NH ARCHITECTURE
THE CINEMA COMPLEX AT DISTRICT DOCKLANDS

ARCHITECTUS IN ASSOCIATION WITH HDR
WERRIBEE MERCY HOSPITAL

IN PROFILE:
FRANK STANISIC
EDITORIAL

Since 1891, Steel Profile® magazine has charted the rise and use of steel as a dynamic element of Australian architecture. It has showcased inspiring and innovative designs of all scales and types—from bespoke houses to city-shaping infrastructure.

Importantly, Steel Profile® magazine has also collaborated the architects that have helped to establish steel as an essential part of Australia's architectural vernacular.

With that in mind, it has been extremely beneficial to attend the Australian Institute of Architects National Conference as the Principal Corporate Partner and hear from architects about their steel shaping their emerging designs, and also to attend the recent Australian Steel Institute's Connection on a Platinum Sponsor talk with industry leaders about the future of steel in Australia.

Reading through issue 130, I'm impressed by the stories of projects, and the level of co-ordination, trust and goodwill that go into making a good project, great. It's never been clearer that behind every great project is an even greater team of individuals, all focused on contributing and delivering on a project's shared vision. The projects chosen for this issue are testament to that shared vision, sense of responsibility and reward for effort.

Copies of previous issues are now available online and can be downloaded from steelselect.com.au/steelprofile. And while you’re there, have a look around Steelselect®, a website designed to help architects and other specification professionals research, design and specify steel building products and construction solutions.

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Frank Stanisic

Steel: A material of choice for this new residential house—two towers that gently ‘jumps’ in a raw WA environment. Its framing and cladding made from COLORBOND® steel blending into the native landscape.

Penney Puller

Penney is a partner at Penney Fuller, established in 2010. Penney is a future architect’s future projects have been awarded for their creativity and design accuracy. Penney’s work draws on experiences gained across a broad range of international projects. He is a prominent member of the Australian Institute of Architects. Emerging Architect Prize.

Matthew Hyland

Matthew Hyland works with Hogg and Lamb. He obtained a Master of Architecture from the University of Sydney, and now mentors the 2015 BlueScope Glenn Murcutt Student Prize. He has been mentoring the winners. Matthew is committed to develop and refine design processes through observation, research and experimentalism.

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EDITORIAL ADVISORY PANEL

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

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PHOTOGRAPHER

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The Cinema Complex at The Star Gold Coast is entirely clad in a daring custom COLORBOND® steel profile, finished in a distinctly Australian colorway with aesthetics and elemental protection.

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Far from a boring, blocky cinema building, taken to saving its action for the screen, this eye-catching project by NH Architecture makes a spritely statement with flashes of cladding made from COLORBOND® steel – most notably in ARM Rollforming’s custom-made MegaRib® profile, in the custom colour Monika Red™.

Words: Peter Hyatt  Photography: Paul Bradshaw; Nick Holicki
At its heart, architecture needs a sharp eye and a hard head. It’s welcome, then, that the definitive design for this new cinema entertainment complex at Docklands cuts like a scythe.

Working from ‘warehouse’ origins might appear misguided for achieving the uplifting, yet this is precisely what has occurred in this project’s instance. Streamlined and striking, the cinema stands well-apart from the common typology: the rabbit warren-like Brutalist cinema megaplex.

Steel wall cladding, made from COLORBOND® steel, wraps around the building like a curtain and provides the project’s vivid design motif. Particularly striking is the western facade’s triangular-shaped cladding profile, from ARM Rollforming, called MegaRib® – which acts as a rainscreen. This is custom-made from COLORBOND® steel which is folded into 210mm by 305mm angles and repeated in series. Painted in the custom colour Monika Red™, the cladding provides a daring signature that project architect, Nick Hubicki of NH Architecture, describes, “As a kind of pleated house curtain, reiterating the building’s function while reconnecting it to a former cinematic experience: an anticipation of the screening and illusion.”

Hubicki extols the virtues of the building envelope that dazzles not with glare but in its visual impact. Forget neon, or sugar-dusted graphics. This taut design narrative is vividly inviting and utterly fitting for a house of fantasy.

The customised triangular cladding made from COLORBOND® steel in the custom colour, Monika Red™, is complemented by a more traditional cladding in the same colour: LYSAGHT LONGLINE 305® profile. Other contrasting colours for the wall cladding include the same LYSAGHT LONGLINE 305® profile in the COLORBOND® steel colours Thredbo White® and Monument®.

Interestingly, one of the project’s biggest sticking points was colour. Hubicki tells how the client had to be persuaded by the team’s proposal. Convincing the client to remain open to change demanded imagination and effort. His experience is a reminder that design of consequence invariably aows much loss to the ‘brilliant flash’ than perseverance.

“Colour might not normally be such a preoccupation, but in this context and setting it was pivotal,” says Hubicki of the custom colour Monika Red®. Colour can divide client and architect as easily as unify. “It’s a vibrant red,” he says. “You see it from the freeway and travelling along Footscray Road. It provides this tremendous visibility and feels incredibly ‘right’ given its function and role.

“As soon as we saw the prototype in the factory we said: ‘This is it’! And that was what ultimately wore over the client. Until then, he was unconvinced about the red, but when he saw the prototype he had no doubt. He loved it! That was the game-changer.”

Almost thwarted from the outset, the site is less one of pristine possibilities than cautionary tale. The architect describes the site as one created from the space left over between the Melbourne Star Observation Wheel and Costco warehouse.

“There were so many competing forces. It’s a reminder that architecture is the act of dogged problem-solving and lateral creativity.”

NH Architecture helped heal Docklands’ reputation for mediocre buildings with its 2009 design for Costco, resulting in a steel beacon that suddenly activated the site’s northern edge. With rare kinetic energy, it turbo-charged a resurgence in better-scaled, bespoke structures.

