

108

APRIL 2011

ARCHITECTURAL

STEEL INNOVATION

WITH BLUESCOPE STEEL

STEEL PROFILE

RTA STUDIO
IRONBANK

TROPPO ARCHITECTS
BASTIAN HOUSE

IN PROFILE:
WOHA

EDITORIAL

Welcome to *Steel Profile* #108.

As always, we are proud to deliver a collection of Australia's most inspired and innovative steel architecture.

Structural steel is so often overshadowed by the obvious protection and adornment that steel cladding and roofing provides that it's easy to forget its role as a 'silent' hero of construction.

The success of many projects featured in this issue is intrinsically tied to structural steel, so it is befitting to acknowledge here the crucial contribution of a material that forges the backbone of many of our nation's buildings.

Finally, we remind you that *Steel Profile* is always on the lookout for new projects which can be submitted for consideration via our website: www.steelprofile.com.au

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

Manu Siitonen

BlueScope Steel editor

EDITORIAL ADVISORY PANEL

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



ADAM HADDOW

A director of SJB Architects Sydney, Adam attempts in his work to achieve built solutions that positively activate their urban and individual environments.

More than anything, he loves to design and construct buildings and is most interested in achieving excellent multiple housing solutions. Adam was named a 'Future Leader' by the Property Council of Australia in 2009

www.steelprofile.com.au



FRANK STANISIC

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

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

Frank's projects have won numerous awards including Australian Institute of Architects' Special Jury, Wilkinson, Aaron Bolot, Frederick Romberg 2010 BPN Sustainability Award for small commercial (ERA) – its third BPN sustainability award



DANIEL GRIFFIN

Joint winner of the 2008 COLORBOND® Steel Biennale Prize, Daniel's award-winning architectural thesis at RMIT examined the urbanisation of Palestinian refugee camps.

He has recently been appointed a faculty member at the University of Sydney, whilst maintaining a presence at Hassell. He recently opened his practice

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Cladding made from XLERPLATE® weathering steel blends this quirky and clever commercial building into its urban context, creating a sense of architectural community

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Singapore Architects WOHA's tropically responsive buildings – often complete with signature skygardens – are winning international acclaim. *Steel Profile* spoke with Richard Hassell and Wong Mun Summ

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With its emblematic diagrid steel and glass panels which operate simultaneously as shell, arch and cantilever, Cox Architecture's AAMI Park stadium embodies a motto of "Further, stronger and lighter"

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COVER PROJECT Ironbank

PHOTOGRAPHER Patrick Reynolds

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CIVIL ACTION

Weathered steel plate cladding provides Ironbank, a commercial building in Auckland, with excellent sustainable credentials not only in the environmental sense but also in the social sense, by building community with its neighbours and for its tenants.

Words **Paul McGillick** Photography **Patrick Reynolds**

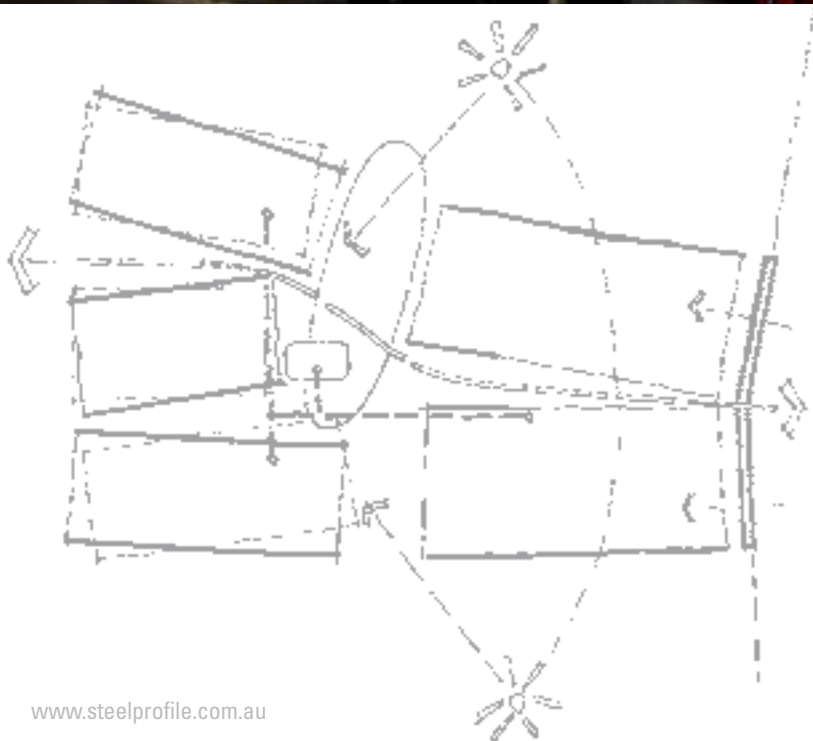
ARCHITECT RTA Studio
PROJECT Ironbank
LOCATION Auckland, New Zealand



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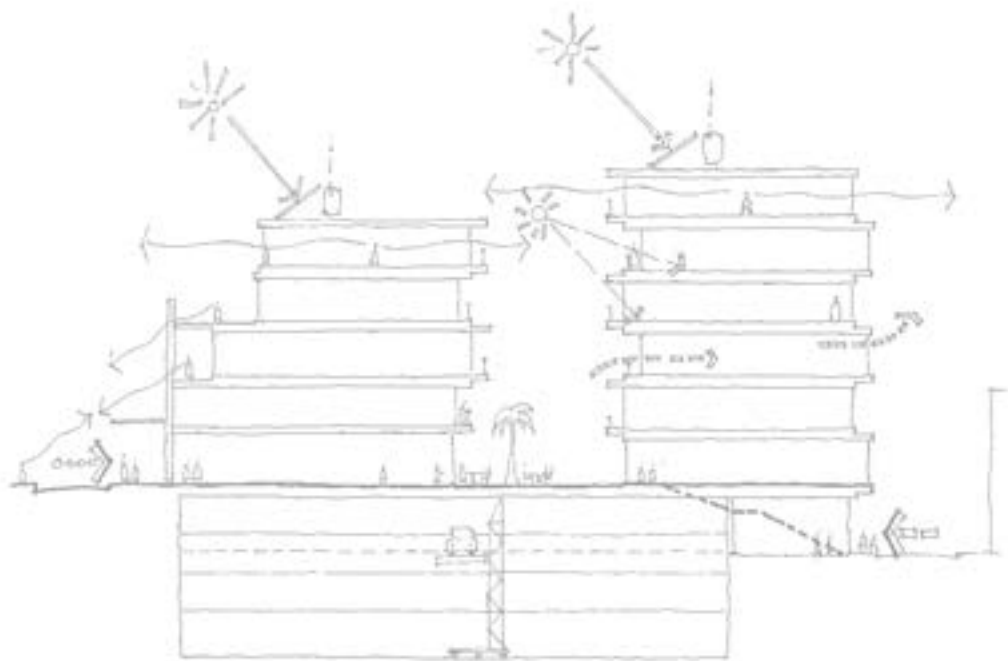
The weathering steel rain screen reflects the “decay and disorder” of Ironbank’s urban context



ABOVE: The Cross Street elevation is more dramatic with the stacked forms sitting on a concrete podium. The mass of the building is broken down, giving each floor a sense of individuality

Extensive glazing reflects the building’s context, just as the rain screen made from XLERPLATE® weathering steel reflects the changing light. The XLERPLATE® weathering steel cladding is estimated to prolong the primary weather-proofing layer’s life by a factor of two to three times, as well as providing a third layer of ventilation

OPPOSITE: The Karangahape Road elevation is set back seven metres behind a screen which echoes the scale and rhythm of the existing buildings



The section reveals how irregular stacking ensures natural light penetration to the whole complex



It may seem like drawing a long bow – especially as the design director, Richard Naish, in a long conversation never once hinted at anything of the sort – but this commercial and retail building in Auckland seems strikingly Japanese.

Not in the stereotypical sense of small, lightweight and highly refined houses invariably in some kind of rural setting, but in the controlled urban chaos of Tokyo which is largely comprised not of monumental buildings, but of a seemingly random collection of small-scaled buildings whose competing forms defy any symmetry and never allow a solid mass to develop. It is a city whose modernity is not about the sleek aesthetics of Modernism, but a celebration of raw industrial materials.

What's more, Tokyo is generally regarded as the most permeable city in the world where the pedestrian is constantly drawn into open shop fronts and intriguing alleyways. There is an ongoing conversation between public and private space and a robust dialogue between all the buildings that make up any particular precinct. A real sense of community emerges from this apparent confusion – a community of people and a community of buildings.

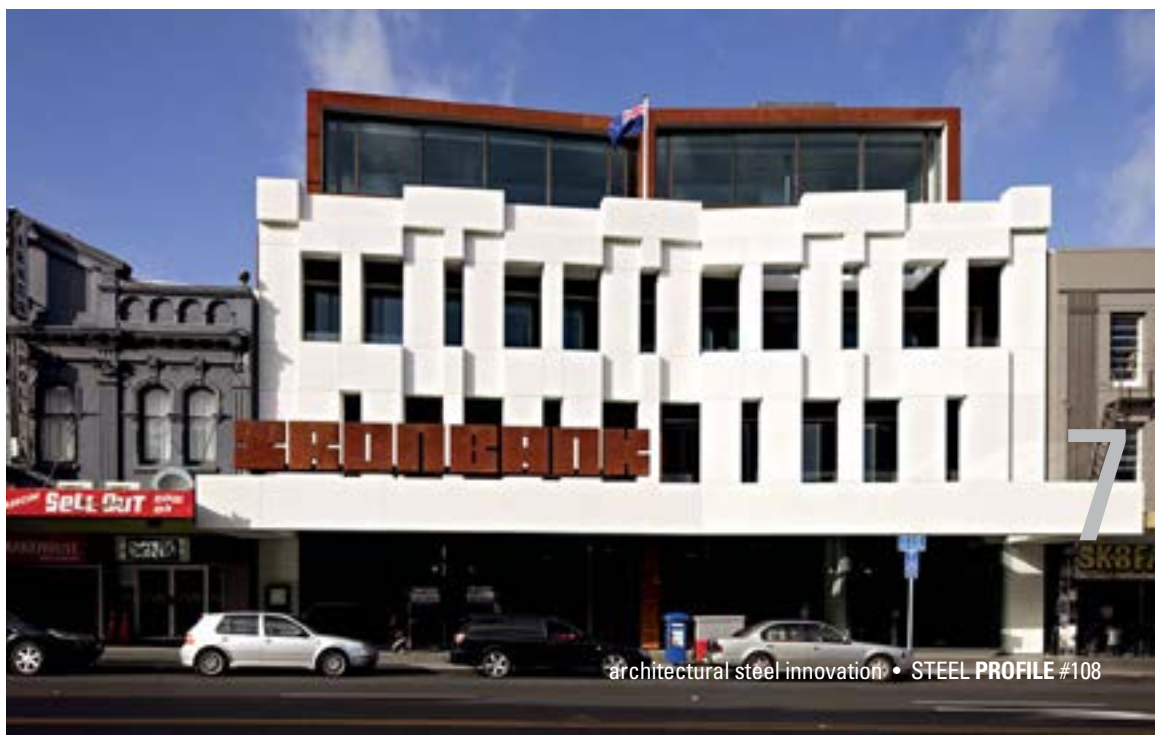
Now, re-wind to Karangahape Road in Auckland and a neighbourhood which Naish describes as “uniquely historical” with its two- and three-storey “quite finely scaled” Victorian and Edwardian buildings. The site runs from Karangahape Road back to the more raffish Cross Street and the developer's brief was, says Naish, “quite brief, literally – for a building that would provide a number of small-scale commercial and retail tenancies. But, as to how we were to achieve that, was up to us”.

RTA Studio had worked before for the client, Samson Corp, on up to a dozen smaller projects, a number of which are highly regarded. So, there was a lot of trust between architect and developer. Naish points out that they understood what Samson required as a landlord while Samson, for its part, “likes to stay quite minimal and wait for creative thinking from their architects as to how we might solve the problem”.

In this case, the solution involved three agendas. The first was for a building which respected its urban context. The second was for a building

PANEL SAYS

This Auckland office's stacked and shifting floor plates – clad in XLERPLATE® weathering steel to blend in with nearby heritage structures – contain small-scale office tenancies that aim to integrate with and enhance the suburb's intense street edge. The project is full of quirky and clever details, such as the car stacker, the curious staircase suspended between the front and rear sections, and sustainable design features such as passive ventilation instead of air conditioning. This is an exemplary workplace: one that reminds us that socially progressive and environmentally friendly design ideas can be incorporated successfully into commercial developments whilst still producing iconic and beautiful architecture.



which generated a sense of community, both with its neighbours and for the people working in the complex – a socially sustainable agenda. Thirdly, there was a strong environmentally sustainable agenda.

The developer wanted the building to be a destination, but one which fitted in with its neighbours. The term for this is 'civic decorum'. Well, there is not a lot of decorum about Ironbank because it is a building with heaps of character. But it maintains a healthy, even inspiring, relationship with its neighbours by respecting the scale of the neighbourhood while boldly suggesting what else might be possible with similar palette and materials. At the same time, the site itself has, according to Naish, "a certain element of contrast between the high street – which is reasonably gentrified – and the rear streets which still remain reasonably disordered".

