

116

NOVEMBER 2013
ARCHITECTURAL
STEEL INNOVATION
WITH BLUESCOPE

STEEL PROFILE



**TAG ARCHITECTS AND IREDALE PEDERSEN HOOK
ARCHITECTS IN ASSOCIATION**
WEST KIMBERLEY REGIONAL PRISON

JOHNSON PILTON WALKER
WHITE BAY CRUISE TERMINAL

IN PROFILE:
KATHRIN ASTE

EDITORIAL

Welcome to *Steel Profile* 116.

As a longstanding supporter of excellence in Australian architecture and Principal Corporate Partner of the Australian Institute of Architects, BlueScope congratulates all recipients of the 2013 National Architecture Awards.

The state-based entrants and winners of the COLORBOND® Award for Steel Architecture made for an impressive collection of buildings that deserved recognition for inspirational and innovative design.

Only one project can be given the National COLORBOND® Award for Steel Architecture. However this year's Jury decided that TAG Architects and iredale pedersen hook architects (in Association) deserved a National Commendation for the West Kimberley Regional Prison, which features extensively in this issue.

The most prestigious COLORBOND® award was saved for a project that harnesses fine steel frames, allowing plants to grow around and through it to make a sculptural statement perfect for its parklands setting. We applaud Collins and Turner for its Waterloo Youth Family and Community Centre (see *Steel Profile* 115) being awarded the 2013 National COLORBOND® Award for Steel Architecture.

Marking last month's launch of the next generation of COLORBOND® steel, this issue also bears a commemorative cover.

COLORBOND® steel has become a mainstay of Australian construction for its versatility, durability and enduring aesthetics. The next generation of COLORBOND® steel now incorporates Activate™ technology for improved durability and is available in 22 colours, including six new colours identified by experts and the industry as being contemporary and relevant to the Australian landscape. This creates even more possibilities for the architecture and design community.

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

Manu Siitonen
BlueScope editor

EDITORIAL ADVISORY PANEL

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



ADAM HADDOW

Adam is a director of SJB Architects NSW. He was awarded the 40th Anniversary Churchill Fellowship in 2006 to study alternatives to conventional models of urban design. SJB Architects recently won two Australian Institute of Architects NSW Awards for Multiple Housing.

More than anything, he loves to design buildings



FRANK STANISIC

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

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

Frank's projects have won numerous awards including Australian Institute of Architects' Special Jury, Wilkinson, Aaron Bolot and Frederick Romberg



SAM BRESNEHAN

Sam Bresnehan is a graduate architect with Melbourne-based architectural and urban design practice, McGauran Giannini Soon Architects (MGS).

Graduating from the University of Tasmania with a Master of Architecture (First Class Honours) in 2010, Sam was awarded the 2011 BlueScope Steel Glenn Murcutt Student Prize

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TAG Architects and iredale pedersen hook architects has harnessed scale, sightlines and landscape to minimise the impact of incarceration with a pioneering departure from mainstream prison design



BNV Donovan Hill's lightweight and dynamic design for the Canberra College Performing Arts Centre demonstrates that architecture can not only make a statement, but also change culture

Principal Corporate Partner



Australian Institute of Architects



COVER PROJECT

West Kimberley Regional Prison

PHOTOGRAPHER

Peter Bennetts



Rather than demolish an enormous 1960s steel gantry to make way for a new cruise terminal, Johnson Pilton Walker chose to incorporate its structure into the building



A striking pattern of steel blades give the new ABC Brisbane Accommodation building its striking exterior identity



Steel Profile profiles Kathrin Aste, an impressive architect for whom using helicopters for high-altitude construction is just another day in the 'office'



With its innovative take on a standard detailing concept, CHROFI has proven that boutique character for commercial buildings needn't be cost-prohibitive



Neeson Murcutt Architects used steel cantilevers to accentuate an undercroft that forms an integral part of a family's holiday home

BREAK FROM TRADITION

When Adrian Iredale first met Jurg Hunziker, as jury member and awards architect respectively, they vowed to work together one day. The result? A pioneering prison in Derby, WA. Words **Rachael Bernstone** Photography **Peter Bennetts**



ARCHITECT
TAG Architects and iredale pedersen hook
architects; Architects in Association

PROJECT
West Kimberley Regional Prison

LOCATION
Derby, Western Australia



ABOVE: The prison comprises 42 buildings arranged in mens and women's villages, around a AFL football oval

LEFT: The buildings were sited within the existing landscape, and many trees were retained throughout the site

Without pampering its criminal offenders, the new West Kimberley Regional Prison strives to put "Aboriginal wellness" front and centre. It aims to promote "the attainment of harmony between physical, emotional, social, spiritual and cultural components of the individual and the community as a whole".

The Government of Western Australia commissioned the facility in 2005 after consulting with indigenous people in an attempt to address the state's high rates of indigenous incarceration (38 per cent of the prison population, compared with three per cent in the broader community), deaths in custody and high reoffending rates.