Costco provided Hubicki with déjà vu, when embarking on the cinema complex. “Its language and dynamism provided a momentum for what was possible, second time around. There is a symbiosis,” he enthuses, “between the earlier building made from COLORBOND® steel in the colours Shale Grey™, Monument® and the custom colour O’Hara Red, and its recently delivered sibling.

“We wanted elements of that first colour scheme – primarily charcoal with a red slash – so that the two buildings could ‘ricochet’ off each other. It’s not often you get to do buildings so many years apart on different sites with different clients that can have such a dialogue.”

“It’s a vibrant red. You see it from the freeway and travelling along Footscray Road. It provides this tremendous visibility and feels incredibly ‘right’ given its function and role.”

ABOVE: Clarity and stand-out projection are hallmarks of this visitor-magnetic project.

LEFT: The customised triangular cladding made from COLORBOND® steel in the custom colour Monika Red®, is complemented by contrasting cladding made from COLORBOND® steel in the more traditional LYSAGHT LONGLINE 305® profile, in the colour Monument®. The profiles and colours provide an elegant, articulated facade recalling an industrial port history.
Hubicki says the project’s daring is exemplified by the intensive steel customisation and testing. “The building is a minor essay in how large-scale customisation can be efficiently achieved through collaboration not merely of architect and client, but builder and manufacturer.”

He says that the trailblazing qualities of the envelope demanded intensive problem-solving. “The whole production team were exceptional”. He reels off some of the key suppliers and consultants: “Rollformer, fabricator, builder and BlueScope who helped us connect with pivotal people able to contribute to this result.”

Hubicki says the stellar cast of BlueScope products was pivotal to the project’s success. This included over 200 tonnes of cladding and roofing made from COLORBOND® steel in LYSAGHT LONGLINE 305® profile; 25 tonnes of custom-made triangular cladding made from COLORBOND® steel, welded beams and columns made from XLERPLATE® steel, as well as purlins and girts made from GALVASPAN® steel.

Roofing is made from COLORBOND® steel in LYSAGHT LONGLINE 305® profile, in the colours Monument® and Surfmist®, and the project’s signature custom colour, Monika Red™. “The roof is mainly darkly coloured and also has the lighter-coloured Surfmist,” he says. “The red gives it zing and isolates it from everything else, very quickly. Our office puts a high premium on roofs. They’re never considered wasted, or invisible.”

“The project forms a contextual dialogue between existing structures,” he continues. “The malleable and dynamic properties of the LYSAGHT LONGLINE 305® profile and the triangular sections made from COLORBOND® steel were exploited to allow the building to maximise its volume, given an unusually difficult site boundary.

“This had to be made from scratch and the full building height had to be achieved seamlessly. Mike Brinkman, BlueScope’s specification account manager, put us in touch with ARM Rollforming’s Henry Wolfkamp.”

“Mike did us a great favour by introducing Henry because he is remarkable. Henry worked with BlueScope and ourselves to prototype just the right profiles and paint colours.”

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Wolkamp also responded to the architect’s request for the biggest, longest sheets available. “Henry was fantastic,” says Hubicki. “Nothing was too much trouble. He created the sample 228m profile as well as the super 18-metre length, rather than the standard 8-metre variety.”

Wolkamp describes the whole process between the installers, architects and builders as one of “huge goodwill.” “We produced the sample profile, had our best operator on the roll-forming job and a team of people to stock and handle the sheets with the care to ensure it all arrived on site in pristine condition,” Wolkamp says.

“We were interested in using a material we could ‘push’. Without end-lap connections at 1200mm centres vertically, it is just one length of steel at 18 metres.” Now the project is complete, it is Hubicki still impressed by the façade’s many colours. “We recently took the Australian Institute of Architects team along as part of judging for the Victorian COLORBOND® steel Award for Steel Architecture – which it subsequently won – and the gods were favourable to us. The light was fantastic. The rotated elevation and varied roof gradient revealed a full gamut – from a colour bordering on orange to a deep, deep red and – further along – a fiery red. It was really quite magical.”

So successful has the design and development process for this project been that NH Architecture plans to continue the steel envelope momentum at Melbourne Park’s new media centre. “It was simply a small idea that steel then became the dominant material on. We’ve learned as much from the entertainment complex that we’re speaking to Henry again and so we’re looking at a similar cladding.”

“A tough site and roadway elevation for The Cinema Complex at Docklands might have caused Hubicki palpitations but his response to the challenge is the opposite. “Oh no, not at all. I was licking my lips (for the western facade). That is probably my favourite part of the building,” Hubicki says.

“It’s not very often as architects you get a big, blind wall to design and are really nothing apart. It could easily be anonymous and fade away, or it can stand out. I think that edge of the project definitely stands.”

NH Architecture continues the revival of District Docklands. “Far better public engagement through design bravura suggests redemption is at hand. This new entertainment complex is a triumphant demonstration of architecture’s power to overcome multiple constraints. Wedged into a pinched-shaped site between two iconic and spatially dominating projects – Customs and The Melbourne Star Wheel – it cleverly uses colour and texture to visually converse with its structural peers, and also create a hold and independent identity. The primary device for this distinct urban ensemble – somewhat reminiscent of Gunnar Birkerts’ ribbed and muscular 1978 Calvary Baptist Church – is an inventive linked triangular rainscreen, custom-made from COLORBOND® steel by ARM Rollforming in the profile Megaphit®. The profile’s already pronounced legibility, which references theatre curtains, is amplified by the cladding, beacon-like custom COLORBOND® steel colour, Monika Red™. This facade’s playful scenography also de-icakes its necessary volume, transcending a shed-like appearance. “We were interested in using a material we could ‘push’. Without end-lap connections at 1200mm centres vertically, it is just one length of steel at 18 metres.”
A chance visit to the Sydney Opera House helped to determine (then) high-school student Frank Stanisic’s career path. Fast-forward nearly five decades, and the results of his big-picture thinking can be seen across Sydney. Words Rachael Bernstone Photography Paul Bradshaw (portrait); Stanisic Architects

Frank Stanisic’s journey to architecture was serendipitous and he can thank an unlikely teacher for helping to lay the groundwork. “As a high-school student I became interested in architecture because my economics teacher had a love of opera,” he explains. “This was in 1970, and he took us to the new Sydney Opera House, which was a construction site.