One way to maintain good relations is through scale. Hence, RTA Studio broke up the mass of the building horizontally by organising it into five six- and seven-storied towers, and vertically by off-setting each floor in an apparently random manner. A glass-reinforced concrete 'podium' – with its glazed shop fronts and inviting entry to an internal courtyard – creates permeability and helps foster the sense that the superstructure is floating above the ground.

But the choice of materials was crucial, too – especially the use of XLERPLATE® weathering steel as a rain screen. In fact, underneath this screen, the building is a fully compliant, sealed building, so the customised, weathering steel cladding on top is largely an aesthetic decision – although it plays an environmental role, too. Its use is estimated to prolong the life of the primary weather-proofing layer by a factor of two to three times, as well as providing a third layer of ventilation, thus enhancing the building's passive thermal properties.

Aesthetically, the weathering steel rain screen reflects the "decay and disorder" of Ironbank's urban context, says Naish.

So, why choose this material? Why not another?

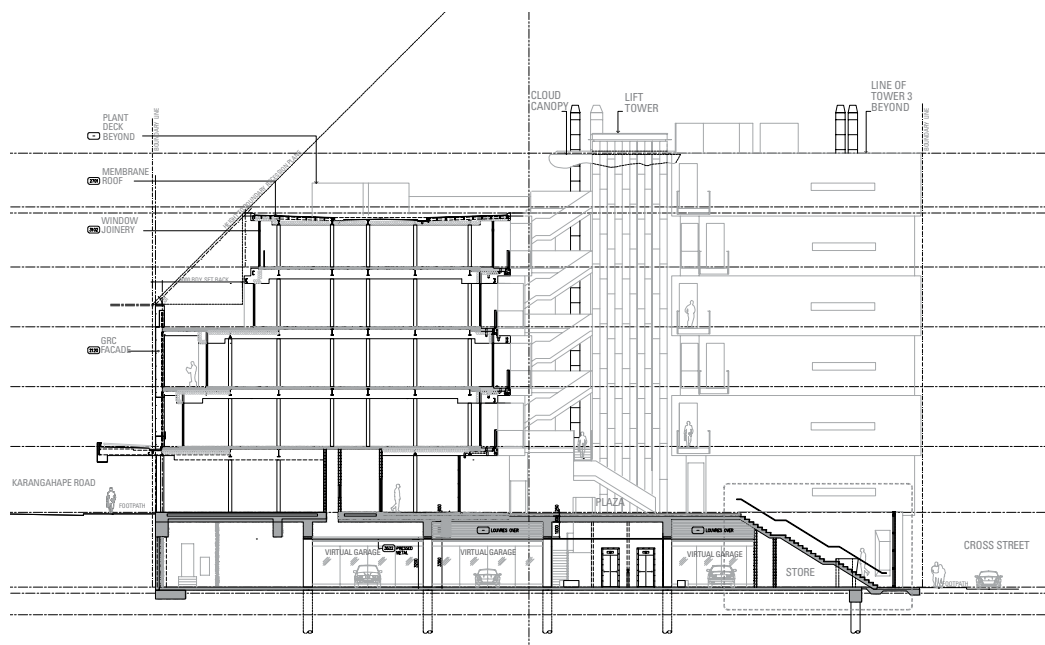
"It would have been possible to use a different material," says Naish, "but I don't think it would have had the 'X-factor' that the building now has. Having said that, if our site had been 100 metres further north in the heart of the CBD, I don't think we would have chosen that material. It was really site-specific."

RTA Studio had designed a small building several years earlier using the same material. Run-off from the steel plate had been an issue, but the experience proved to be a valuable guide for Ironbank. Hence, every plate was water-jet cut to exact size and then left outside to weather in A-frame stacks for a period of three to six months. The plates were watered by sprinklers on time clocks because wet and dry cycles need to be repeated on a regular basis for accelerated oxidation. This pre-weathering process reduces potential run-off after construction, therefore minimising the additional need for drainage channels*.

The social sustainability agenda is served by breaking up the mass of the building so that each tenancy (representing a whole floor) has a sense of individuality.



The internal courtyard highlights the role of circulation in building community. The extruded lift core of coloured glass encourages physical and visual connectivity



Also, there is a high degree of visual connectivity because, from any one space, it is possible to look out and see perhaps half-a-dozen others. Connectivity is further enhanced by the circulation of the building which includes the extruded lift core of coloured glass, the boldly curvilinear external stairway and the central courtyard, a kind of piazza with pedestrian through-traffic, shop fronts opening on to it, water features and a café.

The building has achieved the first 5-Star As Built rating from the New Zealand Green Building Council. There is no air-conditioning and it is fully passively ventilated. Contributing to the 5-Star rating are cross-ventilation, night purging, the triple-ventilated cladding, thermal mass through the north-oriented concrete floors, high degrees of insulation and low-emissivity double-glazing, plus rainwater harvesting and solar hot water.

Indirectly, the building's theatrical computerised car-stacking facility also adds to its sustainable credentials. Originally, a conventional three-storey underground carpark was planned. But with stacking, only half the excavation was required. It also enabled a top-down construction method, meaning that construction above the podium could continue while the excavation was happening without any addition to the cost.

"We thought very carefully about the whole arrival experience to the [car] stacker," says Naish, "and we have gone to considerable efforts to expose the whole excitement of it with glass sliding doors and LCD panels – so that while you're waiting for your car you can watch it being retrieved."

This was all part of making Ironbank a destination, and making it a highly contemporary, (but nonetheless personable) neighbour. It also helps drive the sense of community emanating from the building by encouraging tenants and visitors to feel that they are part of something special.

"We tend to see the whole building as a system in itself," says Naish, "which delivers an environment for one person or 200 people to work in, and this is probably the most successful thing overall: the sense of community that it provides and the way it works as a building system." **SP**

**BlueScope Steel recommends referring to Technical Bulletin 26 'Weather Resistant Steels' when planning a project using weathering steel. For further information, speak with a BlueScope Steel representative.*



High levels of transparency ensure ample natural light, thermal mass and connection with neighbouring tenancies

PROJECT Ironbank, Auckland, New Zealand **CLIENT** Samson Corp **ARCHITECT** RTA Studio **PROJECT TEAM** Richard Naish (Design Director), Tim Melville (Technical Director), Ben Hayes (Studio Director/Project Architect) **CONSULTANT TEAM** Project Manager: Style Project Management; Structural Engineer: Brown & Thomson; Mechanical Engineer: ECS; Hydraulic Engineer: HSC; Fire Engineer: Chester Consulting; Landscape Design: Price & Humphries; Graphic Design: Milk; Builder: Macrennie Commercial Construction
PRINCIPAL STEEL COMPONENTS AS/NZS 1594-HW350 XLERPLATE® steel sheeting **CONSTRUCTION TIME** 26 months **SITE SIZE** 1659m² **BUILDING SIZE** 9600m²

PROFILE PROFILES...

WOHA



Architects Richard Hassell (left) and Wong Mun Summ (right) established WOHA in Singapore in 1994

An Australian architect and his Singaporean business partner are creating a new architectural typology in South East Asia with a series of sustainable buildings that are winning international acclaim. Words **Rachael Bernstone** Photography **Patrick Bingham-Hall** (portrait and renderings by **WOHA**)

The architecture firm WOHA – named for the first two letters of its directors’ surnames – may be relatively young, but it has already built iconic buildings in Singapore and other Asian locations that have earned global recognition.

Perth-born and educated architect Richard Hassell met his Singaporean counterpart Wong Mun Summ in 1989, when they both worked as graduates in the Singapore office of Australian architect Kerry Hill. “We really enjoyed working together, we had very similar ideas about architecture, and in fact had very similar educations despite the fact that we studied in different countries,” Hassell says.

When they established WOHA in 1994, each brought different cultural approaches and skills to the partnership. “Mun Summ is Singaporean, and was originally much more confident in the value of big architecture, big development,” Hassell explains. “It’s an attitude from a young country which sees the future as something very positive.

“As an Australian, there is a certain scepticism about change and outcomes, which can make the architectural approach more tentative and often times self-censored than what we imagine the client can tolerate,” he adds. “Over time, I have come to enjoy the belief that architecture should be bold and confident, and seen that clients love it when you exceed their expectations – they love participating in a challenging project.”

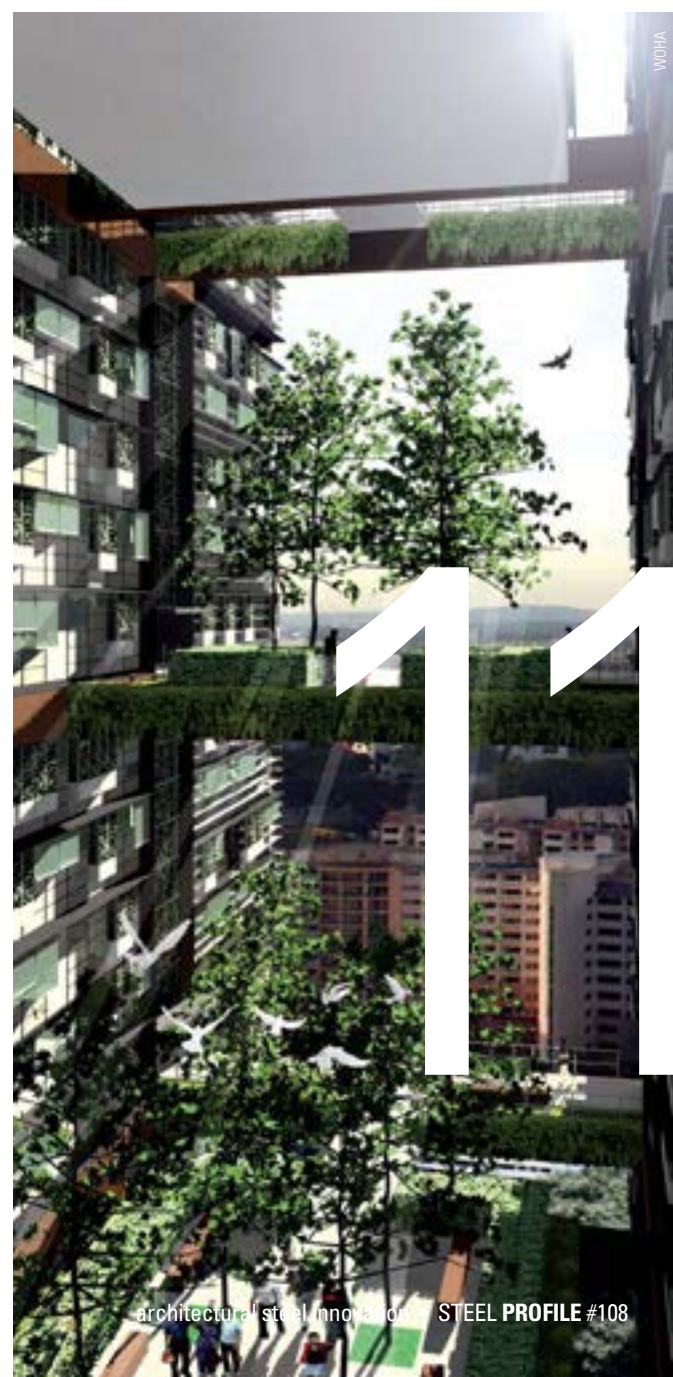
In the 16 years since the firm was founded, there have been plenty of those. In the early days of their venture, Singapore wasn’t known for its strong design values – although government initiatives to promote creative industries have led to positive changes in this regard.

“We actually used to use the example of Melbourne as a culture where the public recognises design,” Hassell recalls. “But Singapore has changed a lot over the last 20 years, so I think now it is quite similar in the public appreciation of design. Singapore – and Asia in general – is a little more focused on the positive outcomes of innovation, rather than on liability and value engineering issues.”

As a result, the architects have been able to develop and extend their ideas about tropically responsive architecture with each new challenge, to the point where three of their recently completed projects received multiple awards in 2010 from juries in Singapore, Australia and Germany, and at the World Architecture Festival.

The mostly highly lauded project was The Met – a high-rise apartment complex in Bangkok, Thailand (undertaken in collaboration with Tandem Architects) – which won the AIA’s Jörn Utzon Award for International Architecture, among many other prizes. A single podium at ground level provides access to six 66-storey towers with staggered plans, which make the most of views, cross-ventilation and solar penetration. Gaps between the towers are filled with verdant ‘skygardens’, and each apartment boasts a private balcony with a full-sized frangipani tree.

The building and its predecessors – 1 Moulmein Rise and Newton Suites, both in Singapore – have their genesis in a competition that WOHA won in 2002 for a high-rise public housing project called Duxton Plain. Although it wasn’t built, its aspirations have since been realised in several projects. ➤



LEFT: The Met in Bangkok is the most recent addition to WOHA’s series of high-rise buildings, which are redefining tropical modernism

RIGHT: WOHA’s winning scheme for the Duxton Plain high-rise public housing project wasn’t built, but its design aspirations have since been realised in other projects

Duxton Plain aimed to foster a strong sense of community among residents by using circulation paths to promote social contact and visibility over privacy. The architects hoped to create a village-type atmosphere for neighbouring residents by including 'skygardens' at every fifth level, as well as communal recreation facilities and public spaces at ground and podium levels.

