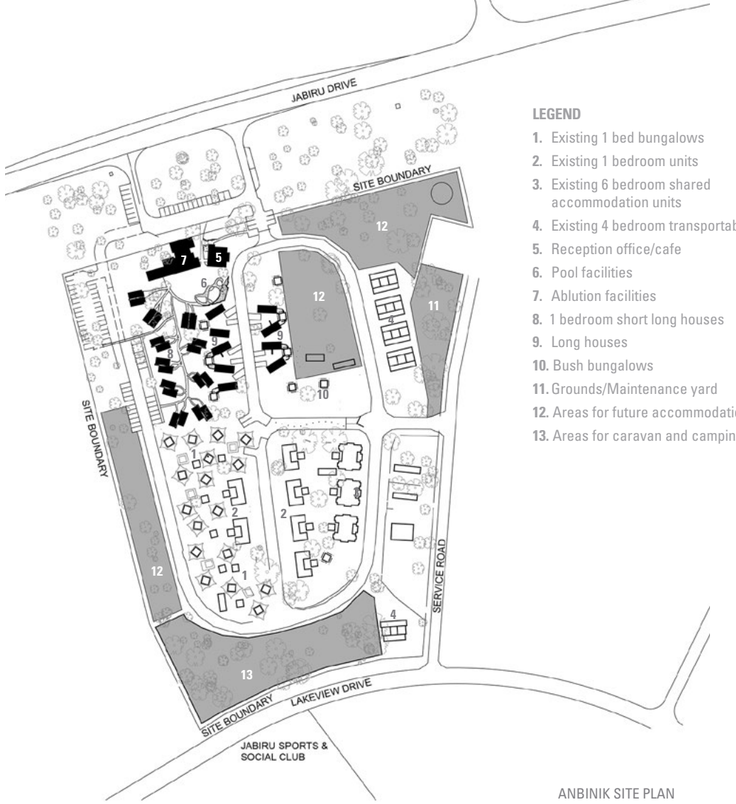
Two resort expansion projects featuring Troppo Architects' signature light steel buildings make the firm's unique architectural approach available to tourists who want to immerse themselves in Australia's diverse landscapes.

Words **Rachael Bernstone** Photography **Jamie Gill and David Haigh (Anbinik), Timothy Burgess (El Questro)**

Australians who live in the country's main population centres are often surprised when they travel to the interior, where they discover that the 'outback' is not the singular monotonous landscape of our collective imagination. From the Kimberley to the Gulf country via central Australia and the Top End, the only constant element is the sky, and even that can appear different each day, depending on your location and the weather.

Many of us think fondly of the interior as the "sunburnt country" described by Dorothea MacKellar in *My Country*, but Australia's most famous poem refers only to a small portion of our vast landscape. It fails to mention the central deserts (of which there are at least six defined types), the teeming wetlands of the Top End that rely on annual fires for their continued renewal or the ancient rocky outcrops of the Kimberley, all of which lie far beyond the confines of the relatively occupied and cultivated state of New South Wales which MacKellar knew and loved.

There's no getting away from the fact that Australia is a big country, so vast in fact that there are few architecture firms that have grappled with its many and varied locations. But for nearly 40 years Phil Harris and Adrian Welke, founders of Troppo Architects and winners of the Australian Institute of Architects Gold Medal in 2014, have investigated and experimented with the requirements of shelter in remote and regional Australia. Their journey began when they circumnavigated the country in a Kombi van as fourth-year architecture students in 1977 and it continues to this day, with the firm working on projects in five states.



LEGEND

1. Existing 1 bed bungalows
2. Existing 1 bedroom units
3. Existing 6 bedroom shared accommodation units
4. Existing 4 bedroom transportables
5. Reception office/cafe
6. Pool facilities
7. Ablution facilities
8. 1 bedroom short long houses
9. Long houses
10. Bush bungalows
11. Grounds/Maintenance yard
12. Areas for future accommodation
13. Areas for caravan and camping

ANBINIK SITE PLAN

JAMIE GILL

The new 'Anbinik Suites' are arranged in duplexes throughout a tropical Garden and each one features a front verandah with daybed

DAVID HAYHOW

JAMIE GILL

The steeply pitched roofs help to disperse torrential rain from tropical downpours quickly, and the quirky gutter detail was worked out on site, after mis-measured roof sheets were delivered

Harris and Welke's nuanced appreciation of the variety of Australian landscapes is evident in their first publication, *Influences in Regional Architecture*, co-authored with Justin Hill and Jim Hayter in 1978. That report details the observations of four students who set off from Adelaide to "promote an awareness of architecture… beyond the urban arena, in which most Australians live".