“We went to see the concert hall, and the steel was being put in on the western edge – it forms all the glazing edges on the northern sides. I was knocked out by the experience,” he says. “I visited it twice more before it was completed, and was always taken by the space and the spectacle of the building being constructed. Because I had always had an interest in making things, that was a pivotal experience for me.”

Stanisic then studied architecture at Sydney University in the “hippy days” with contemporaries including Alec Tzannes, Wendy Lamin and Peter Tonkin; and “a lot of people who have gone on to impressive things,” he says.

He has stayed the course, though; launching his own practice in 1980 and playing a significant role in shaping Sydney as it transitioned from Australia’s largest city into a metropolis of global scale.

After completing university, Stanisic travelled to Europe to explore architecture projects and returned to Australia via the overland route. “We worked our way back through the Middle East and Asia, through Pakistan, Afghanistan and Iraq, at a time when nobody had any problems travelling through those places,” he says. “I saw a lot of architecture as a consequence. They were still working on Le Corbusier’s capital of India – Chandigarh – and we stayed there for three or four days, sleeping in a squat and photographing the concrete. “My interest in that project stemmed out of my interest in the Opera House,” Stanisic adds. “I was always interested in Modernism with a tendency to Post-Modernism.”

Upon his return, Stanisic worked first for John Andrews International, “at a time when Andrews was at his peak,” he says. “I moved to Washington to work on a competition entry for Intelsat and stayed for two years; I also worked on the Cameron Offices in Canberra, and the King George Tower in Sydney,” he recalls.

“Andrews was a great influence. He always asked the question: ‘What is the ‘big idea’?’, and without a doubt we have carried that question forward, in our work.”

Stanisic moved on to work for both Lawrence Nield and Ken Woolley as part of a 10-year plan. “From Lawrence, I learned about urbanism and from Ken, about aesthetics and detailing,” he says. “Then I started my own practice in 1980 – almost 30 years ago – after I had paid my dues.”

The coalescence of these three influences – Modernism, urbanism, and aesthetics and fine detailing – can be seen in Stanisic’s output over three decades. In

“We went to see the [Opera House] concert hall, and the steel was being put in on the western edge – it forms all the glazing edges on the northern sides. I was knocked out by the experience.”
ABOVE: The Jewel project comprises three new workers was runner up to the winner, it was serendipitous because even though their scheme a South Sydney Council design competition. It was partnered with Turner and Hassell in 1995 to design cultural facilities – such as the Jewish Museum – that combined living, shopping, working, education and childcare uses. “It’s what I call a hybrid that expands the whole brief of housing,” he says. “Because these buildings are located in the city — where space is rare, it’s very important to combine those uses.”

His firm cemented its reputation thanks to Sydney projects such as Monash in Alexandria, which set new sustainability benchmarks in New South Wales and became the first multi-residential winner of the Wilkinson Award, and Eda in East Sydney (featuring in Steel Profile®) which received the inaugural Aaron Bold Award and the national Romberg Award for multiple housing.

This year, his firm collected more awards for Imperial, a hybrid project in Hurstville — including an Australian Institute of Architects New South Wales Chapter Award for Residential Architecture – Multiple Housing. The firm’s ongoing success is remarkable given that architects work in what Stanisic calls “occupied territory, occupied by developers, estate agents, authorities and courts,” and even so, in the current state of the multi-residential market in New South Wales and Victoria, where construction delays and non-compliant materials are eroding public confidence in the sector.

Always concerned about the ‘big idea’ as Andrews called it, Stanisic says changes in Sydney over the past decade don’t apply only to housing. “This movement to high-density living is an historical shift with enormous implications,” he says. “We need to reduce our carbon footprint and that means we need to know what to keep and what to throw away. Most people want to throw away too much; these are buildings that are good enough to keep and can be re-used.”

“That’s why we like this movement towards hybridisation,” he adds. “Since there are no longer sites, they are connected and there is a fusion of programs and built forms.”

With Green Square largely built-out, the firm’s attention has turned upwards to Parramatta, where it is working on a 48-storey hybrid building in the CBD; and to Olympic Park, where a series of up to eight-storey buildings are sprouting from a former TNT site.

“We often find that the use of steel is an integral element of the building, which illustrates the compatibility between the use of steel and architecture. It all comes down to the skills of the architect,” he says. SP
Situated half-way between Margaret River town and the surf that made the region famous, this COLORBOND® steel-clad house on stilts embodies all the best attributes of camping.

Words: Rachael Bernstone  Photography: Douglas Mark Black
“I always wanted it to be built using steel to minimise the visual impact of the support structure. I was pretty happy that we had made the structure as lean as possible.”

Because the block is so private – a neighbour is currently building a new home to the north, but it’s not visible from this house – the site lent itself to an open design, Paul says.

Early on, they considered building the house with a timber floor, but opted instead for a suspended timber floor, but opted instead for a suspended timber floor, with a balustrade made of equal angle (EA) brackets from hot-dipped galvanised Webforge grated steel, which visually recedes into the surrounding vegetation, while the roof colour is Shale Grey™, for solar reflectivity in sunny days, whereas the walls and flashings are in the colour Monument®, which usually recedes into the surrounding vegetation, he adds.