Drawing on TAG Architects' expertise in custodial design and iredale pedersen hook (iph) architects' experience in remote-location indigenous housing, the Department of Corrective Services (DCS) commissioned the two firms to undertake preliminary planning.

"It was fully expected by our client that each of us would be picked up by bigger partners to tender for the job, but we wanted TAG and iph to collaborate, knowing that we had sufficient skills and resources between us," says iph director Adrian Iredale. "We demonstrated the advantage of having two modest-sized practices, with director engagement and involvement throughout the entire process."

The team won the job in late 2007, and set to work in early 2008, working to a preliminary brief. It also consulted other stakeholders including the Department of the Attorney General, Shire of Derby West Kimberley, Aboriginal agencies and kin, prisoners, government agencies and WA Police.

"With all credit to the DCS, they knew they needed to create a new model. They knew what they wanted, but were unsure how to manifest that in built form," says Jurg Hunziker, director at TAG. "We had a good rapport with DCS and they gave us the opportunity to generate a genuinely unique master plan from first principles."

"We initially worked across the whole project together, master planning the site and establishing the concept for the buildings, so it was a collaborative exercise in that sense," Hunziker continues, "but from a contract documentation point of view it was a case of splitting the works in two. On such a large job, with 42 buildings, and several builders, we decided to draw a line approximately through the middle of the football field. iph concentrated on the housing and some selected infrastructure, while TAG worked on the remaining infrastructure and site works."

The 25-hectare site is six kilometres from the centre of Derby, in a sub-tropical, cyclone-prone region, where rainfall can exceed 100mm a day in the wet season. The landscape of dense pindan woodland boasted many significant trees, including boabs, a number of which were retained. Water does not readily soak into the ground, which, combined with the presence of "collapsing soil", called for significant civil engineering for site works and building pads. A series of swales were installed to drain rainfall beyond the perimeter fence.

The prison is a campus-style facility with low-, medium- and high-security areas for both male and female prisoners – an arrangement that is unique, Hunziker says. "There is an Australian Rules football field at the heart of the prison, which is symbolic because football often provides opportunities for Aboriginal people to excel," Iredale says. "It also means that teams can come and play matches, offering opportunities for prisoners to connect with family and friends from outside."

"The housing is broken into small clusters," he adds, "which are grouped together so that prisoners can potentially be organised by kinship groups".

In the minimum security areas, houses have a mix of private and communal sleepout areas, meaning prisoners are not confined to their rooms. "There is no notion of being locked into a cell," Iredale explains. "There is a level of freedom that's embedded into the prison, but if prisoners don't behave appropriately, some of these freedoms can be taken away."

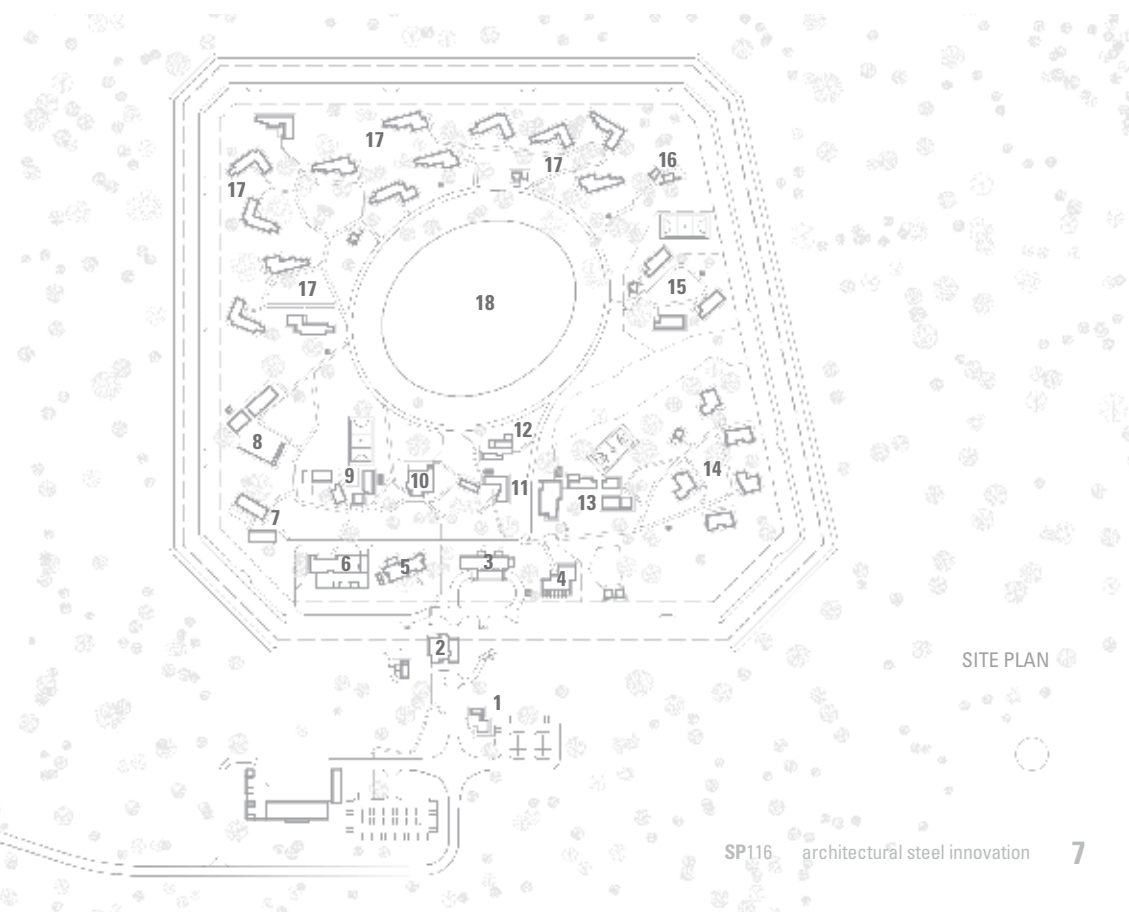
In the overall plan, sightlines through the landscape and within the buildings were very important, Iredale adds. "We tried to minimise the impact of being in a prison – the outer fence is not that evident, and through the careful placement of buildings we were able to create vistas and maintain much of the landscape," he says. "The houses were designed to make it easy to find one's way; there is no sense of being locked into a corridor: you can see where you are going, or whether there is potential for conflict."