WOHA's pursuit of this new building type – the tropically responsive skyscraper – has led to imitators in the region, which Wong believes is a positive outcome. "There are a lot of people doing this now – we did not invent the concepts, of course – but what we did was find ways to make them practical and integrated in ordinary commercial development, which has given others the confidence to do the same," he says. "We are very pleased: we think that cities of the future should be verdant and filled with life."

Some of these design principles were incorporated into WOHA's only Australian project to date, The Hyde apartment tower in Sydney, completed



The WOHA studio occupies a former shop-house with new roof terraces and a gallery, which also acts as an experimental area for ongoing research and development of green wall systems



in 2010. "In the Hyde, we were able to combine both passive solutions such as sunshading, vertical greenery, natural light and ventilation with active ones such as co-generation of power, which was a first for us," Hassell says. "In Australia the more active, technical strategies are easier to achieve, as facilities management is at a higher skill level."

Another of WOHA's highly lauded projects last year was the Alila Villas at Uluwatu in Bali, which combines residential and hotel suites on a cliff-top site. It was built using local materials and craft techniques that promote the island's rich cultural and built heritage instead of importing expensive products and methods.

Now WOHA is designing another resort at Bintan, an Indonesian island near Singapore. "We are only working on our second Alila Villas now, so it is not really a huge part of our portfolio," Hassell says, "but it is a very good working relationship and we are great friends with the developer of the resorts, who is also a shareholder of the operations company."

The final multi-award winning project of 2010 was the Stadium Mass Rapid Transit Station in Singapore, one of two public transport projects that WOHA won in competition in 2000, which opened in April 2010. The design for Stadium MRT addresses the problems of surge crowds – following events at the nearby Singapore Sports Hub – by placing the unpaid areas and a public plaza at ground level. The subterranean station platforms are accessed via direct circulation paths and are naturally lit, thanks to skylights and louvred walls.

Hassell says that steel would feature more prominently in its projects if skilled contractors such as facade specialists were more in supply. Stadium MRT, however, is one of the firm's projects in which steel is featured extensively.

LEFT: With its tropical foliage and 'monsoon' windows that improve ventilation while excluding rain, Newton Suites is one of WOHA's new tropical high rise exemplars



The entire above-ground structure of Stadium MRT is steel framed, with large deep trusses that span 11m around each bay

“Their ideas and processes go beyond the normative response of South East Asian architecture and literally into the *genius loci*: the spirit of the place”

“The entire above-ground structure is steel framed, with large deep trusses that span 11m around each bay,” he explains. “These were prefabricated in transportable sections and bolted together on site. We also have stainless steel cladding, framing and brackets that support the aluminium louvers and cladding.

“For this project, steel was perfect as it could give us the large spans and low weight that we required, because much of it is cantilevered over the platform.”

Hassell says WOHA continues to use steel in “a bold, crude way” – such as the large oxidised panels that feature in internal spiral staircases of some apartment buildings, or to produce “extremely thin, fine sections” using mild and stainless steel in custom furniture.

In Sydney, the prevalence of different construction methods meant it was possible to incorporate steel into The Hyde’s facade, where steel brackets

support the aluminium grating. Steel was also essential for the roof-top feature, a slender steel frame that creates a canopy over the penthouse pool decks. “Steel is the only material that can do such elegant, long spans,” Hassell says.

Having generated so much praise and recognition last year, the architects intend to continue to challenge themselves in Singapore and across Asia more widely: they are currently working on a large housing development in Mumbai in India, high-rise towers in Taiwan, and a vertical park hotel at home.

In fact, much of their joy arises from investigating new techniques and methodologies, and combining their knowledge of what’s possible with what’s practical in the diverse places they work. “Every country has a different construction practice with its own economics, skills, regulations, its own constraints and opportunities,” Hassell says. “Finding out what these are is part of the design process: we never see ourselves as importing our superior preconceived

solutions, rather we try and find creative ways to optimise the local situation. Applying a different mindset to the same ingredients can stimulate new proposals.”

The main challenge associated with their far-reaching approach, according to Wong, is the speed at which they can acquire the local knowledge. “Often people tell you what they think you want to know,” he says, “so you get a sanitised version of the local conditions. Nothing beats being there and seeing the situation on the ground, and then working with local knowledge and skills to achieve something new.”

It’s an approach that has already produced remarkable results for this practice, which undoubtedly has a promising future. Writing in the WOHA monograph published in 2009, Anna Johnson suggests that the firm’s evolution coincides with the emergence of Singapore as a template for developing cities, placing these architects in an enviable position as the world grapples with the impact of global warming.

“Their work is, at one level, a return to very tactile traditional architectural ideas, yet their ideas and processes go beyond the normative response of South East Asian architecture and literally into the *genius loci*: the spirit of the place.” **SP**

BUBBLE RAP



With its multi-faceted 'bioframe' design, the attention-grabbing \$267 million AAMI Park stadium is a stellar addition to Melbourne's world-class sporting precinct.

Words **Peter Hyatt** Photography **Peter Glenane; Peter Hyatt; 2vue; Dianna Snape; John Gollings**

ARCHITECT Cox Architecture
PROJECT AAMI Park
LOCATION Melbourne, Victoria



15



The bioframe's emblematic qualities also happen to deliver an inherent structural strength and integrity

EAST ELEVATION

Higher, faster, stronger. The grand Olympic ideal applies to the race by many cities for golden sports facilities. Melbourne's newest – yes, it wanted yet *another* to add to its burgeoning collection – has settled by the Yarra River in Melbourne Park.

Developed by Cox and engineers ARUP, the stadium's jewelled structural economy reflects rapidly unfolding technologies. Its designers point out that the stadium uses one-tenth the steel per seat of Beijing's acclaimed Bird's Nest and one-third that of Munich's membrane-clad Allianz stadium. The stadium's striking form has already earned it the affectionate nickname Bubble Dome.

Design DNA reveals itself in unexpected ways, but the clues are there for those who search for the genetic barcode. Take a peek at the highlighted Meccano 'X' in Cox Architecture's logo and this simple graphic – a diagonal frame, or cross-brace – articulates the letter to make an emphatic structural point. 'X' marks the spot and indicates the firm's preference for cohesive assembly in preference to superficial embellishment.

The stadium offers a remarkable form and lightness. So much so that in a precinct bristling with sports and entertainment venues, it signals a new era of technical and creative possibilities.

The ground is home to teams including the Melbourne Storm (NRL), Melbourne Rebels (Super Rugby), and A-League teams Melbourne Victory and Melbourne Heart.

In addition, the stadium includes an elite training centre comprising gymnasium and a four-lane 25m lap pool with additional player recovery facilities, office accommodation for elite sporting teams including home teams, and medical facilities that service the greater sports and entertainment precinct.

The bioframe's tour de force of stylish efficiency is partly illustrated by figures: even the lauded MCG Great Northern Stand uses 50 per cent more steel. While reduced material costs are significant, the complexity of the AAMI Park build tends to offset most of those savings, according to Cox design director Patrick Ness. "It works out at a little more than \$267 million and with 30,000 seats that's around \$8,800 a seat.

The MCG is about \$9,800 a seat. The Dallas Cowboys' new stadium works out at around \$18,000 a seat, so we think this is fairly cost effective."

Sited in parkland on Edwin Flack reserve where sports and entertainment venues predominate, 'Bubble Dome' is part of a linear necklace of major civic structures. This begins at the southern, or city, end with the Arts Centre Spire (1982), Sydney Myer Music Bowl (1959), Olympic Swimming Pool (1956) and concludes with this distinctive stadium – the faceted exuberance of which is created from more than 2200 diagrid steel and glass panels.

"It's a precinct that represents the best thinking socially and culturally in Melbourne at that time," continues Ness. "Our design recognises lineage, and that influenced the structure. Yet we've done it in a broader context."

Such an historic 'avenue' is more than simply built fabric. "There is a lightness to many of those forms and that definitely guided us towards such an ephemeral result," says Ness. "We feel privileged. You'd like to keep going on this sort of wave so we'll see where it takes us."

At a glance the steelwork creates a series of what appears to be helium-filled bonnets, or a giant, looping caterpillar. Despite the endless variations on the theme, these fully grounded bays create a strong, almost hypnotic structural rhythm.

It's also a stadium that in many ways feels bigger than its dimensions suggest. Ness attributes this 'larger than life' quality to the design. "Because of its unique acoustic characteristics a crowd of 30,000 roars more like 50,000 and yet it has this wonderful sense of intimacy," he says.

The stadium offers a remarkable form and lightness... So much so that in a precinct bristling with sports and entertainment venues, it signals a new era of technical and creative possibilities

"Stadia are often grim and predictable," Ness adds. "They lack an emotion. "They don't always concentrate the mind or crowd energy."

Design colleague and stadium project director Jonathan Gardiner of Cox recalls the stadium's official 2010 opening when the best laid plans became awash during a rugby league test between Australia and New Zealand.

The stadium's baptism saw water cascade from incomplete roof gutters during a freak rainfall. Gardiner almost shivers at the recollection. "The city received one of its heaviest downpours just before and during the first half of the game.

"The building was so close, yet not quite, finished," he explains. "There was enough guttering made from COLORBOND® steel at that time to collect the water, but not enough to carry it away."

The architects' memories take on a Chaplin-esque quality in the re-telling. "I think most people cut us some slack," says Gardiner. "They knew it wasn't a design fault, just a matter of completion – at least Australia won the game."

Now the rain and tears are forgotten and the project is an environmental beacon with rainwater ending up in storage tanks for recycling.

Ness says the structural team was ever-mindful of a sports metaphor. "'Further, stronger and lighter all the time'. That was our motto and steel was absolutely the right material to suit it," he adds. "We could hone and feather it to such a minimal cross-section and achieve this exceptional lightness."

The stadium's clever and intricate structure operates in three different ways: as shell, arch and cantilever. "Each structural system creates the 'bioframe' hybrid," says Ness. "After we worked up the structural model with ARUP we asked: 'What would happen in the worst-case scenario of catastrophic failure?' We wanted to know what would happen if major support sections were removed. All of our modelling proved its unique individual and combined strength."

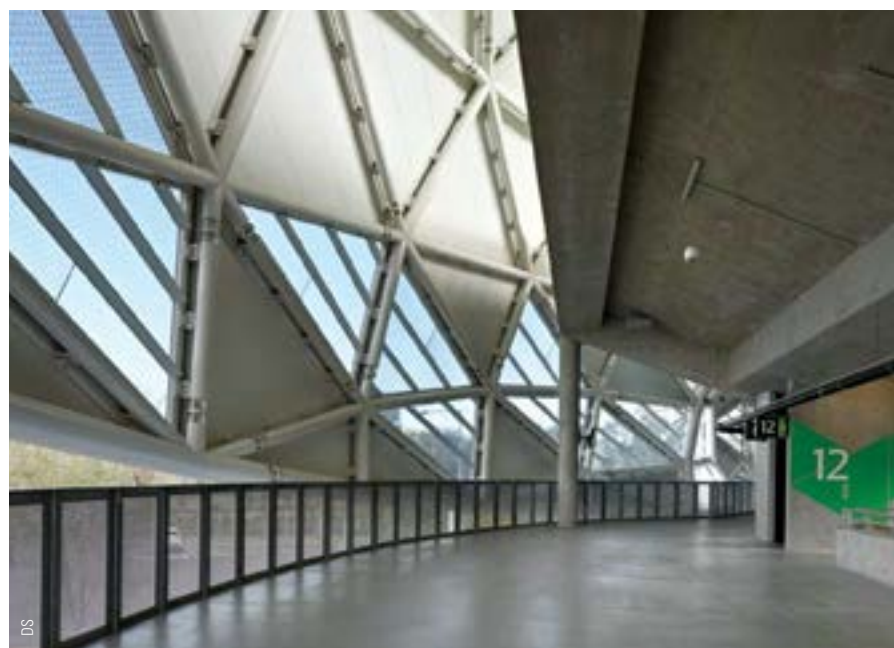
Reduction in material use is now made possible by building information modelling (BIM) and computer engineering programs that allow rapid testing and refinement. "It allowed us to identify where the flow patterns were and test different loadings, so the structure is fully optimised as a result of those technologies," Ness says. ➔