For the spatial plan and cladding, Paul repeated a detailing technique from his own house, whereby a 3.6-metre structural grid creates panelised sections similar to the experimental Case Study Houses designed by a selection of USA architects under commission for Arts & Architecture magazine. It made the construction process more efficient he says: “It all went together really smoothly”, Paul explains. “The steel fabricator did a great job, especially with the galvanising process, because it made the construction process more efficient and enhanced the visual impact of the support structure. I was pretty happy that we had made the structure as lean as possible,” Paul asserts.

The house is accessed via a long ramp made from hot-dipped galvanised Webforge grated steel, with a hardwood made of equal angles (EA) brackets and mesh; together these materials reference both oil rigs and natural park viewing platforms, where steel walkways to spectacular viewpoints are common.

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OPPOSITE: The walls, cladding and flashings are in the colour Monument®, which visually recedes into the surrounding vegetation, while the roof colour is Shale Grey™, for solar reflectivity in summer.

ABOVE: The narrow plan is based on a 3.6-metre structural grid of panelised sections – similar to the experimental Case Study Houses – to improve construction efficiency and enhance thermal performance.

PANEL SAYS
Wilderness House inhabits a very harsh environment and calls for cost-effective, robust and technically competent materials. The house’s wall cladding and roofing made from COLORBOND® steel in LYSAGHT SPANDEK® profile, in the colours Monument® and Shale Grey®, define the finely resolved upper living component. The house hovers amongst the blue-eps-on slender steel columns that thread the natural vegetation and maintain a lookout across the native landscape which is connected via judicious glazing. Contrasting its raw and pragmatic exterior is an interior defined by softer materials which provide a warm and inviting glow. Its long steel entry bridge variably accentuates the landscape conditions on approach, enticing further exploration within.

T his house – inspired by the colours and climate of its surrounds and enveloped in COLORBOND® steel in the colours Monument® and Shale Grey™ – is built on an eight-hectare site retained by the owner for more than a decade before engaging local architect Paul O’Reilly, of Archterra Architects, to design it.

The property was originally cleared and used for farmland before being subdivided for housing blocks. “Slowly, things have returned to nature and now we have lovely wildflowers and bush,” say the owners, Yvette and Ian. “Rather than being cleared and eaten by farm animals, now we have lots of marri trees. “We’d been living overseas, and the existing cottage was rented out and it was in a state of disrepair when we came back, and we considered selling it at that point,” Yvette adds. “But we opted to retain it and just enjoy the space, the trees and the birds. Then, as our life situation, our priorities changed.

“We were at an age where we were thinking about retiring, and that’s when I found Paul’s architecture on the internet,” she says.

Paul lives about 20 kilometres away in a house that he designed, and he has built several others for clients throughout the region. His designs vary in the material, and mesh; together these materials reference both oil rigs and national park viewing platforms, where steel walkways to spectacular viewpoints are common.

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In summer, the house can be opened up to encourage natural crossflow ventilation, and Paul says he had to convince Ian and Yvette to include provision for future ceiling fans, for additional air movement on warmer days if they needed it. “We used a lot of glass which obviates an operable wall, and because it’s up and out of the trees, it’s easy to capture the breeze; you can open the opposing doors to flush-out warm air,” Paul explains.

“Because Ian and Yvette had lived for eight years in Karratha, and they are such avid campers, they are used to taking the weather as it comes.”

Like a two-person tent, the house was designed for the couple as its only occupants, so the plan is very open internally with the bed, bath and even toilet looking out to bushland views. “They used the old cottage as a guest suite, so friends and family tend to stay in that, which means we only needed a single bedroom upstairs,” Paul says. “We put that at the east end, because they like to wake up with the sun. The core sits in the middle of the plan, and the kitchen and living area are to the west, to enjoy late afternoon sun. “We ended up removing the door from the toilet area are to the west, to enjoy late afternoon sun. Paul says he likes the fact that the couple deliberately retained a few dead trees around the house, to provide sculptural elements on the western side and habitat for wildlife. “It’s quite interesting being elevated; it gives us the idea – we can pretend we are in a tent, and open everything up when the weather is fine. We can see the birds up at eye-level, and we can look down and see the kangaroos, although they can’t see us.”

These COLORBOND® steel colours were deliberately chosen to work in accordance with the seasons and climatic conditions.

Paul says. “So now we have big, open windows and we can pretend we are in a tent, and open everything up when the weather is fine. We can see the birds up at eye-level, and we can look down and see the kangaroos, although they can’t see us.”

“These qualities provide a special and distinct advantage in a region where most homes are built using local timber; this one is definitely an anomaly, Paul admits. “Pretty much all the houses are timber framed and slab-on-ground, so building something up off the ground – in terms of steel and all the joinery, and how it works with a suspended slab – you have to trust your trades,” he says.

We worked well with the builder who used quality trades, and the local steel fabricators were good; it was a case of good teamwork.”

“We went on safari in Africa and we go camping a lot, and because this is such a beautiful area, we wanted to enjoy the experience of living outside,” Yvette says. “So now we have big, open windows and we can pretend we are in a tent, and open everything up when the weather is fine. We can see the birds at eye-level, and we can look down and see the kangaroos, although they can’t see us.”

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Paul says he likes the fact that the couple deliberately retained a few dead trees around the house, to provide sculptural elements on the western side and habitat for wildlife. “It’s quite interesting being elevated; it gives us the idea – we can pretend we are in a tent, and open everything up when the weather is fine. We can see the birds up at eye-level, and we can look down and see the kangaroos, although they can’t see us.”

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“Because Ian and Yvette had lived for eight years in Karratha, and they are such avid campers, they are used to taking the weather as it comes.”