All of the single-storey buildings across the site were constructed using steel frames that were manufactured in Perth and transported nearly 2400km by road-train. The buildings are arranged as a series of pavilions, held together by ribbon-like steel roofs constructed with LYSAGHT CUSTOM ORB®, LYSAGHT TRIMDEK® and LYSAGHT SPANDEK® profiles, all made from COLORBOND® steel in the colour Dune®. The soffits and external walls are a mix of LYSAGHT CUSTOM ORB® made from COLORBOND® steel in a range of colours inspired by the landscape, interspersed with painted panels of compressed fibre cement for variety. ➔

"We tried to minimise the impact of being in a prison – the outer fence is not that evident"

LEGEND

1. Visitors' centre
2. Gatehouse
3. Prisoner reception
4. Management unit / crisis care
5. Administration
6. Laundry / kitchen
7. Workshops
8. Recreation
9. Education
10. Family visits
11. Court services
12. Programs
13. Health and Women's Services
14. Women's accommodation
15. Men's maximum security
16. Spiritual centre
17. Men's accommodation
18. Football oval



Iredale appreciated the bountiful range of COLORBOND® steel colours – choosing Dune®, Windspray®, Bushland®, Jasper®, Headland® and Woodland Grey® – to blend the buildings into the pindan setting. “We did a photographic study of the seasonal landscape which was then pixelated on computer, and we were able to equate those natural shades to COLORBOND® steel colours, which immediately created a strong connection back to the changing seasons,” he says. “We used different colours on the lower, middle and upper levels of the buildings to articulate them in the landscape.”

Steel was the obvious choice, on the basis of climatic conditions, Iredale says. “As a result of the value-management process, steel was seen as the most appropriate material,” agrees Hunziker.

“We looked at speed-of-construction, the number of trades required, the fact you can shop-detail the steelwork and transport a number of buildings from Perth on one truck-load.

“We also had to take into account the fact that Derby doesn’t have a major construction industry, but it does offer various trades that could be engaged by the main contractor,” Hunziker adds.

Aside from the practicalities of part-prefabrication, transport and construction, steel offered other advantages, Iredale says. “Both practices have a long record of engaging with steel in numerous projects, and we see it as a material that enables us to create complex experiences out of relatively simple forms,” he says. “For example, the roof forms are pitched with gable ends, some of which are truncated at angles. When seen from the underside, they appear to be much more complex.”

Another important consideration was the threat of cyclones. “We needed to be certain that materials would cope with cyclonic conditions,” says Hunziker. “The project did, however, highlight to us that a number of suppliers don’t actively pursue the testing of materials to meet cyclonic design standards. The advantage of using steel sheet is that it usually meets those standards easily.

“The steel frames are more poetic and lyrical at the edges of the buildings, where the verandah spaces are heavily sculpted with structural steel,” Iredale says. “The bent steel is structural. It optimises the flexibility of the steel in a cyclone and minimises the cantilever of the spans.”

The entire project demonstrates, from the macro-to the micro-level, that due consideration of quite specific issues such as colour was essential. But the most important aspects by far were safety and security, Hunziker says. “We dealt with these by creating a very secure perimeter fence, to create a campus-style facility internally, where people can move around a lot more freely.”

The challenge of constructing a perimeter fence that could withstand a cyclone – yet be relatively unobtrusive from inside – also called for a steel

solution; namely 200 x 200 x 5mm SHS posts and Gryffin welded, galvanised steel mesh, with an STM Duraduct galvanised steel cowl.