EAST/WEST SECTION



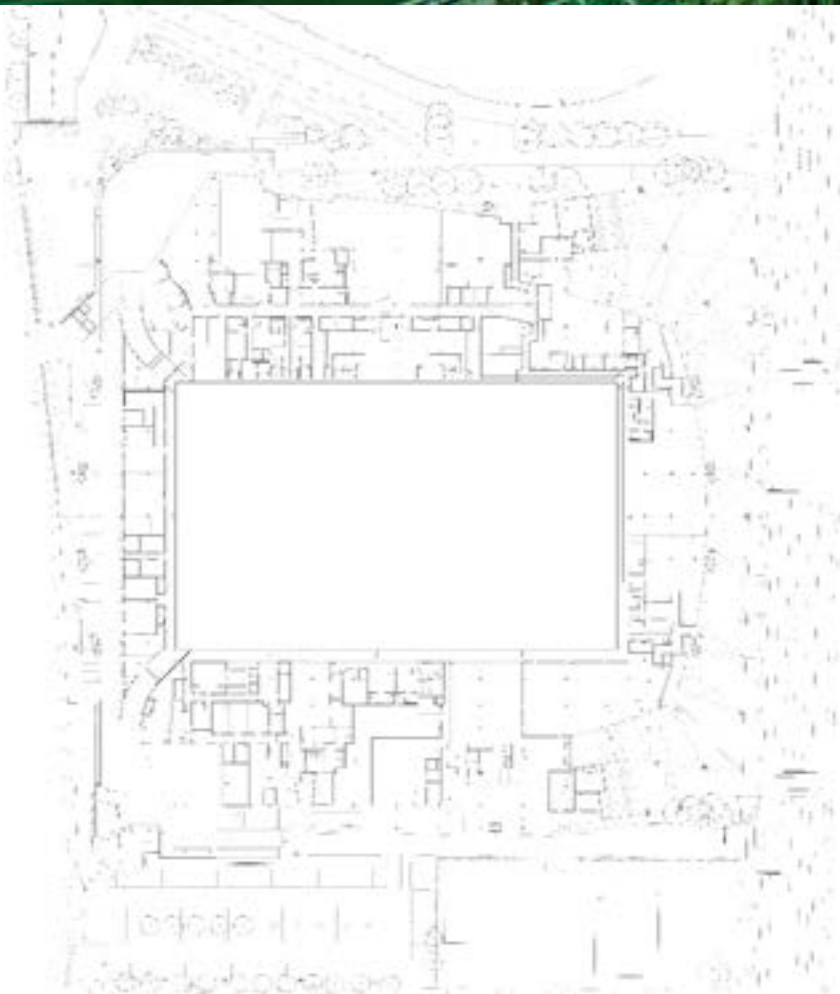
“Because of its unique acoustic characteristics a crowd of 30,000 roars more like 50,000 and yet it has this wonderful sense of intimacy”



ABOVE: Created from 2200 diagrid steel and glass panels, the structure possesses immense combined structural strength, yet exhibits exceptional lightness



20UE

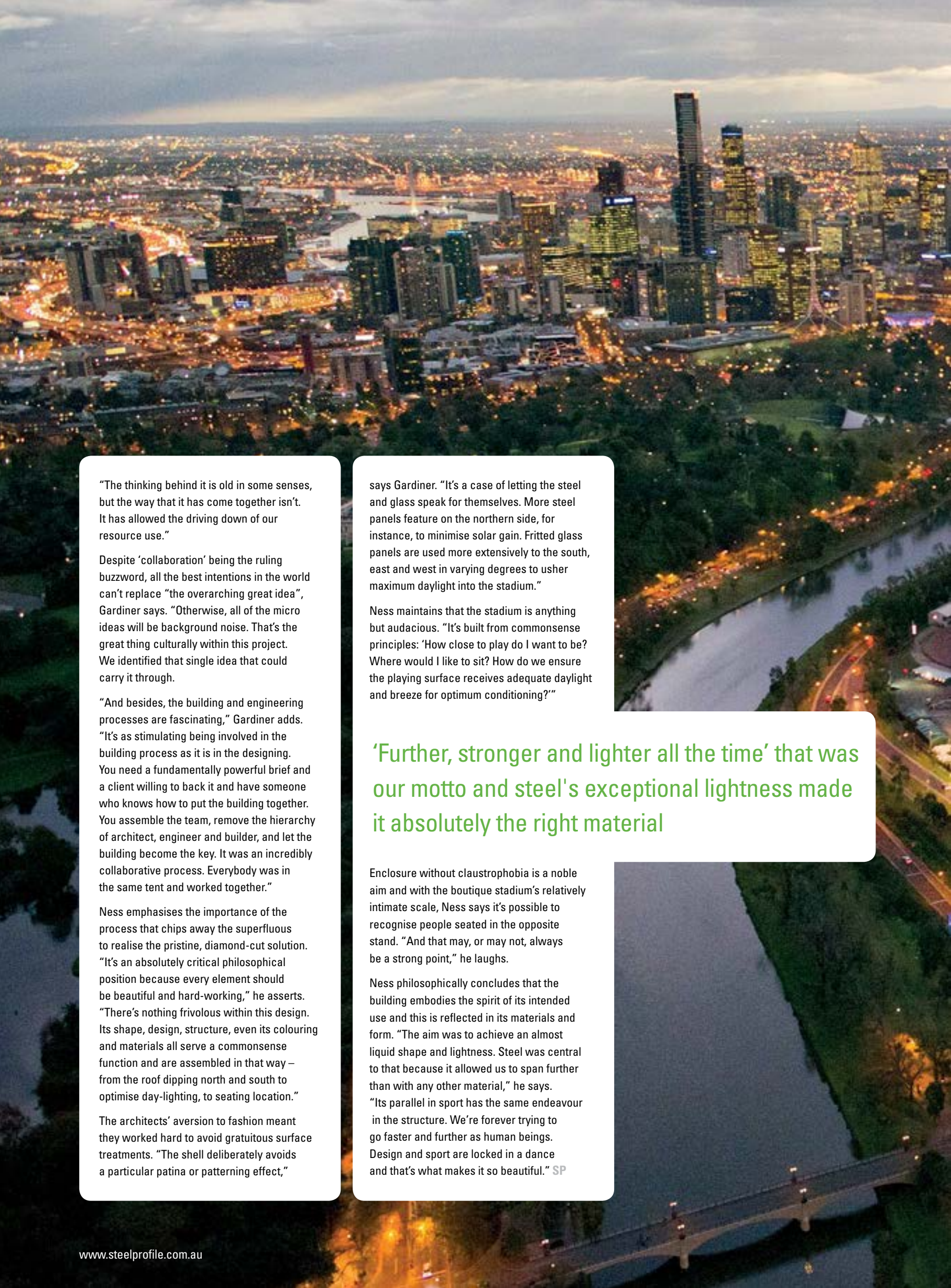


GROUND FLOOR

PANEL SAYS

This is a crystalline object in Melbourne's sporting parklands which appears almost soft and cloud-like, but which uses steel to great effect to achieve its taut form and structure. The lightweight design – based on Buckminster Fuller's geodesic geometry – was carefully honed to optimise the steelwork to provide the most cost-effective and structurally efficient solution, without sacrificing aesthetics or the experience of being sheltered within the shell. Inside the stadium, and within the circulation spaces that encircle it, the skin appears to wrap up and over the crowd, creating a comforting sense of enclosure before disappearing into thin air. This sense of dematerialisation is enhanced by the neat integration of its steel structure and facade system. Its night-time transformation sees sections of the dome hug the ground and billow into the sky.

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"The thinking behind it is old in some senses, but the way that it has come together isn't. It has allowed the driving down of our resource use."

Despite 'collaboration' being the ruling buzzword, all the best intentions in the world can't replace "the overarching great idea", Gardiner says. "Otherwise, all of the micro ideas will be background noise. That's the great thing culturally within this project. We identified that single idea that could carry it through."

"And besides, the building and engineering processes are fascinating," Gardiner adds. "It's as stimulating being involved in the building process as it is in the designing. You need a fundamentally powerful brief and a client willing to back it and have someone who knows how to put the building together. You assemble the team, remove the hierarchy of architect, engineer and builder, and let the building become the key. It was an incredibly collaborative process. Everybody was in the same tent and worked together."

Ness emphasises the importance of the process that chips away the superfluous to realise the pristine, diamond-cut solution. "It's an absolutely critical philosophical position because every element should be beautiful and hard-working," he asserts. "There's nothing frivolous within this design. Its shape, design, structure, even its colouring and materials all serve a commonsense function and are assembled in that way – from the roof dipping north and south to optimise day-lighting, to seating location."

The architects' aversion to fashion meant they worked hard to avoid gratuitous surface treatments. "The shell deliberately avoids a particular patina or patterning effect,"

says Gardiner. "It's a case of letting the steel and glass speak for themselves. More steel panels feature on the northern side, for instance, to minimise solar gain. Fritted glass panels are used more extensively to the south, east and west in varying degrees to usher maximum daylight into the stadium."

Ness maintains that the stadium is anything but audacious. "It's built from commonsense principles: 'How close to play do I want to be? Where would I like to sit? How do we ensure the playing surface receives adequate daylight and breeze for optimum conditioning?'"

'Further, stronger and lighter all the time' that was our motto and steel's exceptional lightness made it absolutely the right material

Enclosure without claustrophobia is a noble aim and with the boutique stadium's relatively intimate scale, Ness says it's possible to recognise people seated in the opposite stand. "And that may, or may not, always be a strong point," he laughs.

Ness philosophically concludes that the building embodies the spirit of its intended use and this is reflected in its materials and form. "The aim was to achieve an almost liquid shape and lightness. Steel was central to that because it allowed us to span further than with any other material," he says. "Its parallel in sport has the same endeavour in the structure. We're forever trying to go faster and further as human beings. Design and sport are locked in a dance and that's what makes it so beautiful." **SP**



PROJECT TEAM Cox Architecture – Jonathan Gardiner (project director), Patrick Ness (design director), Philip Rowe (design associate), Graham French (project associate)
STRUCTURAL ENGINEER Arup – Peter Bowtell, Frank Gargano **MECHANICAL AND ELECTRICAL ENGINEER** Norman Disney & Young **BUILDER** Grocon **STEEL FABRICATOR** Haywards, Ausiron, GVP **ROOF STEEL SHOP DRAWING CONTRACTOR** PlanIT Cocciardi JV **CLADDING CONTRACTOR** Minesco **LANDSCAPE ARCHITECTS** Land Design Partnership
PRINCIPAL STEEL COMPONENTS Gutters between roof panels specially made from COLORBOND® steel in the colours Loft® (top side) and Surfmist® (reverse side); gutters and flashings made from COLORBOND® steel in the LYSAGHT KLIP-LOK® profile in the colour Shale Grey™; tubular steel roofing; raker and bowl steel plate and tube; concrete reinforcement steel; steel to island bars, pod bars and concessions; steel balustrade verticals and plates **PROJECT TIMEFRAME** Completed May 2010
BUILDING SIZE 55,480m²; 30,000 seats **TOTAL PROJECT COST** \$267 million



DESIGN BASTIAN

Instead of demolishing a brick home to build again from scratch, Troppo Architects used a lightweight steel solution to reinvent it, capturing spectacular views in the process.

Words **Rachael Bernstone** Photography **Paul Bradshaw**

ARCHITECT Troppo Architects
PROJECT Bastian Townhouse
LOCATION Glen Osmond, South Australia



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After building a Troppo Architects-designed holiday farmhouse at Clare in South Australia, John and Anne Bastian and their two children were ready to downsize their family home in the city. As the couple moved towards retirement, they wanted to split their time between Adelaide and Clare, and their children – in their late teens at the time – were finishing their studies and embarking on careers and travel that would eventually take them interstate and overseas.

Honing their methodologies over three decades, the architects have built strong relationships with contractors, consultants and tradespeople, which augur well once a project enters construction. Those relationships were especially important on this renovation, which is unlike any other alteration and addition the firm has ever undertaken.

When the Bastians took Phil Harris from Troppo Architects to view a house they intended to buy in the Adelaide foothills, they weren't exactly sure what they would do with it. "This house was a very good buy and we liked the location, but, amazingly, we had no vision as to what could happen here other than that we planned to demolish and rebuild on the site," John Bastian says.

"But when we talked to Phil and his colleagues – who knew the ages of our children and what we wanted to do, because they'd known us for years – they saw positive aspects in keeping the original house."

One of the existing home's most promising attributes was the possibility of gaining city views from a new second storey, although the Bastians hadn't accessed the roof during the purchase period to confirm their hunch. When Harris did so, he was pleased to report that they could indeed capture panoramic views with a favourable north-westerly aspect.