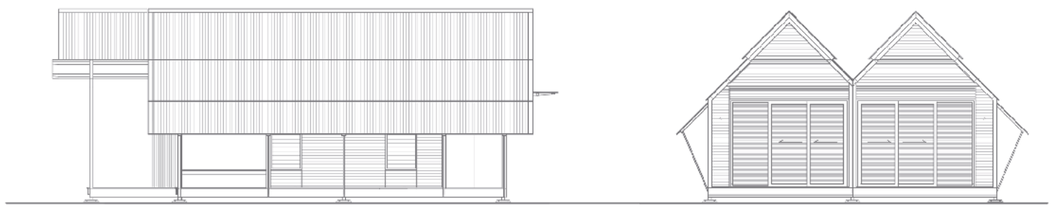
in 2002, Harris and Welke remain acutely aware of the different types of hot weather in Australia's northern climates – from the oppressive 'build-up' in the Top End to the arid dryness of the red centre, and the worst of both worlds – the combination of soaring temperatures and high humidity that is common in the eastern Kimberly each December. As well as their skill at responding to varied conditions, Troppo designs take into account

"This all comes from Glenn Murcutt. He told us early on that: 'Thou shall have half-round gutters and sections of downpipes', because there's less friction in the flow of water through such things than in rectilinear forms"

Following Harris and Welke's move to Darwin and the establishment of Troppo Architects in 1981, the firm has continuously interrogated structure, detailing, materials, composition, construction techniques and design. They have produced an array of building types, all of them tied together by a loosely identifiable 'Troppo' quality best observed in the openness of each building to its surroundings, regardless of the inherent challenges of each particular environment and in doing so proving closed walls and air conditioning aren't the only solution to deal with tropical heat.

As residents of Darwin for 20 years who returned to their home cities of Adelaide and Perth respectively the skills and capacity of the local building industry, and the issue of ongoing maintenance in often remote locations.

Their buildings usually employ elegant structural steel framework characterised by fine details: this paradoxically robust and delicate skeleton is essential to support the large yet lightweight parasol roofs that protect inhabitants from sun and rain, and the light and operable walls that capture and direct breezes through indoor and covered outdoor spaces. Troppo buildings aim to maintain the comfort of their occupants regardless of the weather, but not at any cost.



ANBINIK BUNGALOW ELEVATIONS

JAMIE GILL

The Reception, Office and Cafe buildings feature elevated grand verandahs, detailed in Troppo's typically fine steelwork

As keen architectural observers of the North's changing seasons, landscapes, geology and the customs and habits of Indigenous Australian people, Troppo has amassed an unprecedented body of knowledge over nearly four decades. Troppo buildings have mostly been inaccessible to mainstream tourism – there are some exceptions such as the visitors centre at Kakadu National Park, created in association with Glenn Murcutt, and hospitality projects in Darwin – but much of their work has been done for private clients. Now, with the unveiling of two resort expansion projects, the Troppo approach to experiencing the Top End is available to more Australians, albeit just for a short stay.

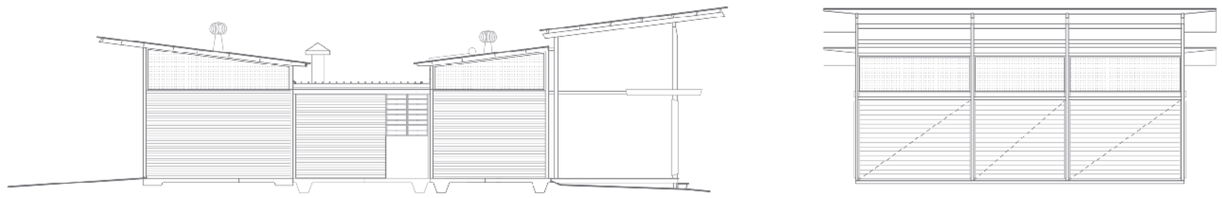
In 2016, expanded resort facilities opened at the rugged and remote El Questro Wilderness Park near Kununurra in Western Australia, and at Anbinik Kakadu Resort at Jabiru in the Northern Territory. These projects share some similarities: being in remote locations they were both designed as modular or prefab structures. "Both the projects are remote from the decent industry sources that we have in southern and eastern Australia," Phil Harris says. "Anbinik is 250km from Darwin and El Questro is 150km from Kununurra, and remote places don't always have the significant resources and specialised trade skills at hand to successfully build beautifully and differently."