Like a two-person tent, the house was designed for the couple as its only occupants, so the plan is very open internally with the bed, bath and even toilet looking out to bushland views. “They used the old cottage as a guest suite, so friends and family tend to stay in that, which means we only needed a single bedroom upstairs,” Paul says. “We put that at the east end, because they like to wake up with the sun. The core sits in the middle of the plan, and the kitchen and living area are to the west, to enjoy late afternoon sun. Paul says he likes the fact that the couple deliberately retained a few dead trees around the house, to provide sculptural elements on the western side and habitat for wildlife. “It’s quite interesting being elevated; it gives us the idea – we can pretend we are in a tent, and open everything up when the weather is fine. We can see the birds up at eye-level, and we can look down and see the kangaroos, although they can’t see us.”

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A meticulously planned and patterned wall cladding system made from COLORBOND® steel Matt in the custom colour Blush Brown is the dress-of-choice for this clever hospital expansion.

Words: Rob Gillam  Photography: Brett Boardman; Ian Davidson
A mark of a suburb on the rise, the expansion of this hospital in outer-west Melbourne started only a few years after the original building, the Catherine McAuley Centre, was completed.

As explained by Architectus principal, Ruth Wilson, Werribee’s population growth has been rapid. “Wyndham City is a real growth corridor and, as part of it, Werribee has had to catch up with the huge population increase,” says Wilson.

The partnership on the project with HDR was a division of responsibilities, with HDR handling interior and health planning, and Architectus leading the base building – the floors and structure, and façade.

With nowhere to build but up, Architectus was faced with a puzzle to solve in that health regulations and requirements had changed since the first double-storey Catherine McAuley Centre was built, dictating that the new hospital’s four new levels – with six operating theatres, 64 in-patient beds and eight ICU beds – required a wider footprint.

Project architect, Len Parker, says “The square meterage was prescribed, so it was kind of like a Rubik’s Cube we had to put together because the new building footprint could no longer fit over the existing one.

“(...) To accommodate the requisite size of our building, it had to be outside of the existing building’s footprint and that meant extra stresses for the structure we were building on. There was also a height limit.”

The architects fleetingly considered precast concrete panels for the walls but quickly realised weight would preclude them. “(...) We needed something structurally sound yet also lightweight,” says Parker. “The lightweight structural insulated panel (SIP) system clad in COLORBOND® steel became key to meeting our structural engineering requirements and achieving the building envelope.”

The panel system designed and constructed by cladding contractor FacadeX, consists of an exterior rainscreen made from COLORBOND® steel which is faced to steel sheeting that anticollides a non-combustible insulation layer. The entire panel is fixed into a rectangular steel portal frame that runs around its perimeter and the parasol inlets together using a weatherproof mating system.

FacadeX director, Robert Kennedy, expands that “(...) The SIP is the weatherproof line and vapour-barrier line for the building. On the very outside of the insulated panel is an additional layer – an interlocking architectural panel made from COLORBOND® steel – which is an aesthetic layer.”

“We had the idea to lighten the palette and fragment the surface to really break down the large scale, to dissipate its visual bulk so it does not appear monolithic, despite its vast size.”
Apart from punctuations of hooded windows, the streetscape to the hospital’s northern face is largely continuous. This forms a protective barrier that works on multiple levels. Ruth Wilson points out an obvious invader: the Princes Highway. “Because the street-frontage is on a major highway with lots of traffic, it’s quite hostile. Patient rooms and operating theatres face out to the highway so there are obvious acoustic considerations.”

These ‘impenetrable’, vast and sheer tracts of wall cladding are a departure from the approach employed in another of Architectus’ projects featured in this title: 1 Bligh Street (employed in another of Architectus’ projects wall cladding are a departure from the approach). These ‘impenetrable’, vast and sheer tracts of wall cladding are a departure from the approach. They had to have a contextual surface language, an architectural language at the facade, that can be read as a super-graphic scale from the highway face is largely continuous. This forms a protective barrier that works on multiple levels. Ruth Wilson points out an obvious invader: the Princes Highway. “Because the street-frontage is on a major highway with lots of traffic, it’s quite hostile. Patient rooms and operating theatres face out to the highway so there are obvious acoustic considerations.”

“The new works to read as a companion building – one that provides a defensive and nurturing cover to the existing. Without this device, the existing building might appear weighed-under or crushed.” Wilson says. “This technique enables the new works to read as a companion building – one that provides a defensive and nurturing cover to the existing. Without this device, the existing building might appear weighed-under or crushed.”

Also balancing the differing scales of the buildings is the huge LEGO® block-like cantilever made possible by giant 13-metre-high core-filled round steel columns that support the expanded floorplates. “By anchoring the upper levels to the ground at a corner, it enables them to have a more embracing presence,” Wilson says. “This technique enables the new works to read as a companion building – one that provides a defensive and nurturing cover to the existing. Without this device, the existing building might appear weighed-under or crushed.”

“We had a few tongue-in-cheek analogies about the huge LEGO® block-like cantilever made possible by giant 13-metre-high core-filled round steel columns that support the expanded floorplates. “By anchoring the upper levels to the ground at a corner, it enables them to have a more embracing presence,” Wilson says. “This technique enables the new works to read as a companion building – one that provides a defensive and nurturing cover to the existing. Without this device, the existing building might appear weighed-under or crushed.”

“WMH occupies an urban position that is highly visible from a number of viewpoints, so activating the compact frontages was a vital cist, and urban responsibility,” says Wilson. “The new works had to have a contextual surface language, an architectural language at the facade, that can be read as a super-graphic scale from the highway face is largely continuous. This forms a protective barrier that works on multiple levels. Ruth Wilson points out an obvious invader: the Princes Highway. “Because the street-frontage is on a major highway with lots of traffic, it’s quite hostile. Patient rooms and operating theatres face out to the highway so there are obvious acoustic considerations.”

“So we worked hard to ensure there’s a lot of natural light to the floorplates, with generous amounts of glazing to the central courtyard and in general,” says Wilson. “We also incorporated what’s called a wellness sky-garden room, which is an indoor/outdoor naturally ventilated rotunda room that gets away from the traditional hospital feel.”