"So I suggested that we build a new house for John and Anne on top of the original house, like a townhouse, so that they could continue to split their time between Clare and here," Harris says. "In a way this solution is about downsizing, but they also love having friends to stay, and their kids would be coming back and forth or possibly be returning with a family of their own, so there would always be a need for more space. ➔



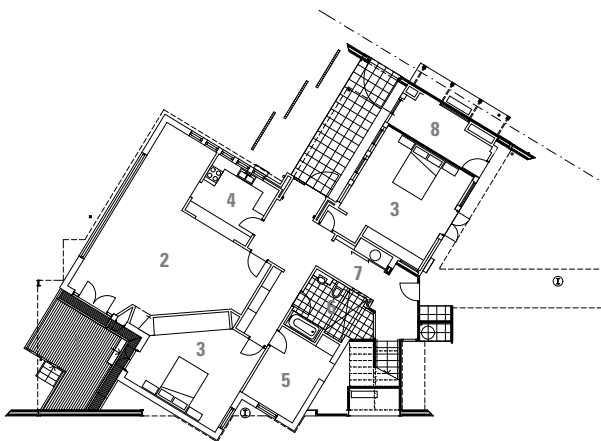


OPPOSITE: The old and new sections feature expansive outdoor terraces. Upstairs, the deck off the living room and master bedroom overlooks the garden below and boasts city views in the distance

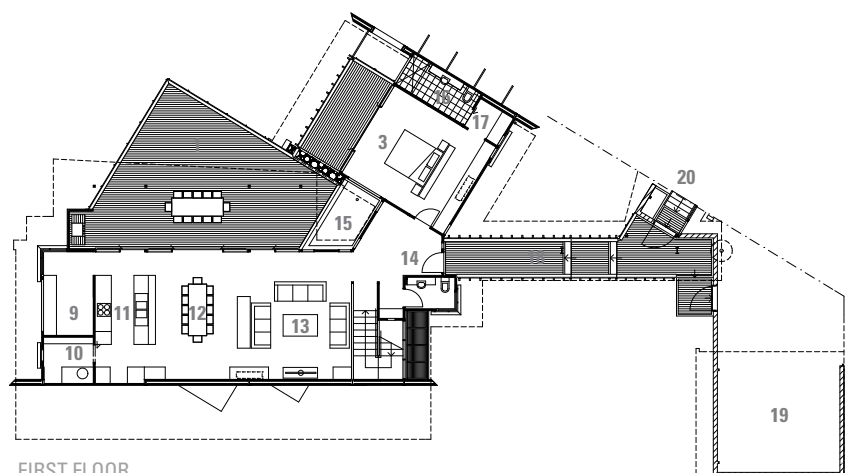
LEFT: Dedicated spaces off the bedrooms downstairs offer privacy for the couple's children

LEGEND

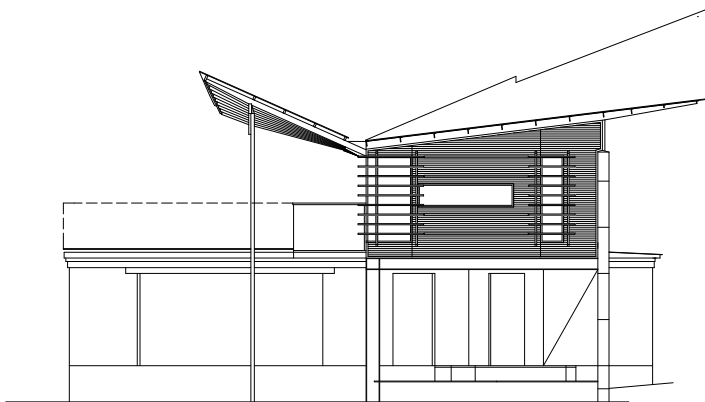
1. Deck
2. Rumpus
3. Bedrooms
4. Kitchenette
5. Utility/Cellar
6. Bathroom
7. Laundry
8. Store
9. Study
10. Pantry
11. Kitchen
12. Dining
13. Lounge
14. Entry
15. Pond
16. Ensuite
17. Walk in wardrobe
18. Bridge
19. Carport
20. Street entry



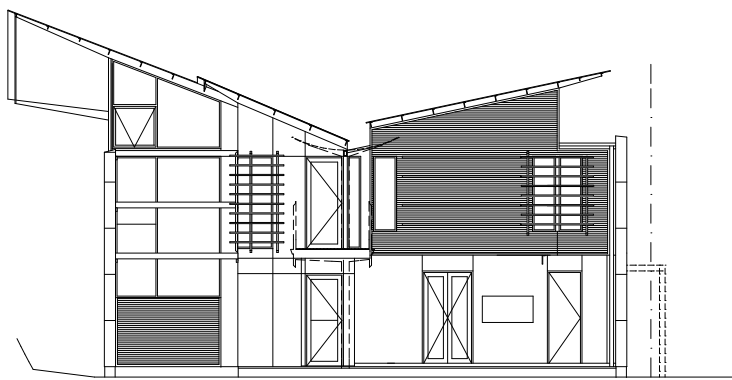
GROUND FLOOR



FIRST FLOOR



WEST ELEVATION



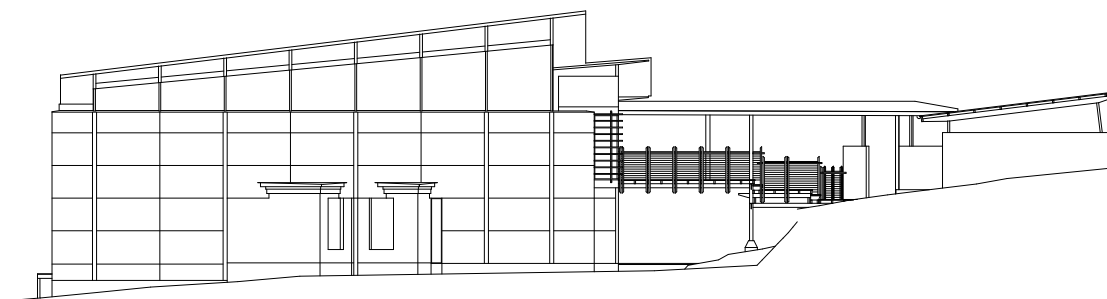
EAST ELEVATION



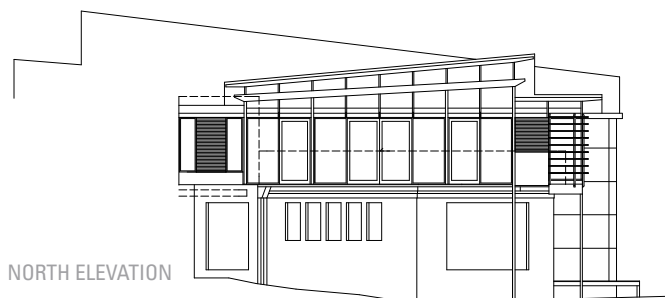
PANEL SAYS

We particularly like the way this ordinary house in Adelaide's suburbs has been overhauled for modern living by adding a new "townhouse" upstairs. This project addresses questions of sustainability and cultural dialogue: 'how do we best evolve the housing types we have inherited?' and 'how can we make existing houses more appropriate to their environment and climate?' This innovative hybrid of cottage and shed is underpinned by commonsense design principles, but in the masterful hands of Troppo Architects these combine to produce something quite exceptional.

ABOVE: The 'Twistie' roofline tilts upwards in line with the hill behind the house, allowing southern light to flood the living space



SOUTH ELEVATION



NORTH ELEVATION



The new prefabricated steel frame sits outside the boundaries of the existing house, making for a quick build once the first floor slab was laid



TOP LEFT AND BOTTOM RIGHT: The townhouse is accessed via a bridge across the courtyard, intensifying the sense of intrigue as one approaches from the street

TOP RIGHT: A design first deployed in Kakadu National Park, the steel 'champagne glass' provides a central collection point for rainwater

BOTTOM LEFT: The house gives away few secrets from the road

"We were able to give John and Anne a generous space at relatively low cost, because we didn't demolish or require new earthworks, which can be expensive," Harris adds. "We did spend some money expanding the old structure, but by not demolishing we were hundreds of thousands of dollars in front."

"Our consulting engineers Combe Pearson Reynolds did a viability study, and weighed up different construction technologies to achieve our aims," Harris says. "The prefabricated steel frame sits outside the boundaries of the existing house – although, where we could, we used the house for load bearing – which meant that the frame and roof were installed quickly after the slab was laid."

Troppo specified LYSAGHT BONDEK® profile for the first-floor slab. "It is deemed to be most efficient, and the engineering is great," Harris says. "I try wherever possible to work with refined design and steel is a refined material."

There were other benefits, too: a completely new building would have been subject to further setbacks from the two streets that border the triangular block, and so would have resulted in the loss of existing landscaping, including established trees, which were all retained under Harris' scheme.

Steel was the logical material to use to erect the new dwelling above the existing house, Harris says, "because of its ability to achieve big spans and carry significant loads."

"The house we built for the Bastians at Clare was a country house, so it features a lot more timber and is therefore more informal," Harris adds, "but this is a more urban-feeling dwelling, and the steel helped to make it sharper in that respect."

It also enabled the project to progress quickly, in line with the Bastians' desire to move in prior to Christmas – just 13 months from settlement. "We brought in the builder early," Harris says. "He started demolishing walls and the roof downstairs while we were still producing drawings. Steel enables a quick building program if you can accommodate its lead time easily."

The steel frame also minimised scaffolding time and reduced the need for new ground works. "Excavation on hillside sites can pose a big risk because you might encounter rock, and Adelaide soils are very reactive, so there are always issues with moving footings," Harris says. "Using steel meant we only had to dig three-metre deep piers for the columns to carry the wall loads, which still entailed quite some time spent holding our breath."

"The front gate is designed to make you wonder, 'Where does that entry go?', then you find yourself in the transition space of the bridge and the intimacy of the back courtyard, before entering the house and catching sight of openings on the lines of movement"

More praying mantis than butterfly in shape, the main roof follows the form of the hillside and tilts upwards at the south-east corner, above clerestory windows that allow southern light to flood the open-plan living space. This roof section employs a technique that Harris calls 'Twisties', where each beam is inclined slightly to create a raked effect, before being covered with LYSAGHT CUSTOM ORB® profile made from ZINCALUME® steel.

The upper level walls are clad with a combination of lightweight cement sheet and LYSAGHT MINI ORB® profile made from ZINCALUME® steel, chosen for their maintenance-free finish, and feature large expanses of aluminium-framed glazing and sliding doors.

"Getting the glazing system to fit to the raked ceiling was always going to require measurement, and it's a high degree of difficulty, so that entails a high degree of holding your breath," Harris laughs. "Because steel is a kit of prefabricated parts there are always moments when you hold your breath as it is installed – even though you know it fits on paper – but it fit perfectly."

Now, the reworked 'downstairs' house has its own entrance, open-plan kitchen and living room, two bedrooms and a bathroom. It also features two outdoor entertaining courtyards so that the Bastian children can entertain their friends in private. A new laundry that serves both dwellings is located at the base of the staircase that provides internal access to the upper-level 'townhouse'.

The main entrance to this new section is via an elevated covered walkway, which provides the first hint that something extraordinary is about to unfold. As one enters, the architecture becomes subservient to the journey itself and the sensation of being immersed in the canopy.

"The front gate is designed to make you wonder, 'Where does that entry go?', then you find yourself in the transition space of the bridge and the intimacy of the back courtyard, before entering the house and catching sight of openings on the lines of movement," Harris says. "It all peels away to the north-west city view and the experience of being in the tree tops with the birds and animals."

Undoubtedly, the response to this site and this place is what makes the Bastian's second Troppo house an exceptional place to live and to visit, but responding to local conditions doesn't stop Harris from employing design tricks that he developed while living in Australia's Top End, either. The most obvious of these is the wild steel dish-shaped gutter form at the eastern end of the bridge, which was originally developed for Bowali, the Kakadu National Park Visitor Centre that Troppo designed in association with Glenn Murcutt in 1983.

"We also used this gutter on a house in Darwin, to collect the rainwater in a steel 'champagne glass'," Harris says. "It's a really great way to collect water centrally, for storage in tanks, and it's a lot more fun to see it running free than having it hidden in a rainhead."

The steel gutter and 'glass' have been used to great effect at the Bastian's house, too. "Last winter we had a huge hail storm, and the 'glass' filled up with ice like a big ice-cream cone," Bastian says. "It took until mid-afternoon for it to all melt away."

It's just a pity there were no small children present to witness that spectacle. If John and Anne are blessed with grandchildren, that new generation is sure to find fresh ways to explore and delight in this house. At the moment though, it provides a spectacular yet welcoming backdrop for family life, with plenty of flexibility to meet the family's future changing needs. **SP**

PROJECT Bastian Townhouse **CLIENT** John and Anne Bastian **ARCHITECT** Troppo Architects **PROJECT TEAM** Phil Harris, Hugh Wilkinson, Jamie Gill **STRUCTURAL & CIVIL ENGINEER** Combe Pearson Reynolds **BUILDER** Michael Cullen **STEEL FABRICATOR** RC & ML Johnson **SHOP DRAWING CONTRACTOR** John Pearce **CLADDING CONTRACTOR** Power Plumbing **LANDSCAPE** Marilyn Kuchel **PRINCIPAL STEEL COMPONENTS** Roofing: LYSAGHT CUSTOM ORB® profile made from ZINCALUME® steel; Wall cladding: LYSAGHT MINI ORB® profile made from ZINCALUME® steel; First-floor slab: LYSAGHT BONDEK®; Structural steel: SHS, UBs etc. **PROJECT TIMEFRAME** Design commenced December 2008; demolition and construction commenced April 2009; construction complete February 2010 **AWARDS** COLORBOND® Award for Steel Architecture, South Australian Australian Institute of Architects Awards 2010 **BUILDING SIZE** Existing refurbishment (ground floor): 171m²; new decks, first-floor terrace and bridge: 108m²; new enclosed area: 160m²; new carport: 35m²; total new areas: 303m² **TOTAL PROJECT COST** Purchase price: \$670,000; new work including landscaping: \$1.13 million



ARCHITECT Gregory Burgess Architects

PROJECT Phil De Young Centre for Performing Arts
– Carey Baptist Grammar School

LOCATION Kew, Victoria

www.steelprofile.com.au

VIBRANT ACCORDION

Private schools in Melbourne's eastern suburbs don't easily spring to mind as examples of cutting-edge architecture.