To some extent, the projects share a material palette, but they appear obviously different, which Harris attributes to variations in the landscape they occupy. "They are similar in that they both aim to respect the place in which they are built," he says. "But the Kimberley is so much stone country, so we've drawn that up into the buildings through the siteworks and walls, whereas Anbinik by comparison is in sand-plain country: it's a place where you feel lighter and less grounded that way."

"Anthony makes all of his own sections – he folds all of his structural members, be they lightweight studs or things you might call bearers or joists, or parts that seem to be both in one"

Anbinik was formerly a self-catering caravan and camping park. The Troppo-designed upgrade includes new ensuite accommodation, a cafe, pool and commons. The arrival sequence starts at the car park – which resembles a dry savannah landscape – and continues to a new reception and cafe zone in a lush and shady setting at the resort's centre.

These facilities are framed by an elevated grand verandah, which is typical of Troppo designs. Built in Darwin and erected on site, the structural steel-framed walls and roofs are made from ZINCALUME® steel in LYSAGHT CUSTOM ORB® profile. Some internal walls are lined with perforated COLORBOND® steel in LYSAGHT MINI ORB® profile,



ANBINIK KITCHEN/CAFE ELEVATIONS

in the colour Monument®. The resort's pool – shaped like a billabong and shaded by reed awnings – is sheltered with screens made from sandblasted 3mm steel coil with plasma-cut motifs.

The new accommodation offering, known as 'Anbinik Suites', is arranged in duplexes within a tropical garden setting. They feature outdoor verandahs with daybeds, and bathrooms that open fully to private courts. Sharing the same material palette as the commercial spaces, they were constructed in Horsham, Victoria, by Grampians Homes.

"We were introduced to Anthony Op de Coul (at Grampians) as we were putting Anbinik out to tender, and he won it on price, but from the get-go we liked his openness to innovation," Harris says. "We loved the fact that he's from a furniture-making background, so he's able to work through the finer details of a project, and we appreciated his ability to work with materials apart from those that often find their way into project housing: that sense of reality and durability were things we needed in this project."

The materials for the Anbinik Suites – steel frame, steel cladding, roofing and soffits, and plywood and strand-board internal linings – were chosen for their suitability in the environment, Harris says. "They are built with hard-wearing materials for the conditions, and they have an earthy character. The totemic tropical dwelling has a steep-pitch roof made from hardy lightweight ZINCALUME® steel to run-off the rain quickly and in is also textural in terms of the CUSTOM ORB® profile for the roofing and cladding. And we're pretty proud to be able to say that these little dwellings are plasterboard-free."

Harris was particularly impressed by Op de Coul's approach to prefab building. "Anthony makes all of his own sections – he folds and bends all of his structural members, be they lightweight studs or things you might call bearers or joists, or parts that seem to be both in one – to achieve strength in whichever direction the member needs. That means we can get pretty nifty details, but he's very lean with materials so it's cost-effective."

Achieving that level of finesse requires thorough prototyping, Harris says. "Anthony looks at our drawings and sees that we're trying to work out how to do things on paper, then he does tests in 1:1 reality by trialling connections or profiles," Harris explains.

PANEL SAYS

Once again, the skilled hands and minds of Troppo Architects demonstrate the power that steel has to generate great architecture. Both of these resort projects display a level of ingenuity in their steel detailing and use of materials: it's obvious that Troppo's unique attitude to design and building continues to produce spectacular outcomes. In the Kimberley, the architects have paired mild steel with local stone to great effect, while at Kakadu, the delicate steel frame and steeply pitched roofs of the cabins create a form that we instantly recognise as the archetypal shelter for wet-tropics environments. It's unusual for *Steel Profile* to feature two projects by one firm in a single issue, but we ultimately couldn't choose between these two recent offerings by architects who are clearly at the top of their game

BELOW LEFT AND RIGHT: The cafe verandah overlooks the resort's lagoon-style pool, which is sheltered by plasma-cut mild steel screens and shaded by reed awnings