There are some divisions internally too – the 120 male and 30 female prisoners are segregated by gender, with their own medical, education, shop and recreation facilities – but all are encouraged to learn skills that will improve their lives and limit the likelihood of reoffending after release.

“It’s a self-care model whereby prisoners are encouraged to shop and cook for themselves,” Hunziker says. “Some of the prisoners have been moved to Derby from prisons in Perth as they reach the later part of their terms, and this relocation to country provides opportunities to gain skills, so they can make good use of those skills when they return to their communities.”

The first prisoners arrived in October 2012, so it’s early days yet for this pioneering new model, but Iredale has already made some positive observations. “The women in particular have never had anything of this quality before,” he says. “The prisoners are often content with the situation and feel that it’s a relatively safe environment.” ➤

“We used different colours on the lower, middle and upper levels of the buildings to articulate them in the landscape”

The Women’s Health facility, classrooms and workrooms are sited at the entrance to the Women’s village



WET SEASON



DRY SEASON



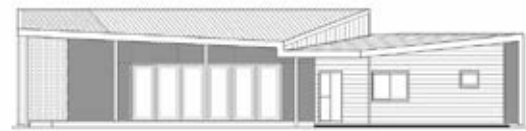
PIXELATION PROCESS

ABOVE: After conducting a photographic study of the seasonal landscape which was pixelated on computer, Iredale selected COLORBOND® steel in the colours Dune®, Windspray®, Bushland®, Jasper®, Headland® and Woodland Grey® to blend the buildings into their natural setting

TOP AND ABOVE LEFT: The colours of the landscape are reflected in the buildings. Seen here: the women’s art and craft and home economics training facilities (top), the women’s services colonnade (middle) and court services building (bottom). The ceilings in the colour Headland® (bottom) reflect the red pindan earth, and impart a sense of enclosure and protection



NORTHWEST ELEVATION – RECREATION BUILDING



NORTH ELEVATION – SPIRITUAL CENTRE



SOUTHEAST ELEVATION – RECREATION BUILDING



SOUTH ELEVATION – SPIRITUAL CENTRE

BELOW: The basketball court features bent steel frames that optimise the flexibility of the steel in a cyclone and minimise the cantilever of the spans



PANEL SAYS

The numerous buildings in this expansive prison project – 42 in all – speak of humility, and the use of lightweight steel framing and cladding is the common language that unites them. Arising from an immensely challenging brief that contends with a series of confronting social issues, the architecture aims to help facilitate change within a culturally sensitive environment. For us, the buildings are noteworthy for their simplicity, but the more compelling ideas are about the space between buildings – the organisation of the elements and their relationship to one another and the landscape, and how steel has been strategically used to create a cohesive whole. We especially like the non-institutional nature of the prison, and appreciate the robustness and carefully considered detailing of the steel work.

“One of the biggest issues in Derby is staff training and retention, because this is an extremely harsh environment,” Hunziker says. “So with this type of project, which is establishing new ways of dealing with indigenous incarceration, it will take two-to-three years to bed down.

“DCS will conduct a post-occupancy evaluation in the future, and see where things could be improved; where this model has worked well, where aspects haven’t worked as well. It will all be actively reviewed.”

“This is a significant departure from what people consider as mainstream incarceration; there is a real focus on normalisation with a greater emphasis on choice and self-determination,” Iredale continues. “Similarly, the management philosophy strikes a more even balance between static and dynamic security, opting to encourage staff to engage with prisoners in daily routines.”

Hunziker has visited the prison many times since practical completion in July 2012 and says it has a relaxed feel that sets it apart from other correctional centres. “It is confronting to think about being incarcerated, but the reality on the ground at Derby is quite different to the norm,” he says.

After what has been a long and arduous journey, the effort invested by the TAG and iph design team is now reaping rewards, he adds. “Working on the project for almost seven years has been an intense process – especially during the construction phase. The team does find it reinvigorating, though, when other people visit and say it’s fantastic: we are all very proud of the outcome. While it certainly has not been an easy project, it has been enjoyable.

“To go to site and talk with the prisoners, and get such a positive response from them and the prison officers, makes it really worthwhile,” Hunziker says. **SP**

ABOVE LEFT: The use of steel framing and cladding – depicted at the Spiritual Centre – enabled the architects to create complex experiences out of relatively simple forms

BELOW LEFT TO RIGHT: The houses have covered verandahs (left) and indoor bedrooms (right) for sleeping, and kitchens for self catering (centre)