Yet, in the Phil De Young Centre for Performing Arts, Gregory Burgess Architects has designed a vibrant building that engages the eye and imagination.

Words **Simon Sellars** Photography **John Gollings; Paul Bradshaw**

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Institutions such as private schools have a vested interest in cultivating a certain expectation among students, parents and constituent communities, and architecture's visibility is a vessel for enforcing that. It's pleasing to note that one Melbourne private school, Carey Baptist Grammar, has embraced built innovation in an emboldened fashion.

The three-storey Phil De Young Centre for Performing Arts was recently completed at Carey's Kew campus. This vibrant building, designed as a music hall, performance space and reception for the school, opened to much expectation and some controversy, ruffling the feathers of listeners on local talkback radio who felt its spectacular style wasn't in keeping with private-school values.

Such reactions are perhaps to be expected, although they ignore the building's intricate morphology, which conforms to Gregory Burgess Architects (GBA)'s long-established practice of engaging with place, tradition and community.

The Kew campus' dramatic geography, atop a hill on busy Barkers Road, is matched by the building's public facade. With its bold lines, resembling an accordion in mid-squeeze, it works with terracotta and colour-glazed bricksnaps, cast in linear and broken patterns, to generate dynamic movement that leads the eye, and imagination, in every direction.

Different interpretations of the facade's pattern are possible – dot painting, pointillism, musical notation – resulting in what Burgess says is “a public statement of Carey's commitment to the arts, and of the school moving forward with creative purpose but also humour and mental stimulation”.

The building also incorporates Burgess' placemaking philosophy. He highlights the Centre's “connection with the street. The building identifies existing landscapes and works with them. It becomes a catalyst for connecting places and making places that weren't there before”.

The houses on Barkers Road exhibit an assortment of materials, periods and styles. Alongside terracotta-gabled Californian bungalows, there are redbrick Victorian houses with slate roofs, including an impressive example to the rear of the Centre, now used for administration. The Centre actively speaks to this built environment. During demolition, red clinker bricks from the previous building were salvaged, recycled and reworked throughout the brickwork of the new structure, imparting a subtle, yet powerful sense of local identity.

The building's steel components also link past and present. The rear wall uses LYSAGHT SPANDEK® profile and flat sheet made from



The use of steel in the rear wall, with its reflective, chiaroscuro qualities, connects with the trees and school administrative buildings



The steel roofing, responding to the palette of the sky and immediate surrounds, allows the bold, ostentatious facade to communicate with the serene dialogue at the building's rear

“In terms of our steel usage, this wall is the *crème de la crème*, because we actually twisted and curved the steel”

COLORBOND® Metallic steel in the colour Facade®. Project Architect James Stewart says: “In terms of our steel usage, this wall is the *crème de la crème*, because we actually twisted and curved the steel. The corrugations of the SPANDEK® profile gave the material stretch and flex, and a subtle twist, and the finish of the Metallic range has much more reflection, more life.

“It’s beautiful how the reflected light gives variation in the steel’s surface. It’s the only material that could achieve that. Corrugated profile doesn’t have enough flex, but the SPANDEK® profile has elasticity in every way”.

Burgess is also proud of the wall: “You connect with the brick at the lower level, but your eye is then taken with the steel, linking to the tree canopy”.

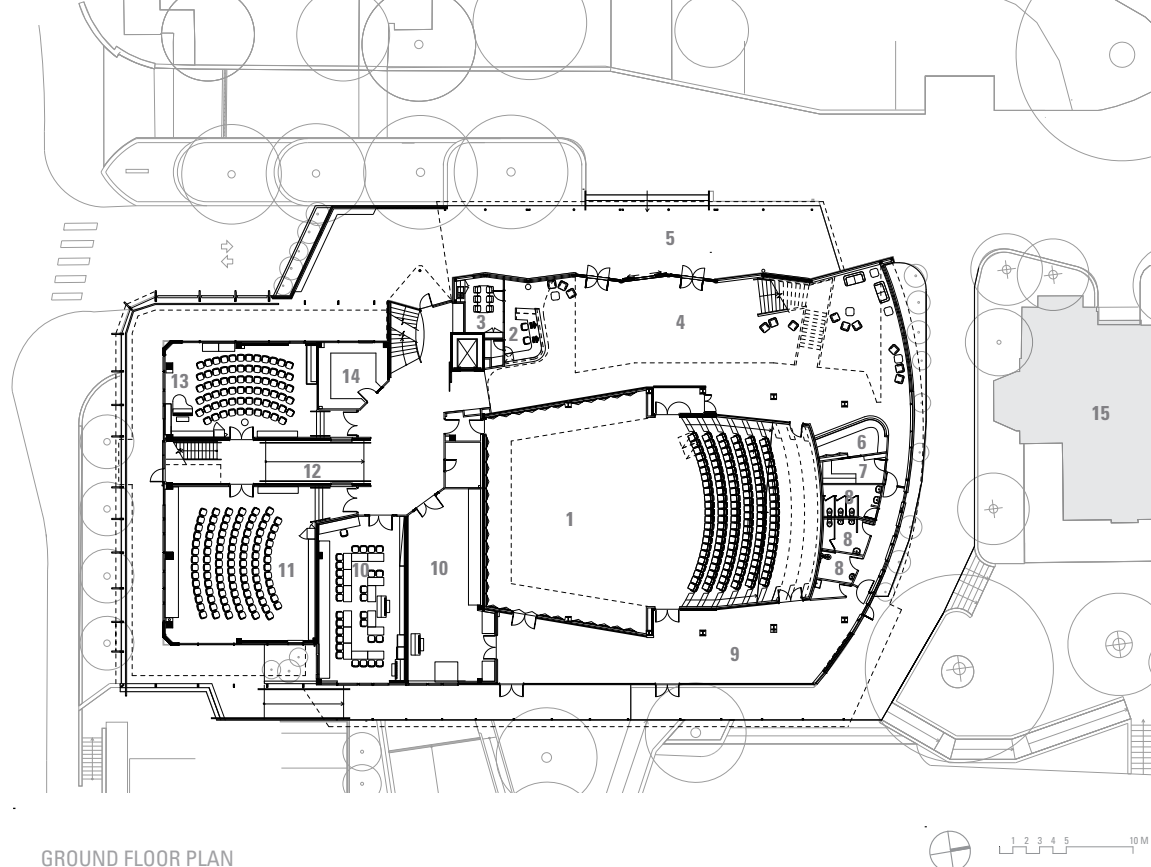
He points out the chiaroscuro effect of the material, noting its “ductility, movement and lustre in the light”. In sunlight, these unique qualities cast the administrative building and a large tree beside it into three-dimensional shadow. GBA fought hard to retain these objects during construction for that purpose.

Steel was also used for the structural framework, as, Burgess says, “it’s very efficient in terms of spanning and strength, but also has a certain elegance. The finesse of the steel in the staircases and balustrades works with the timber, bringing out the qualities of both”.

For the roofing, LYSAGHT KLIP-LOK® profile and SPANDEK® profile made from COLORBOND® steel in the colour Bushland® were used. Burgess was pleased with “the elusive, dematerialising quality” ➔



WEST ELEVATION



LEGEND

1. Auditorium
2. Reception
3. Meeting
4. Foyer
5. Entry verandah
6. Servery
7. Kitchen
8. Toilets
9. Store
10. Classroom
11. Large rehearsal
12. Circulation
13. Practice studio
14. Locker room
15. Existing building

GROUND FLOOR PLAN

The SPANDEK® profile in the colour Facade® is very legible and good value for money. Steel looks better, responding to existing colours on site

PANEL SAYS

This project elicited both sighs of despair and exclamations of delight from the panellists, with our architects saying they simultaneously loved and loathed it in equal measure. Close examination of the overtly busy facade – with its plethora of materials and twisting planes – reveals clever details that demand greater scrutiny, and these give way to an elegant interior that juggles a full program with confidence. In this project, Burgess merges his typical organic aesthetic with bold contemporary forms to create something entirely new. This is an original and confronting design that has the power to shock and at the same time enchant its audiences.

of the finish, which provides a communication with everything around it, including people. The SPANDEK® profile is very legible, and good value for money". The latter was important, given the tight budget: "We convinced the client on that, instead of going with zinc, which is more expensive. In the end, the steel is more appropriate and looks better, responding to existing colours on site, including the sky and the quality of light".

The school consulted closely with the architects throughout all stages, resulting in a finished product that, as Greg Burgess recalls, was realised with a "common purpose and energy".

The client brief was that the building be functional for the purposes of music education, and easy to navigate, but also stimulating, inspirational and catalytic. "The client wanted it to be a new and lively sub-centre of the school, a centre of gravity for the arts," Burgess explains.

Burgess praises the relationship between client and architect, while Stewart commends the dialogue between architect and project builders APM Group. Although the firms had not worked together previously, APM's managing director Brian Sands was enthusiastic:

"We knew it was going to be iconic, so we were keen to understand what they wanted to achieve. There were certainly challenges: there wasn't a

plumb wall in the entire building! It's got different rakes, angles, planes and finishes, plus brick snaps, metal cladding, different-shaped windows, steel, timber, brick, concrete, glass. All the steel at the rear is curved and raked, which tested buildability, but innovation really came about in the shop-drawing process and the relationship between APM and GBA".

That such a radical juxtaposition of form was integrated harmoniously into a legible whole is testament to this. But ultimately such a building lives or dies by its functionality.

Roland Yeung, Carey's Director of Music, is full of praise for the auditorium, designed to hold 325 people and a symphony orchestra: "It has fabulous acoustics that aren't brittle, but alive, roomy. You don't need a microphone – you can speak normally and be heard throughout".

Importantly, GBA's vision for the Centre as a whole considers the large volume of children and teenagers using it daily, accommodating their natural exuberance and propensity for chaos. As Yeung explains: "There's no bottleneck in the hall, so when one large class leaves, it doesn't collide into another. That sort of movement flows really smoothly".

His testimony speaks volumes. When asked about the consensus of students and staff, he concludes: "We just like the way the building sits". **SP**

PROJECT Phil De Young Centre for Performing Arts, Carey Baptist Grammar School **ARCHITECT** Gregory Burgess (director); James Stewart (project architect) **PROJECT TEAM** Paul Mikatoa, Zoe Malinova, Tom Kinloch, Tony Hampton, Chris Rodda, Seigi Edwards, Cornelia Jaeger, Florian Wachter, Annie Walsh **STRUCTURAL & CIVIL ENGINEER** Beauchamp Hogg Spano Consultants **PROJECT MANAGER** Coffey Projects **BUILDER** APM Group **STEEL FABRICATOR** DVP Engineering **SHOP DRAWING CONTRACTOR** Straightline Drafting **CLADDING CONTRACTOR** Signal & Hobbs **LANDSCAPE ARCHITECTS** Formium **PRINCIPAL STEEL COMPONENTS** Cladding: LYSAGHT SPANDEK® profile and flat sheet made from COLORBOND® Metallic steel in the colour Facade®; Fascias: BlueScope flat steel sheet in COLORBOND® Premium in the colour Facade®; Roofing: LYSAGHT KLIP-LOK® profile and SPANDEK® profile made from COLORBOND® steel in the colour Bushland® **PROJECT TIMEFRAME** 15 months (construction) **BUILDING SIZE** 3600m² **TOTAL PROJECT COST** \$12 million



Steel embedded in the fine detail of the interior, such as the staircases, combines harmoniously with more traditional materials including timber to produce a cohesive and legible structural framework



HIDDEN GEM

Underpinned by a gigantic steel skeleton, Australia's newest 'super luxury' resort by Circa Architecture embodies the essence of its pristine natural surrounds.

Words **Rob Gillam** Photography **Paul Bradshaw; George Apostolidis; Chris Wilson**

ARCHITECT Circa Morris-Nunn Walker
PROJECT Saffire Resort
LOCATION Freycinet Peninsula, Tasmania



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Appearing like bare steel trees, hot-dipped galvanised CHS tubing forms vertical support columns and double as roof downpipes

PB

Perched on the northern verge of Great Oyster Bay on Tasmania's Freycinet Peninsula, Saffire Resort offers a degree of hospitality and accommodation that is rare even in the luxury hotel class.