DAVID HAIGH

DAVID HAIGH

PROJECT Anbinik Kakadu Resort **CLIENT** Djabulukgu Association **ARCHITECT** Troppo Architects **PROJECT TEAM** Phil Harris, Andrew O'Loughlon, Ryan Horsnell, Kelley-Jo Rochow **ENGINEER** John Scott, R.E. Proud **CIVIL CONSULTANT** Wallbridge & Gilbert **QUANTITY SURVEYOR** QS Services **SERVICES CONSULTANT** Peter Horne, Alec Gangur **BUILDERS** Aldebaran Contracting; McKenna Constructions; Grampians Homes; Kakadu Contracting **STEEL FABRICATOR** Grampions Homes **LANDSCAPE CONSULTANT** Djabulukgu Association **CERTIFIER** Tecon **PRINCIPAL STEEL COMPONENTS** Exterior roofing and wall cladding made from ZINCALUME® steel in LYSAGHT CUSTOM ORB® profile with matching flashings. Cabin ceiling linings and internal walls in reception, office and café made from perforated COLORBOND® steel in LYSAGHT MINI ORB® profile, in the colour Monument®. Half-round gutters made from ZINCALUME® steel. Wall and roof structure: custom-made by Grampion Homes using RHS, CHS and coil from LYSAGHT and BlueScope. Steel struts: 25dia, to support bolt-on eaves. Bathroom screens: rolled recycled LYSAGHT CUSTOM ORB®. Pool shelter screens made from sandblasted 3mm steel coil with motifs plasma-cut by Laser 3D, Adelaide **PROJECT TIMEFRAME** July 2012 – February 2013 (design); March 2013 – August 2014 (construction) **AWARDS** 2016 Australian Institute of Architects Northern Territory Chapter Awards: Peter Dermoudy Award for Commercial Architecture; The Tracy Memorial Award **BUILDING SIZE** 840m² **TOTAL PROJECT COST** $2.6m (excluding landscaping)

TIMOTHY BURGESS

EL QUESTRO SITE PLAN

LEGEND

1. Reception/Dining lounge
2. Kitchen
3. Existing kitchen/coolroom/ store/staff lounge
4. Retained suites
5. Villas

"It's not the kind of investment you'd make for a one-off building, but when you are building 14 cabins it's worth putting in that effort up front."

The use of steel is essential to achieve the design objectives, especially in the Top End, Harris says. "In all of the buildings we do, the architecture doesn't exist without steel being able to neatly achieve the broad openings," he says. "The steel structure enables the walls to be in-filled at will, or in many instances to be filled with things that open and shut."

Steel offers other benefits, too. "For instance, the verandahs at El Questro offer a great view, and the last thing you want is a lot of cross-bracing or extra structure to maintain rigidity, so we find that having that steel frame out on the edge is pretty important.

"Also, one thing that is difficult to achieve in the north is carpentry," Harris continues. "It's a skill that has dwindled as steel has become the preferred wall-framing material, so in this case the steel offers the sense of touch and feel of joinery."

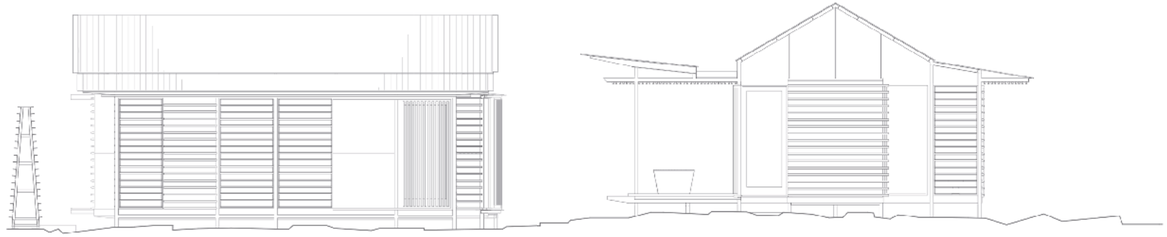
Whereas the cabins at Anbinik hover just above the ground, the accommodation at El Questro is firmly embedded in its rocky landscape, thanks to stone (locally sourced) and walls made from 3mm mild steel that anchor and provide privacy to each villa. Aimed at the premium end of the tourism market, these luxury retreats feature verandahs with an outdoor bath overlooking the Chamberlain River as it pours from a narrow gorge across a sprawling floodplain.