PROJECT West Kimberley Regional Prison **CLIENT** WA Department of Corrective Services **ARCHITECT** TAG Architects and iredale pedersen hook architects; Architects in Association
PROJECT TEAM TAG Architects: Jurg Hunziker (director), Michael Spight (director), Jonathan Alach, Melanie Burnett, Daniel Bubnich, Hayley Brigatti, Daniela Casadio, Alicia Hitchcock, Julie-Anne McGuinness, Cynthia Teng; iph: Finn Pedersen (director), Adrian Iredale (director), Martyn Hook (director), Rebecca Angus, Vincci Chow, Caroline Di Costa, Khairani Khalifah, Jemma van Dongen, Shiva Amir-Ansari, Cherie Kaptein, Kylene Tan **STRUCTURAL & CIVIL ENGINEER** Pritchard Francis **BUILDER** Main Works: Cooper and Oxley Builders. Forward Works: Pindan **STEEL FABRICATOR** HVAR **SHOP DRAWING CONTRACTOR** Detailed Design Drafting **CLADDING CONTRACTOR** Nationwide Roofing **LANDSCAPE ARCHITECTS** Clouston Associates
PRINCIPAL STEEL COMPONENTS Roofing: LYSAGHT CUSTOM ORB®, LYSAGHT TRIMDEK® and LYSAGHT SPANDEK® profiles, all made from COLORBOND® steel in the colour Evening Haze®. Soffits and external walls: LYSAGHT CUSTOM ORB® profile made from COLORBOND® steel in the colours Evening Haze®, Dune®, Windspray®, Bushland®, Ironstone®, Jasper®, Headland®, Woodland Grey® and Loft®. Cappings and barge mouldings made from COLORBOND® steel in the colour Evening Haze®. Structural steel: building exterior walls: SHS and RHS steel frames with welded and bolted connections. Building internal walls: standard steel stud framework comprising 92 x 32 x 1.15 BMT lipped studs made from hot-dipped galvanised steel. Perimeter fence / sally port enclosures: Hot-dipped galvanized 200 x 200 x 5 SHS (generally for posts); welded, galvanised steel mesh with a galvanised steel cowl **PROJECT TIMEFRAME** 4.5 years from design to practical completion **AWARDS** Australian Institute of Architects National Awards 2013: The David Oppenheim Award for Sustainable Architecture; National Award for Public Architecture; COLORBOND® Award for Steel Architecture – Commendation. Australian Institute of Architects WA Chapter Awards 2013: The Wallace Greenham Award for Sustainable Architecture; Public Architecture – Architecture Award; Urban Design – Commendation. The Chicago Athenaeum: Museum of Architecture and Design and The European Centre for Architecture Art and Urban Studies: The International Architecture Award for 2013. World Architecture Festival Awards, Singapore, 2013 – Shortlisted. 2013 Architecture of Necessity Award, Sweden – Shortlisted **BUILDING SIZE** Approx 11,500m² (all buildings) **TOTAL PROJECT COST** \$120 million

HISTORICAL DEPARTURE

An historic part of Sydney's working port has been reinvented as new cruise terminal, giving visitors an unexpected perspective on the city.

Words **Rachael Bernstone** Photography **Brett Boardman**

ARCHITECT
Johnson Pilton Walker
PROJECT
White Bay Cruise Terminal
LOCATION
White Bay, New South Wales

Having arrived at the White Bay Cruise Terminal by car, I can only imagine the splendour of arriving by boat. Whichever the chosen method, one is confronted by an altogether foreign view of the city that takes in Sydney Harbour Bridge and Anzac Bridge – and everything in between – in one sweeping gesture. Standing outside the new building, with an industrial-era heritage sandstone escarpment at your back, you can enjoy truly rare views of Sydney.

Of course, if there was a 13-storey-high cruise liner in port, you'd see only glimpses – with the full panorama observed from the ship deck itself. There is no such disappointment for people lucky enough to enjoy the new terminal when it operates as a function centre on non-ship days. Providing flexibility to accommodate different uses was one of the key objectives of the brief, according to project director Paul van Ratingen from Johnson Pilton Walker architects (JPW).

As one of three firms approached to submit ideas for the new terminal, JPW was told the site would be cleared, so van Ratingen's first concept commenced with a tabula rasa scenario. That scheme won the job, but once van Ratingen visited the site for the first time, he was inspired by the physical remnants of its rich history.

"The brief's proposition was that the whole site be cleared, but on our first visit here we were captivated by the 1960s gantry structure," he says. "It's exceptionally powerful, it's very beautiful in its weathered state, and it's very relevant to the history of this site. We felt it was an important part of Sydney's maritime heritage, and that we really needed to look at keeping it."



"The brief's proposition was that the whole site be cleared, but on our first visit here we were captivated by the 1960s gantry structure"

He also appreciated the site's evolving history, which is reflected in the landscape and buildings. Bounded by land on its northern and western sides, and water to the south and east, the 240m-long and 50m-wide gantry sits atop a vast concrete-iced apron that is mostly reclaimed land. White Bay was first prized as a deep-water berth close to the city in the late 19th century, when rail lines (still *in situ*) were built to connect with neighbouring Rozelle and beyond for the transportation of goods to-and-from ships.

In the early 20th century it was used for timber shipment and grain storage, before becoming a coal hub for White Bay Power Station. In the 1960s, the site underwent its most dramatic transformation when the natural sandstone headland was cut and the rubble deposited into the harbour to create the current foreshore profile.