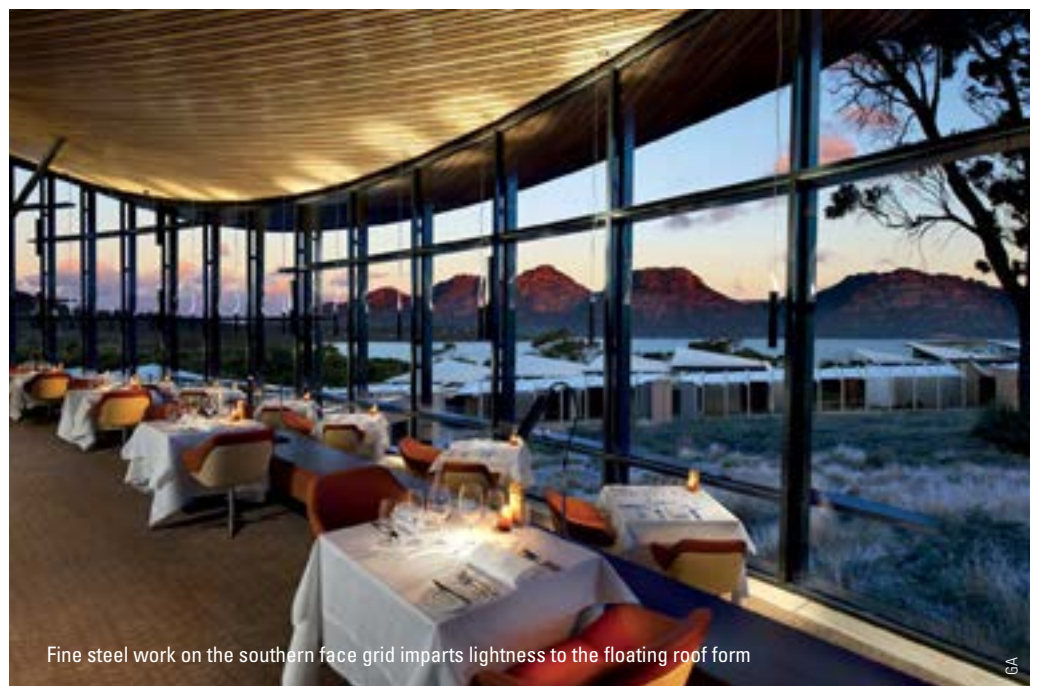
Saffire Resort owners The Federal Group sought an architectural statement for the resort that was striking, yet sympathetic with the site and reflective of its wider environment.

The brief posed a unique challenge for Circa Architecture, according to project architect and co-director Peter Walker. "The client wanted an iconic form, but one that was organic in that it was to be 'grounded' to the site."

The architects' interpretation of that key demand is apparent in the way that various natural themes are realised throughout the project. It imagined for example the guest suites, which are situated closer to the shoreline below the main reception building, as forms swept up on the tide or moored to the beach.

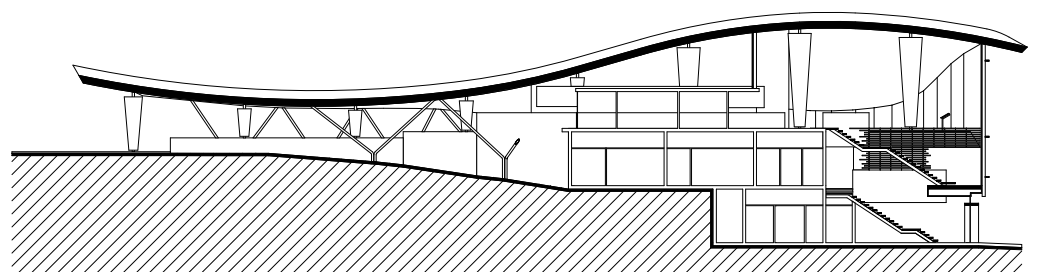
The reception building's design also harnesses environmental themes, reflecting the form of waves, dunes and sea creatures. A stingray? "Yes, it's not actually meant to be any particular object or creature per se," says Walker "but there are similarities to that creature's form."

"A lot of people compare Saffire's rooflines to a stingray and I'm pretty comfortable with that but it is not deliberate," he adds. "After the form was conceived we learned there are number of stingray varieties in the bay so it is a connection to the site but an unintentional one."

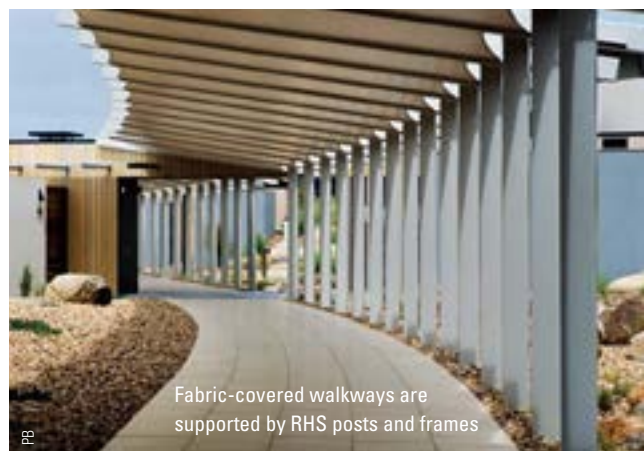


Fine steel work on the southern face grid imparts lightness to the floating roof form

CA



SECTION



Fabric-covered walkways are supported by RHS posts and frames

"I like to think the form is open to interpretation in the same way that the Sydney Opera House evokes many things such as sails or shells, yet specifically it is neither."

The wavy peak of the reception building's north-facing roof draws on another of the area's defining features – The Hazards mountain chain – its line mimicking that of the majestic granite outcrops meeting the sky.

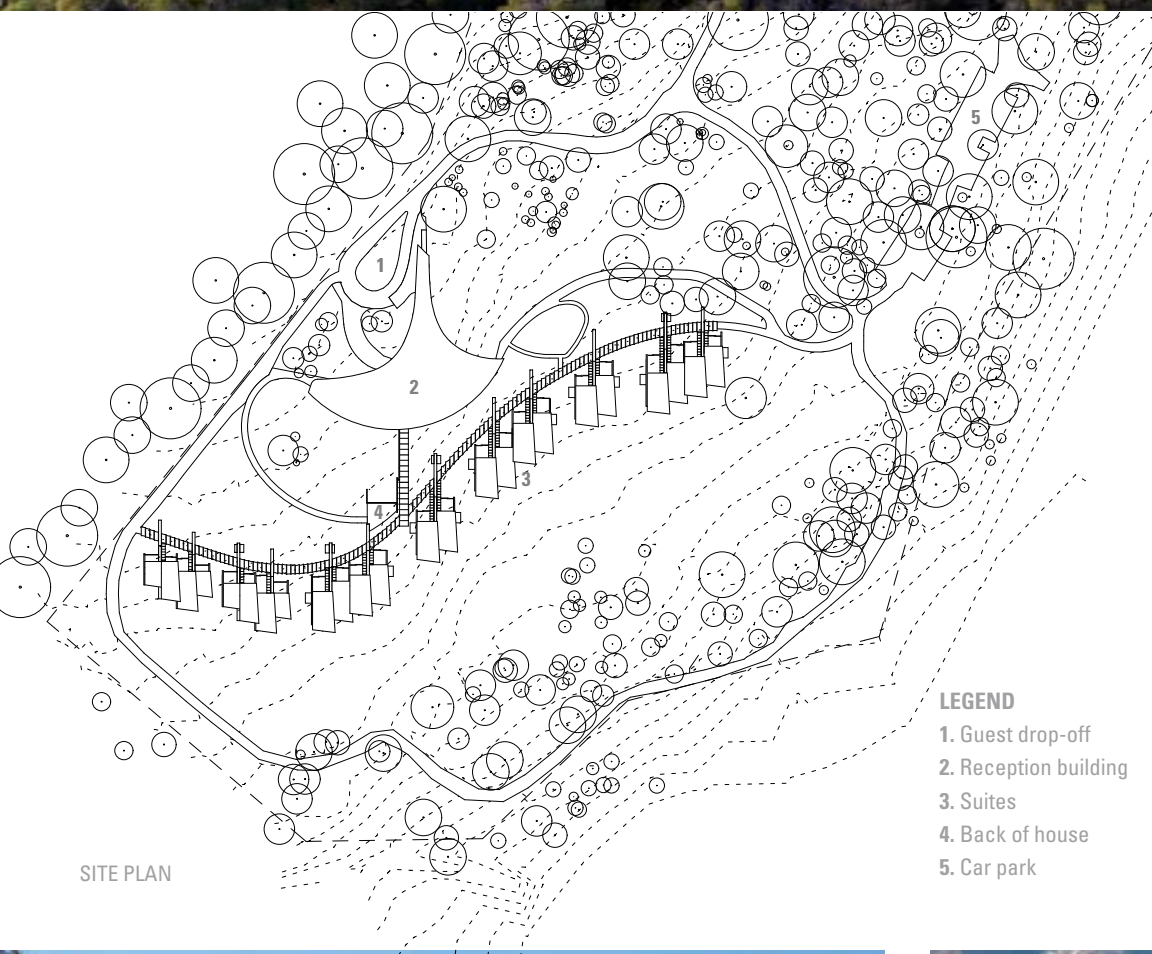
The Hazards' magnificence is impossible to ignore. Approaching by road, little glimpses are caught as the terrain dips and weaves. This striptease continues on entry to Saffire's grounds – as it turns out, a quite deliberate architectural device.

One of Circa Architecture's main ideas hinged on entry. On arrival, the reception building blocks a full view of The Hazards, creating anticipation. A long ramp leads to an internal walkway that further connects the building to the Bay by being literally surrounded in water. Here, gnarled knuckles of the 400 million year-old outcrops and expansive waters are fully revealed.

Saffire's remote location – roughly half way between Hobart and Launceston – required particularly considered material selection. "We faced cost issues in terms of having to transport materials to site and we also had a very tight construction timeframe," Walker explains. "These factors essentially dictated the use of materials that could be fashioned off-site and easily transported. Steel was an obvious solution because you can prefabricate it to exacting specifications and erect it speedily." ➔



The Resort embodies the essence of its pristine natural surrounds, evoking the form of waves, dunes and sea creatures



SITE PLAN

LEGEND

1. Guest drop-off
2. Reception building
3. Suites
4. Back of house
5. Car park

PANEL SAYS

On the site of a former caravan park, an architectural wonder has emerged in Tasmania. Circa Morris-Nunn Walker Architects has taken what was a degraded site and transformed it into a very special place, where the building is striking yet still subservient to the natural beauty of the landscape. A careful layering of spaces and architectural features helps to draw the visitor into and through the building, towards the view. In the reception hall, a reflection pond helps blur the boundaries between inside and out, and fine steelwork imparts an incredible lightness to the floating roof form, conjuring up images of stingrays pulsing fluidly through the bay. Sitting alongside a pristine national park in one of Tasmania's best-loved tourist spots, this project is sure to attract many new admirers to the area.



LEFT: Entryway under construction

BELOW: Suites are framed using LYSAGHT® structural products

Steel was a great ‘supporter’ of the project. “The steel framing we used, which was typically a bent circular hollow section, went up amazingly quickly,” says Walker. “Essentially, we just bolted it together. Our steel fabricators Crisp Bros used a shop-drawing process that meant we could model the entire roof shape. That meant we could get the roof on quickly and then fill in all the bits in between.

“The modelling also meant we could pre-order our glass based on the steel drawings and have it arrive simultaneously,” Walker continues. “We didn’t have to wait for the steel framing to go up before we could measure for the glass, and then wait for it to arrive. If we had chosen material other than steel, construction would have taken much longer, so that was a crucial advantage for us.”

The structure, as Walker explains, hangs on a row of vertical steel columns, which form the building’s central spine. Spanning horizontally over each of these are grid-forming curved steel beams, between which run laminated timber beams and battens. These consist of two standard shapes which when inversed and repeated create convex or concave planes. These curves enhance interior acoustics by diffusing acoustic reflections. Fabric and timber-battened interior roof cladding also help reduce pronounced echoes that might result from a multitude of hard surfaces such as glass.

Hot-dip galvanised CHS tubing forms additional vertical support columns, their multi-pronged ends appearing like the branches of bare steel trees. In many external instances – such as at the reception building entrance – these double as hollow roof downpipes.

A horizontal curved steel CHS ring beam encircles the north side of the building, forming a lip for the roof – the exterior of which is finished in synthetic membrane.

In contrast, the southern face is an engineered facade system in which fabricated horizontal fins tie in with RHS vertical columns to create a structural grid that works with the glazing system. The structural grid was specifically designed to accommodate the glass panels, the size of which was constrained by the necessary use of anti-reflectivity film.

“One of the problems we faced was glass’ high night-time reflectivity,” Walker says. “To achieve an unobtrusive reflection in this sensitive environment we had to apply non-reflective films to the glass which – along with transportation constraints – limited pane size.”

The guest journey continues via a series of fabric-covered walkways that are propped up by RHS posts and frames, moving from the monument of the reception building to the personal space of the its 20 luxury accommodation suites, which are framed using LYSAGHT® structural products.

A steel C section runs entirely around the edge, and a series of steel purlins run between. A top corner lifts to provide a kick for the roof.

In sympathy with the natural landscape, cladding and flashing made from flat sheet COLORBOND® steel in the colours Surfmist®, Dune®, Woodland Grey® and Windspray® are used liberally throughout the project.