“We had the idea to lighten the palette and fragment the surface to really break down the large scale, to dissipate its visual bulk so it does not appear monolithic, despite its vast size. Then it came down to what pattern to use. We adopted the QR code for the hospital as a starting point for that ‘patternation’. That was the generator.”

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At the time of the search, BlueScope had recently released COLORBOND® steel Matt which creates a softer, subtle look by using special paint technology that diffuses light. Given the matching Blush Brown colour was going to be custom-made, Parker asked if it could also come in COLORBOND® steel Matt. “We had quite a few different samples and then decided on COLORBOND® steel Matt in the custom colour Blush Brown,” he says. “The Thredbo White was also outside of the standard COLORBOND® steel colour palette in sealing applications. “From a distance, the two brown colours look quite similar. We’re very happy with how they harmonise.”

The architects were also happy with the speed in which the sealing system was constructed and installed – especially given their remit was to build the new hospital on top of the old one while still in operation.

“That was the most significant consideration for this project because the two-level building below was already there and it maintained operation during the entire build,” says Wilson. “It was a quite extraordinary pre-emption – throwing up many structural and logistical challenges.

“There were a lot of hijinks involved but a very high level of consultation with the hospital from our builder, Multiplex, minimised disruptions by carefully planning the timing of noisy works.”

Did the cladding system’s speed-of-construction help meet the architects’ goal of minimal disruption?

“Yes, absolutely,” says Parker. “One of the key drivers all the way through was that we had to meet a tight timeframe, driven by considerations around when the building had to be operational. So, right from the outset we were looking at modular, pre-fabricated solutions to ensure a speedy facade erection. Facadex’s system provided structural, thermal and acoustic properties, all in one. It was really efficient and ticked all the boxes for us. The entire build was done ahead of schedule.”

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“We had quite a few different samples and then decided on COLORBOND® steel Matt in the custom colour Blush Brown, and COLORBOND® steel colour, Thredbo White – and its patterns successfully match to visually break down the scale of the enormous structure and protecting the hospital from the bustling Princes Highway. The building’s identity can be clearly read, even at speed by passing traffic, appearing like a mother hen brooding over its chicks.”

“Studies show a positive mindset helps healing and a purposely positive environment with all that calming, natural daylight and warmth promotes that.”

In their workplace by making them feel supported by the physical environment.”

And her favourite feature of the project? “Ultimately I think it’s an uplifting building. It has an element of intrigue but there’s also something friendly and positive about it – it has an overlay of friendliness that is uplifting. It’s natural for people to approach a hospital with tranquillity and I hope that our hospital helps make it a more positive experience by conveying a sense of substance and professionalism.”

Len Parker chimes in. “There are studies that show a positive mindset helps healing and a purposely positive environment with all that calming, natural daylight and warmth promotes that.”

And his impression of the building, now that the practice’s hard work is done? “I went back a few months ago to complete the final checks, walked through, and when you come in through the car park and see the main entry colonnade, with its steel columns and the pattern of the brown and white COLORBOND® steel cladding that continues under the soffit, it looks really amazing. Along with the greenery that has grown-in, it’s just a really inviting space. Also, the client is over the moon with the building. They think it’s fantastic.”

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A brief for a design that showcased the construction skills of the owner-client, combined with a difficult site and orientation have delivered a lauded Red Centre example of ingenuity, in this building for a builder made from COLORBOND® steel.

Words: Micky Pinkerton  Photography: Peter Barnes; Susan Dugdale & Associates
Alice Springs has an unforgiving environment. It’s miles from anywhere, surrounded by four deserts and sports such extremes of temperature that you might need a calculator to work out the savings. Not a comfortable environment to build in, so it’s no surprise that the place was born of necessity – rather than desire – in the 1870s as a repeater station to extend the range of the Overland Telegraph Line. It remained a lonely outpost for telegraph operators until gold was found in the region and since then successive waves of industry has brought people and development to Alice.

Whilst gold might have kick-started permanent European settlement on traditional owners, the Central Arrente people’s land, architect Sue Dugdale observes that another metal has had a more enduring contribution to the town’s built environment. In a landscape where Spinifex is the dominant flora and the local stone is hard to work with, steel has become a popular material for construction.

“There’s a strong local history in working with steel,” euphemises Dugdale. “It comes from the mining industry and the agricultural industry, so a lot of builders have good steel skills as opposed to timber. We don’t use timber at all and that’s partly environmental, it’s harsh here and there’s also high termite activity, which makes timber unsuitable.”

Dugdale arrived in Alice over 20 years ago and her small team at Susan Dugdale + Associates has a passion for discovering and developing a unique regional architectural identity based on the particular culture, climate and geography of central Australia. In this liminal town, contrasts in culture and economy are ever-present and Dugdale carefully considers both in the context of each project and client.

It’s an approach that has produced numerous award-winning designs and ample opportunity to work with steel. Steel can be found where you’d expect it, in the winning designs and ample opportunity to work with steel. It’s an approach that has produced numerous award-winning designs and ample opportunity to work with steel. Steel can be found where you’d expect it, in the winning designs and ample opportunity to work with steel.

The architectural solution to the site attributes and orientation was a series of large enveloping sunhoods which carefully exclude almost all direct sun whilst nonetheless allowing for expansive views from inside. These angular, cupping forms also provide a magnificent visual attraction for passing traffic.

“They’re ambitious as a three-dimensional form, particularly for us as a small practice and documenting them in 3D, and I don’t think they could have been built in anything but steel.”

Charged with creating a new headquarters that suitably flouts its builder-client’s capabilities, Susan Dugdale & Associates wouldn’t settle for a boring shed with some tacked-on offices. A series of zig-zagging, origami-shaped sunhoods made from COLORBOND® steel in LYSAGHT TRIMAR® profile – and the structures of the CBD revitalisation works which feature intricately patterned steel shade screens.