During this phase, the giant gantry crane was erected for the world's first regular international containerised shipping service, which operated between Sydney and Europe. Over the next four decades, as uses evolved, the structure was adapted and sheds built around the gantry, with the apron outside used for storage. When stevedoring facilities moved to Port Botany in 2003, the sheds were empty and slated for demolition, until van Ratingen laid eyes on them.

"The 1960s structure had been added-to progressively as uses changed from storage to other things, so there was already a strong story of adaptation of that structure, and its new use as a cruise passenger terminal is a continuation of that," van Ratingen says. "We saw this new use as another overlay to that structure, rather than erasing it and starting again."

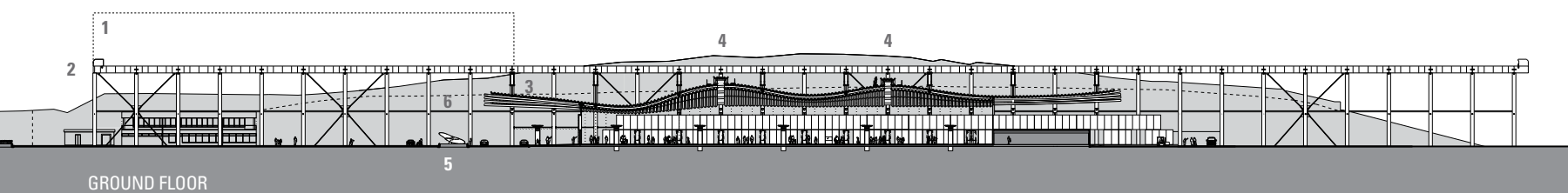
van Ratingen and his colleagues convinced their client – Sydney Ports – to incorporate parts of the gantry into the new building. Their concept aimed to drape a new metal roof between the two rows of columns, anchor the building back into the cliff with a series of amenities pods, and open up to the harbour views with full-height glass walls on three sides.

"It's interesting to not have to support a roof on columns, but to have a gantry structure that you can drape a roof from," van Ratingen says. "We looked at ways to promote this idea. We were looking for detailing that was direct and honest, that could take its influences from the existing structure without requiring structural gymnastics, and that would work effortlessly with the robust original 1960s aesthetic."

Fortunately, initial inspections of the gantry – supplied by and stamped BHP – showed it had withstood the rigours of its harbourside location. ➔

LONGITUDINAL SECTION

1. Size of demolished industrial shed
2. Heritage steel structure
3. New roof
4. Smoke vents
5. Historic propellor artwork
6. Heritage sandstone cliff behind



GROUND FLOOR

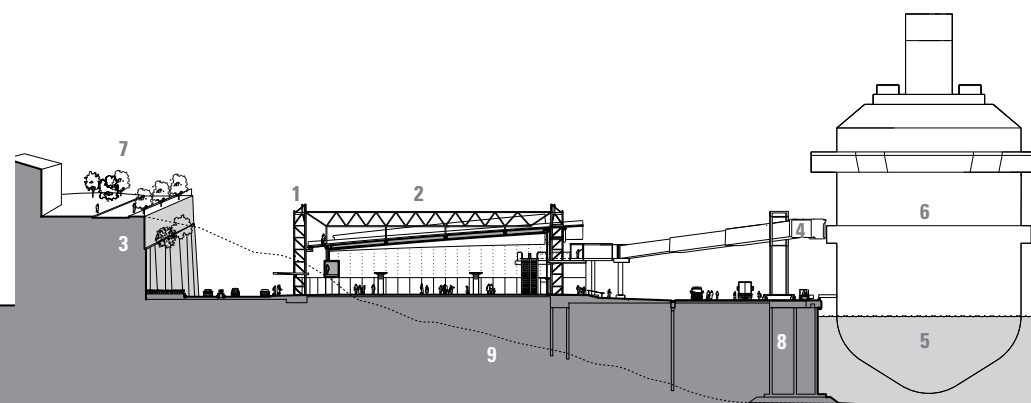


TOP: On the northern edge, a series of pods contain amenities and building management services, while the spaces between them offer glimpses of the sandstone cliff face