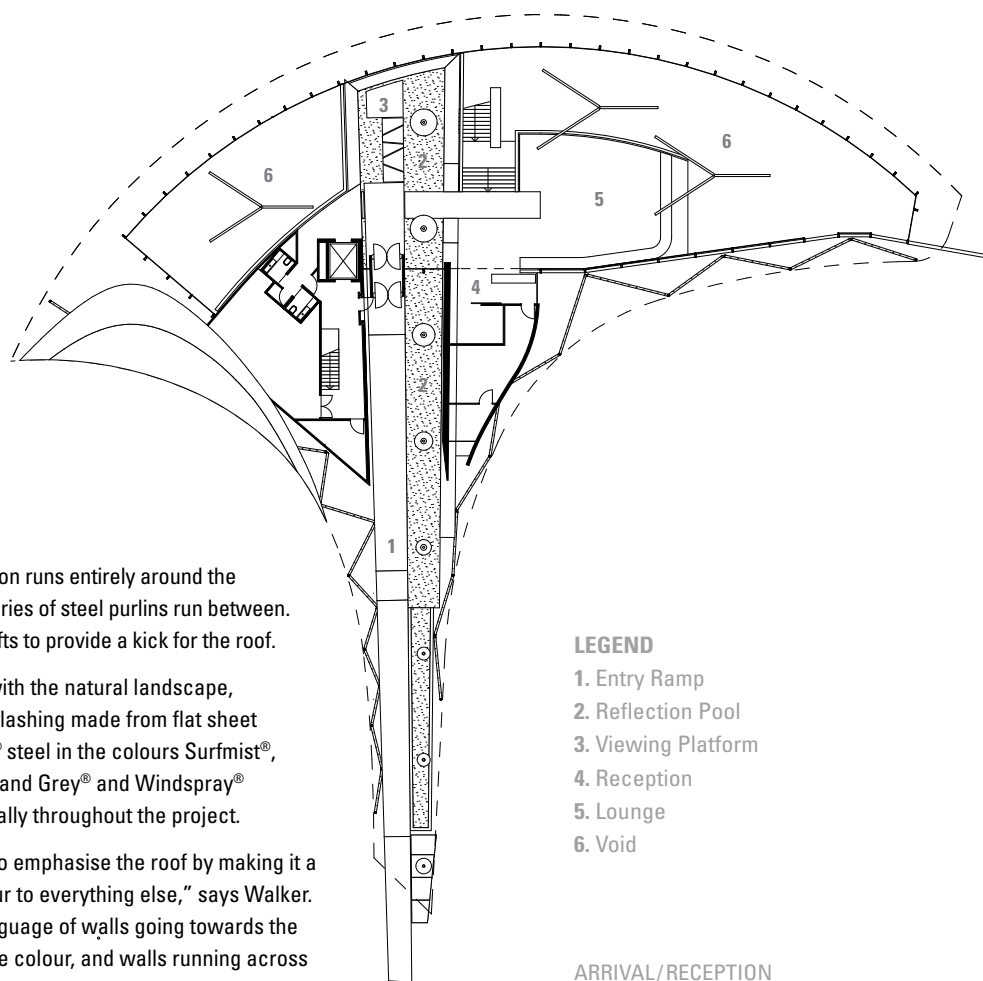
“We wanted to emphasise the roof by making it a different colour to everything else,” says Walker. “There’s a language of walls going towards the view being one colour, and walls running across the view being another. It’s uncanny how closely some of the colours match to the area. I’ve been up here on an overcast day when the water in the bay is identical to the blue-grey roof colour.”

Saffire’s uniquely luxurious experience comes with a rarified price tag which – while eye-watering for most mere mortals – is mitigated by including virtually everything imaginable. This is a deliberate strategy, says Saffire general manager, Matt Casey. “Most activities, our day spa, meals and beverages come at no extra charge. Guests pay up-front and that’s it.

“To us, relationship building is paramount,” Casey adds. “We don’t want our guests having any unwelcome surprises on their bill. Our success hinges on us knowing our guests and delivering a highly personalised experience. We learn their interests and passions and this helps us tailor an experience that we hope will be a lifelong memory.”

Interested guests are also informed about the area’s rich history. “When we talk about engaging our guests it is not only in reference to the resort but also with the history of this place,” says Casey. “Ten thousand years before European settlement, Tasmanian Aboriginals retreated here from the West Coast in winter, so in a sense it has always been a ‘holiday’ destination.

“Tasmania is steeped in history, much of which is dark, but we try to use it in a positive fashion,” he continues. “Many visitors are unaware of our convict past and the European/Aboriginal conflict. Also, sealing and whaling stations were established in this area very early on, and many visitors are



- LEGEND**
- 1. Entry Ramp
 - 2. Reflection Pool
 - 3. Viewing Platform
 - 4. Reception
 - 5. Lounge
 - 6. Void

ARRIVAL/RECEPTION

surprised to learn that Wineglass Bay was named as such not only for its shape but that it was often full of blood.” Indeed, with a replica colonial ship anchored in the Bay, it’s easy to imagine stepping back through the ages.

Saffire Resort is Circa Architecture’s most recent and most impressive addition to a list of hotel projects, including the award-winning Henry Jones Art Hotel on Hobart’s waterfront and Islington Hotel – both of which were created under its former name of Morris Nunn and Associates. In this latest offering, Circa has successfully designed a building that is bold and modern without being crass or misplaced. Its grace and natural form are a credit to the architects.

For his part, Walker says that this has been a satisfying project for him and his colleagues. “We try to look for unique solutions for our projects and I think we have achieved that,” he asserts. “I’m really happy with the way the building metamorphosises – depending on which way you approach it – and the way it takes natural cues from the area. It has some of the eclecticism of shack culture, but it’s not paying homage to that and it’s not trying to be an international-style resort. It fits somewhere in the middle.”

And his favourite feature? “It still has to be the entry sequence,” Walker says. “That is something we conceived on our very first site visit and was always held onto. You enter on a high and leave feeling the same way. I think it works really well.” SP

PROJECT Saffire Resort **CLIENT** The Federal Group **ARCHITECT** Circa Morris-Nunn Walker **PROJECT TEAM** Peter Walker, Poppy Taylor, Jarrod Hughes, Robert Morris-Nunn, Ganche Chua, Judi Davis, Chris Roberts, Gary Fleming, Tina Curtis, Kylee Scott **INTERIOR DESIGN** Chada **STRUCTURAL & CIVIL ENGINEER** Gandy & Roberts **BUILDER** Fairbrother Construction **STEEL FABRICATOR** Crisp Brothers **SHOP DRAWING CONTRACTOR** Crisp Brothers **LANDSCAPE ARCHITECTS** Inspiring Place **PRINCIPAL STEEL COMPONENTS** LYSAGHT® structural steel including CHS tubing, C section, RHS post and frame; roofing and flashing made from flat sheet COLORBOND® steel in the colours Surfmist®, Dune®, Woodland Grey® and Windspray® **PROJECT TIMEFRAME** September 2007-May 2010 **BUILDING SIZE** 3640m² **TOTAL PROJECT COST** \$32 million

SWEAT AND TIERS

Clever use of textural cladding has seen Suters Architects transform a potentially bland and boxy suburban gym into a flamboyant design statement. Words **Rob Gillam** Photography **Paul Bradshaw; Emma Cross**

When first commissioned to add a gymnasium to the longstanding Sunbury Aquatic Centre complex, Suters was tasked with reconciling its clients' commercial requirements against a responsibility to also provide the building with aesthetics that would, in the words of principal Stephen Cheney, "make a grand gesture for the community that would generate some pride and also articulate the building's function."

Constrained by a tight budget and charged with maximising internal space, the architects would have been left with little room to make a meaningful architectural contribution without some lateral thinking.

"The client's brief was to create the most area with the least amount of expenditure," says Cheney. "It was about maximising the usable floor space – basically, the brief was for a box."

"The building is right up on the site's northern edge, so we went right to the end with a basic rectangular shape. The most economical way we could build such an enclosure was to use a portal frame but we didn't want to just leave the end of the building as a plain linear structure. It needed an iconic element that would make people take notice, so we started fiddling with the end."

Having exhausted horizontal internal area, the architects harnessed vertical space. "Operators don't like all sorts of difficult, obtuse angles. They want to easily lay out and designate areas. So we had to take it from a basic rectangle to something that had presence."

A cathedral-like frontage injected with an enormous triangular window and intriguing layered cladding now provides Sunbury Gym with ample street character.

By incorporating a zig-zagging heart-rate monitor motif into the exterior design, the architects energised the facade. "The layered stripes provide smaller elements and help break down the scale of what could otherwise have been an imposing, sheer wall."



"The layered stripes provide smaller elements and help break down the scale of what could otherwise have been an imposing, sheer wall"

Such tactics are not new for the practice. "We've used that idea of breaking down mass on a number of facilities, including Caroline Springs Sports Stadium (see *Steel Profile* #101) and more recently the Richmond Football Club, which has similar notions. These projects are continuations of the design tactic."

So how did the architects achieve such an apparently intricate cladding effect? Quite simply, according to Cheney: "We staggered cladding along horizontal

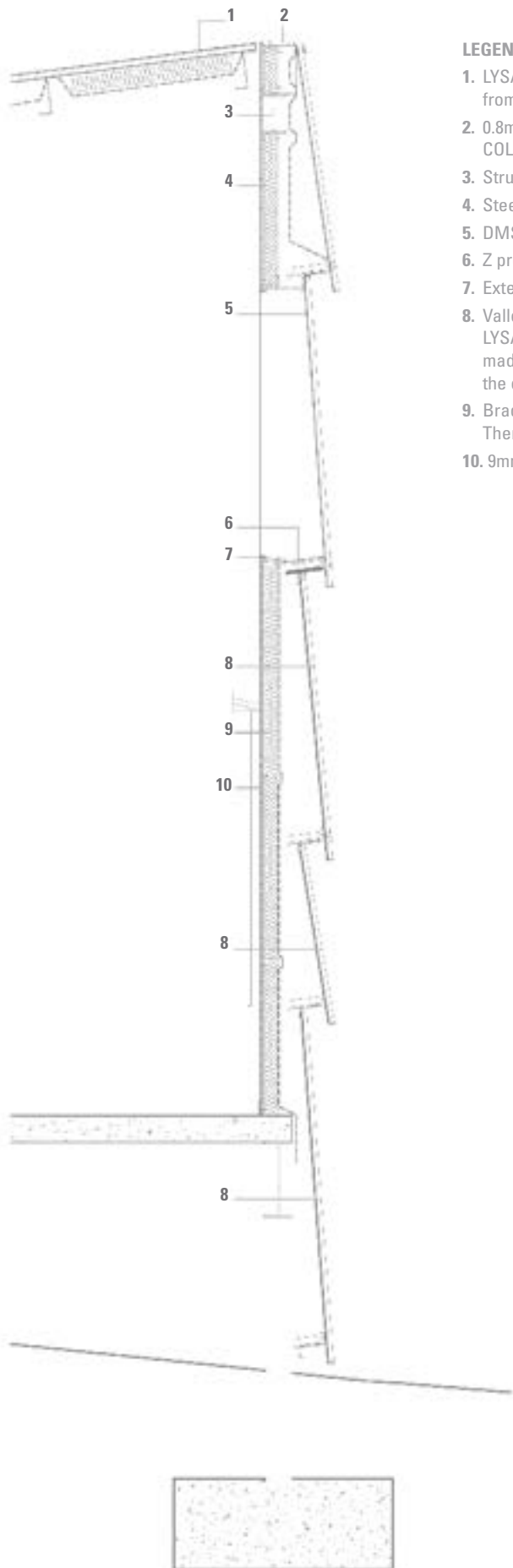
wall girts to form a pattern. Normally, you'd have the cladding fixed to just the outside without variation in depth. Our notion was to put the top end of some of these panels on the inside of the girt rather than the outside, and that way create some depth in the facade so that in simple terms you're keeping the same structure but you get that layering effect."

The cladding is LYSAGHT CUSTOM ORB® profile made from COLORBOND® steel in the colours Axis® and Conservatory®, which alternate vertically on the northern face.

These colours slowly change throughout the day, along with shadows created by shifts in cladding depth.

"We chose metallic colours because we wanted them to be basic, but strong," Cheney says. "To some degree, we wanted this project to be controversial and the colours support that, while also providing a metamorphasising texture. We also like the rawness. We keep things raw where we can. If it's metal there's no great need to over-dress it." **SP**

PROJECT Sunbury Aquatic Centre **CLIENT** Hume City Council **ARCHITECT** Suters Architects **PROJECT TEAM** Stephen Cheney, John Schout, Stasinios Mantzis, Peter Byrne, Steven Laughlin, Stuart Waters **STRUCTURAL & CIVIL ENGINEER** Brown and Tomkinson **BUILDER CONTRACT** Control Services **LANDSCAPE ARCHITECTS** Land Design Partnership **PRINCIPAL STEEL COMPONENTS** Cladding: LYSAGHT CUSTOM ORB® profile made from COLORBOND® steel in the colours Axis® and Conservatory® **PROJECT TIMEFRAME** 12 months **BUILDING** Size 490m² **TOTAL PROJECT COST** \$1.4 million



LEGEND

1. LYSAGHT® KLIP-LOK® profile roofing made from COLORBOND® steel in the colour Surfmist®
2. 0.8mm BMT parapet roof capping made from COLORBOND® steel in the colour Surfmist®
3. Structural steel
4. Steel stud frame
5. DMS laminated safety glass
6. Z profile girt with downturn flange bolted to angle
7. Extenso wall frame clip system
8. Valley-fixed 0.48 BMT external cladding – LYSAGHT CUSTOM ORB® profile cladding made from Metallic COLORBOND® steel in the colours Axis® and Conservatory®
9. Bradford Glasswool ANTICON Blanket Thermofoil 733 Facing
10. 9mm flush-jointed Villaboard

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