This skill of celebrating both the aesthetic and structural attributes of steel are again present in Dugdale & Associates’ recent commercial project, a headquarters for a local building company. Located on a prominent corner of a light industrial area, the brief was for a work shed and administration facility that showcased the company’s capabilities.

With the shed placed on the street facade for practical reasons, that left an awkward wedge for the site border. The builder opted to pre-fabricate and pre-weld the sunhoods, then crane them over the powerlines and into place. The structural integrity of the sunhoods was complicated by powerlines along the site border. The builder opted to pre-fabricate and pre-weld the sunhoods, then crane them over the powerlines and into place. The structural integrity of the sunhoods was complicated by powerlines along the site border.

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“We hadn’t done anything quite like that [the sunhoods] in any other projects,” says Dugdale. “They’re ambitious as a three-dimensional form, particularly for us as a small practice and documenting them in 3D, and I don’t think they could have been built in anything but steel. We also used more mid-scale steel elements in this project compared to our previous work – for example the industrial mesh flooring on the external spaces such as the decks, and in the balustrades.”

The patterned geometry of the sunhoods support cladding made from COLORBOND® steel in LYSAGHT CUSTOM ORB® profile, in the colour Windspray®.

The colour Windspray® was selected as the best to accommodate a dusty environment, where trucks are passing frequently, as well as to provide continuity between the sunhood facade and the work shed which forms the building’s core.

The work shed operates as a dynamic space that changes from day-to-day on vehicles and materials for worksites come and go. The long, open edge of the shed faces due north, providing shade in summer and sun penetration in winter, offsetting the sub-zero temperatures that builders face in early morning starts.

This main shed’s roofing is made from COLORBOND® steel in LYSAGHT TRIMDEK® profile in the colour Windspray® and - to match the sunhood cladding - its walls are made from COLORBOND® steel in LYSAGHT CUSTOM ORB® profile, in the colour Windspray®.

The building’s deck was made from DECKFORM® steel in LYSAGHT BONDEK® Structural Steel Decking profile. This acts as formwork for the concrete slab flooring on the first floor. In tandem with the concrete, the permanent steel formwork provides temporary reinforcement, creating a composite slab that can be lighter and stronger than conventional systems.

Dugdale had used DECKFORM® steel in LYSAGHT BONDEK® profile before and recommends the economic advantages of using the product.

Lost formwork – formwork that remains in the pour – is a very efficient construction technique that relies on the properties of steel instead of propping the slab with conventional planked formwork. There’s a huge time-saving in not having to wait a month or more for the concrete to cure. DECKFORM® steel stays in situ and becomes part of the structural integrity of the building.

Whilst steel might be the product-of-choice for Dugdale in the desert in the desert necessity, for her it’s also a relevant material with creative potential. “I find it fun to detail with steel because you just know it can be done,” she says.

She also appreciates the high degree of manufacturer support for her chosen steel building products. “There are so many good steel products on the market, they’re developed well and the information available on them is really good. You can easily find out how far materials can span, the thickness and their performance, their installation instructions, how far it can project past its last support and so on. And when you can rely on good information you can then try to use it in unusual ways. We’ve taken that CUSTOM ORB® profile information from LYSAGHT® to create these sun hoods, for example. The technical person who wrote those specifications couldn’t have visualised it, but that information made those sunhoods possible.”

Dugdale’s favourite aspect of the project is how it has provided a working example of cost-effective, well-designed industrial architecture – a new reference point for the local profession and beyond. “All across Australia, in these highway strips and light industrial areas, there’s a big shed with a little office stuck on the front,” she says. “It’s often two storey, it’s often tilt-slab concrete, it’s just the bare bones of what is needed to house the administrative functions. There’s usually minimal aesthetic appeal, no environmental credentials or performance. The MPH HQ project is still a big shed with a two-storey admin area, but it’s much more. It’s taken a building type in the Australian landscape that ninety-nine percent of the time is not architecturally designed and is showing what’s possible without great cost.”

The end result is a building that expands the typology and validates the extra effort builder and architect went to in achieving it.
ARCHITECT
HASSELL, GSK Architecture and
HKS Architects, in association.

PROJECT
Optus Stadium

LOCATION
Perth, Western Australia

Perth’s stadium and parkland facilities on the Burswood Peninsula harness the strength of steel to take sports and entertainment experiences to the next level.

Words Lucy Salt  Photography Peter Bennetts
Steel is the most wonderful material for architects, it combines incredible strength with relatively small sections and it’s also something which you can easily form and shape.”
The architects aimed for a world-class, fans-first stadium embedded within an active public realm. “The COLORBOND® steel Matt product provides a softness of finish that’s well-suited to residential requirements of the ‘floating’ roof structure. Steel was integral to the ambitious design performance because it was never complete until the last bay went together,” says Batchelor.

The trusses themselves were fabricated by Civmec in nearby Henderson, then transported to site where the cladding elements, including the fabric roof modules, were added and craned up as a single element. “At the height of construction we had nine trusses down on the ground being assembled while one was being lifted into place, it was a really interesting construction program,” says Batchelor.

The construction and erection methodology was a key innovation, agrees Dean. With construction proceeding in reverse, the equipment needed to live on the roof and works at the other, the cantilevered, triangular trusses were designed to free-stand after three bays were erected. “The roof had to be free-standing because it was never complete until the last bay went together,” says Dean.

The way the design was transferred into fabrication is, for Dean, an under-recognised aspect to be celebrated. “The fabricators went through hell and high water over an 18-month period to deliver the project on time. It’s no easy feat, particularly with a fast-tracked project, and a constantly evolving design.”