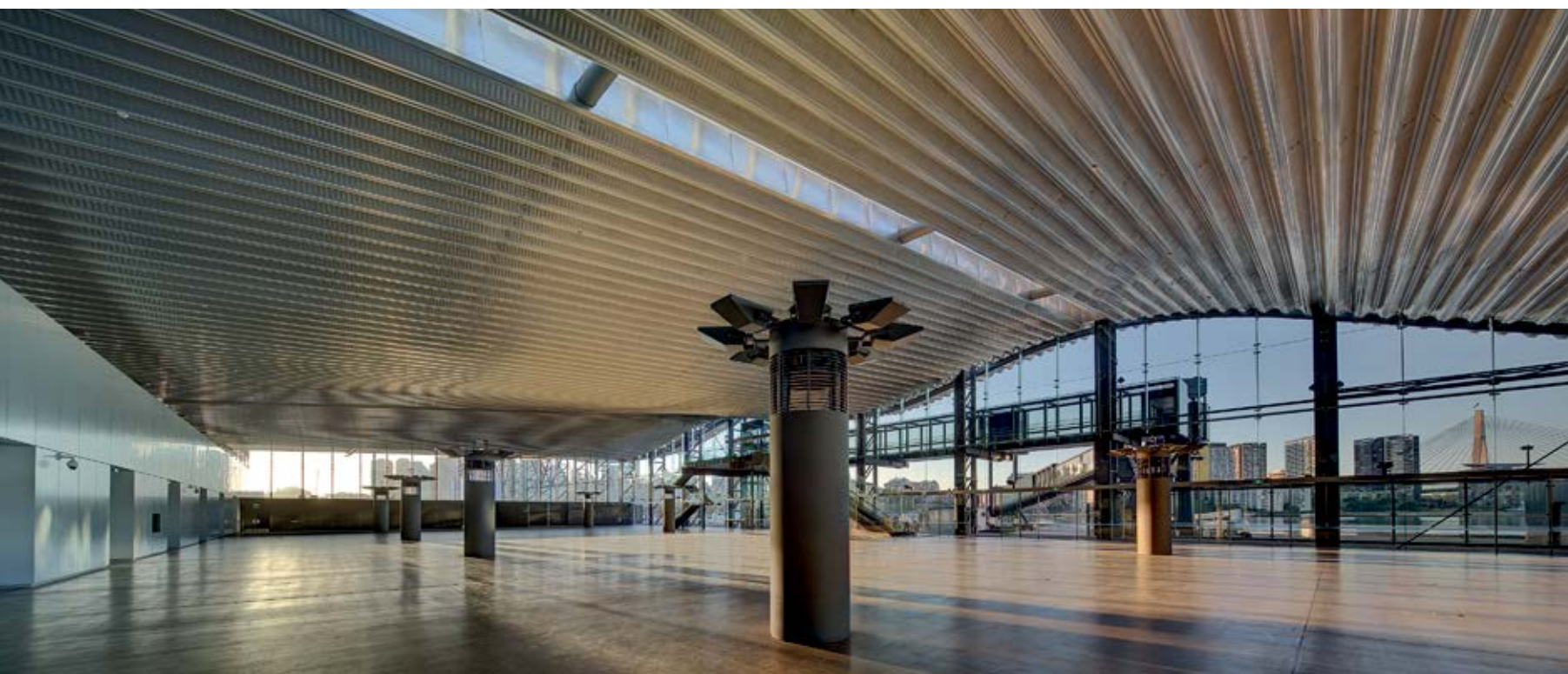
ABOVE: The building's height and size was dictated by the existing natural and man-made environment, and the dimensions of the cruise liners that use it

CROSS SECTION

1. Existing structure
2. New roof
3. Existing heritage cliff
4. Gangways
5. Deep water berth
6. Cruise ship
7. Heritage streetscape
8. Existing caisson & industrial wharf
9. Line of pre-existing headland



CROSS SECTION



3D MODEL

TOP: From the main entrance, the new roof – slung between the existing gantry crane using curved tubular steel trusses and purlins made from BlueScope steel – is clearly legible

ABOVE: Although the roof appears to billow in a random and asymmetric wave, it plays several functional roles in relation to thermal and acoustic performance, and fire engineering

“It’s interesting to not have to support a roof on columns, but to have a gantry structure that you can drape a roof from”

“When we put forward our proposition to keep the existing structure, we talked to a structural engineer about the gantry’s structural adequacy, and also to a corrosion expert about the ability of existing steel to be reused,” van Ratingen explains.

“Surprisingly for its maritime location, the existing steel was in very good condition. Of great benefit to our concept was the fact that it could be left in its weathered state and had stable life in it for the next 25 years, with very little corrosion rectification needed.”

Having determined that the gantry could be repurposed, van Ratingen envisaged only one material for his new overlay. “From a conceptual point of view, the context required steel: it’s a steel building that we started with, and it’s a tough and very harsh marine environment,” Van Ratingen says. “Its suitability is evidenced by the original structure that – now nearly 50 years old – is still in good condition.

“Also, for the spans, the most efficient material to work with is steel, and because of its lyrical form, steel was an obvious choice to achieve the spline curves by rolling the major purlin elements.”

Working with structural engineers, the architects explored several options before settling on a roof structure of curved tubular steel trusses and purlins made from BlueScope steel. These span the gantry columns, with the roof sheeting suspended below them.

“We looked at trusses that were enclosed between the upper roof and the soffit, and we looked at a number of other systems, but the one we came up with was the most direct, effortless and simple from fabrication, construction, erection, sequencing and transport points-of-view,” he says.

“It really was very straightforward. It allowed some tolerance. This is all hefty steelwork – the 460mm diameter sections are all curved separately – but it all came together effortlessly from the builders’ point of view. The logic of the steel structure made everything fall into place.”