"Both sites are centred on nature-based and cultural tourism, and if you are going to get involved with the environment you have to shower outside, surely," Harris laughs. "It's about engaging with the environment: if the dwelling overall can engage with 'The Great Outdoors' that's fantastic, if the details such as the shower and bath can, that's even better.

"Obviously there are issues around privacy," he adds. "At El Questro it's probably a bit edgy being in a bath on a verandah hanging over a cliff edge, or showering against the re-formed gorge wall in the courtyard, but there is a bathroom inside as well. It's broadly open, with the option of a fly-screen barrier or a glazed door, or nothing."

> "In all of the buildings we do, the architecture doesn't exist without steel to neatly achieve the broad openings"

Both resorts also offer in-room air conditioning, a concession to the market that Harris says is deliberately hidden. "All of the cabins and villas work well without it by employing the principles we've studied and refined," Harris explains. "Of course these days we run into the energy



EL QUESTRO VILLA, NORTH ELEVATION

EL QUESTRO VILLA, EAST ELEVATION

efficiency provisions of the building code which require seal-ability of buildings, and so they *can* seal, but they can also fully blooming-well open. That's not cheap – that mixed-mode potential – but it's there.

"I just find it disappointing in tourism accommodation, particularly when you are talking about nature- and culture-based tourism, that you would devise places to stay in that can only work with AC, to seal you away from that environment," he says. "It's just totally at odds with the purpose at hand.

"At both projects, we've installed louvres and broad openings for cross-ventilation, and the ceilings are detailed to relieve the rising heat: there is no compromise around the implementation of the principles of tropical design," Harris asserts. "But it's a marketing requirement to have air conditioning. We'd love the day when a client said: 'No air-conditioning is a basic principle of what we produce, so if you can't cope with that, don't come', but I'm not sure that in a competitive tourism market anyone's going to do that.

"It's still a good investment, though, because good design leads to reduced running costs, which is not just about the power you are using at the moment, it's also about the wear and tear on the [AC] equipment."

"In all of the buildings we do, the architecture doesn't exist without steel to neatly achieve the broad openings"

So ideally, the best way for coast-dwelling Australians to visit Troppo's new resort projects is to embrace the experience, and to eschew the air conditioning. These projects have the capacity to expand our knowledge about our collective understanding of the Australian 'outback' in all its variety, and how we might comfortably and efficiently occupy this "wide brown land".

For the architects, the projects represent the most recent attempt in their long-standing quest to distil the essence of Troppo Architecture into an affordable, transportable and efficient building product. This year the firm will launch its Trop-Pods, a prefabricated and modular building system, customised and made-to-order by Grampians Homes. The end-product of more than 20 years of experimentation, Trop-Pods are the logical next step to make Troppo's considerable wisdom about appropriate design for Australian conditions available to a wider audience. **SP**

BELOW AND OPPOSITE: El Questro's luxury villas are anchored to the rocky landscape by privacy walls made of local stone and mild steel, positioned on each western elevation. The generous verandahs are secluded enough to boast an outdoor bath, and offer views across the gorge and floodplain below

TROPPO ARCHITECTS

TIMOTHY BURGESS

PROJECT El Questro Cliffside Retreats **CLIENT** Delaware North Australia Parks & Resorts **ARCHITECT** Troppo Architects **PROJECT TEAM** Phil Harris, Tain Patterson, Hannah Garnaut **ENGINEER** Geo Consulting **BUILDER** Ri-Con Contractors **STEEL FABRICATOR** Force 10 **CLADDING CONTRACTOR** Ri-Con Contractors **LANDSCAPE ARCHITECTS** El Questro Wilderness Park **PRINCIPAL STEEL COMPONENTS** Roofing and wall cladding made from ZINCALUME® steel in LYSAGHT CUSTOM ORB® profile with matching flashings. Walling made from 3mm mild steel. Half-round gutters made from ZINCALUME® steel. Structural steel including SHS columns; SHS and UA beams; RHS rafters; LYSAGHT TOPSPAN® 60 purlins; EA purlins; EA and UA fascia purlins; EA and UA outrigger purlins; Roof trusses: STR1 and TR2 light-gauge metal scissor truss **PROJECT TIMEFRAME** Six months (design); 16 weeks (construction) **BUILDING SIZE** 70m² **TOTAL PROJECT COST** $2 million (including landscaping)

TIMOTHY BURGESS