Of his experience in Perth, Hyett says “On this occasion we were able to fuse the ability and the commitment of Australians to good architecture with the Australian emblem, and in turn have set a new benchmark for what people in WA expect from these kinds of projects: ‘Usually you say there have been compromises, but this project got better and richer as the time went on’. We were able to fuse the ability and commitment of Australians to good architecture with the Australian emblem, and in turn have set a new benchmark for what people in WA expect from these kinds of projects.”

What matters about the stadium for Dean is that the architects have created a memorable Western Australian emblem, and in turn have set a new benchmark for what people in WA expect from these kinds of projects. “Usually you say there have been compromises, but this project got better and richer as the time went on. We were able to fuse the ability and the commitment of Australians to good architecture with the Australian emblem, and in turn have set a new benchmark for what people in WA expect from these kinds of projects.”

The dramatic geometry of the pedestrian arbour,” Dean says. “The generous space in the trusses allowed us to set large elements, such as function rooms, underneath the seating bowl without transferring any structural columns out,” he continues. In addition, the steel columns facilitated consolidated services to minimise costs and keep fans closer to the field of play, rather than being too far away from the action.

“There was a lot of engineering and collaboration work with Arup and Multiplex to refine the design of the steel frame members, and particularly the truss,” says Batchelor, who describes the finely detailed pin-ankle joint designed into the truss base which allowed the trusses to be placed relatively simply – mitigating the need to work at height as much as possible.

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The primary steel structure is coloured white and the secondary steel structure grey, to create a decipherable building façade.
STEEL DETAILS

SUNKEN TREASURE

A pedestrian bridge — proudly adorned with sculptural ribs made from XLERPLATE® steel and TRU-SPEC® steel — is an evocative landmark in this rejuvenating coastal city. Words: Bob Gillian  Photography: Jackie Chan

Having recently undergone extensive redevelopment, the roughly one-kilometre stretch of foreshore at Koombana Bay is a lovely place to be. The area has a darker past, though, with many early mariners cruelled by the bay’s north-west gale that has trapped a known 15 sailing ships in its shallows — the last being wrecked in 1822. These shipwrecks were one of the inspirations for a whale rib. “The shape developed was structurally efficient whilst also being efficient to manufacture using traditional fabrication methods. Interestingly, the final shape echoed that which nature has evolved for a whale rib.”

Cardno’s senior principal, Geoff Pereira, says the rib design went through a series of design evolutions before arriving at a cross-section which was both structurally efficient and also amenable to fabrication. “An open angle’s shape is rigid, but able to twist easily — much like the shape of a flat plate or perhaps a ruler on your desk,” Pereira says. “We required a closed section, or tube section, which is rigid and also ‘torsionally’ stiff. Working collaboratively with Grekey Abas, our team conceived a rib cross-section which comprised two folded angle sections that were revolved two-dimes. The shape developed was structurally efficient whilst also being efficient to manufacture using traditional fabrication methods. Interestingly, the final shape echoed that which nature has evolved for a whale rib.”

Cardno then asked local steel fabricators, Hotweld, to work up a full-sized prototype as proof of concept and to confirm the proposed fabrication methods and the suitability of the final shape, and finishes. The prototype also contractually represented the quality to be achieved during manufacture of the remaining ribs.”

Hotweld director Rick Cassagrande says collaborating on the prototype was a welcome challenge. “The prototype was a bit finicky, but we’re not scared of jobs like that,” he says. “I love about interpreting the rib sequence and getting the detail right, then making sure we could make it work by rolling and pressing the XLERPLATE® steel correctly.”

“This is a wonderful beginning. How we wanted it, visually, because in this case it had to perform visually as well as structurally. We had to take extra care to get the aesthetic that the architect wanted and we think the final effect is rather nice.”

Both architect and engineer take great pride in the way locals have embraced the project. “To have people appreciate the project you’ve involved in a pretty neat and this one is well regarded by the community — everyone talks about it,” says Cardno’s Pereira.

“The city is trying hard to create something special to develop in. Everyone heads to our Margaret River wine country and the roads run around Bunbury so people skirt around it, but as a result of the bridge I’ve gained a greater appreciation of the city. It has renewed my interest in the area and I have taken my family back a few times to enjoy it.”

Phil Gresley agrees: “The community reaction has been wonderful. I go to regularly visit Bunbury and it’s great to engage with the bridge in action. I’m really proud of our work and the community also needs to. Bunbury is going through a wonderful contemporary transformation. It has some pretty sophisticated public art and a high level of amenity for residents and visitors.”

“It was about interpreting the drawings and making something that is not just do something fancy. We wanted to draw from, for the bridge design. Its design, intertwining Indigenous and European narratives and the steel helps achieve that.”

“Bunbury is going through a wonderful contemporary transformation. It has some pretty sophisticated public art and a high level of amenity for residents and visitors. “I see the bridge as a sculptural but as an architect I don’t consider it art. It’s a landmark structure and a piece of interpretation. It embodies the place into its design, intertwining Indigenous and European narratives and the steel helps achieve that.”

PROJECT Koombana Bay Footbridge  CLIENT City of Bunbury  ARCHITECT Gresley Abas  PROJECT TEAM Philip Gresley, Greg James, Flynn Designers  INTERPRETATION Apparatus  PRINCIPAL STEEL COMPONENTS Sculptural ribs made from XLERPLATE® steel in AS/NZS 3678-250 grade and TRU-SPEC® steel coil plate in AS/NZS 1594-HA250 grade — predominantly in 12mm and 8mm thicknesses.  BUILDING CRAFTS: STEEL FABRICATOR Hotweld  STRUCTURAL & CIVIL ENGINEER Cardno  LANDSCAPE ARCHITECTS Cardno  PROJECT TIMELINE August 2016 — December 2017  AWARDS 2017 Australian Institute of Architects Western Australian Chapter Awards — Urban Design, 2017 Australian Coastal Award — Annual Achievement, Parks & Landcare Australia Awards for Excellence — Park of the Year  TOTAL PROJECT COST $12 million