For van Ratingen it was essential that the ongoing story of these new additions could be easily read. “We were adding contemporary elements to an ageing structure and a very important part of that conceptual idea was that the two parts were legible:

an overlay of new-on-old,” he says. “We retained as much of the original gantry as made sense visually, right up to the top rail. We removed the things added later over the years: the cladding to the sides, and the roof elements.

“All of our new detailing is direct. The steel is bolted directly to the original structure and it’s articulated differently – freshly painted steel on weathered steel – so the new elements could be removed in future as this structure adapts again in the next generation.”

The simple and elegant roof provides an extremely flexible and large column-free space internally, with all of the building’s inner workings contained in the pod-like structures stacked along the northern edge. These shade the building in summer and reference the shipping containers that previously populated the site.

The building owes its success to the extensive collaboration between architects and engineers, which brought the vision to life, van Ratingen says. The ARAMAX® profile roof made from aluminium may appear to billow and lift in a random, asymmetric wave, but it plays several functional roles, including thermally, acoustically and from a fire engineering perspective. “The challenges are immense in this building, particularly from a services and function point-of-view,” van Ratingen says. “There was a real challenge to make it appear so simple and legible.

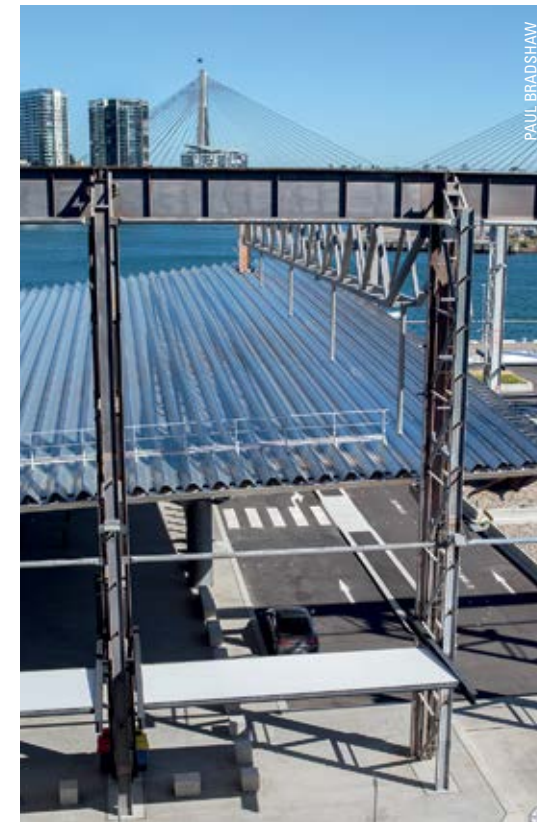
“The architects and structural engineers both worked on 3D computer models, and those models spoke to each other: it was quite an organic process whereby if we made adjustments to the form, they immediately could drag them in to adjust their structural calculations,” he explains. “The engineers worked hard to make this structure very thin, very efficient and beautiful.”

With the building now complete, the process of adapting an important part of Sydney’s working port for its next life has been immensely satisfying, van Ratingen says. In its current iteration, it could serve as a cruise terminal and public venue for 25 years or more, but he hopes there is life in it beyond that.

“My hope is that they keep some elements as it evolves again as part of Sydney’s history,” he says. “It makes sense of this bizarre site that was once part of our port.”

In the meantime, he’s delighted that – in spite of its vast dimensions and semi-industrial location – the terminal is an enveloping and hospitable place. “The challenge was always to make this a warm and welcoming space for international and domestic visitors, as their arrival point into Sydney,” van Ratingen says. “We are really thrilled with how beautiful it is at any time of the day or night. That’s a combination of the views outside and the folding roof that at the same time gives intimacy and drama.” **SP**

A video of this project is available at steel.com.au/showcase



PAUL BRADSHAW

ABOVE: All of the new steel framework is bolted directly onto the existing structure, and freshly painted to contrast with the weathered gantry – clearly differentiating the building’s historical and contemporary incarnations

PANEL SAYS

This is a stunning example of an inside-out shed, where the new roof curves up to allow views of Sydney’s two great bridges and the broader city skyline. The re-use of the existing steel skeleton, left behind from an industrial gantry crane, becomes a clever architectural device to frame the new spaces within. We particularly admire the fact that the rigidity of the existing trusses has not been transposed onto the new roof, which has a lovely ‘draped’ quality that makes it clearly legible against the heritage materials. This project demonstrates the aesthetic clarity that can be achieved by the direct and detailed use of steel product.

PROJECT White Bay Cruise Terminal **CLIENT** Sydney Ports **ARCHITECT** Johnson Pilton Walker **PROJECT TEAM** Paul van Ratingen – project director, Graeme Dix – project director, Brendan Murray – project architect, Mathew Howard, Gareth Jenkins, Zoe Jenkins, Supinder Matharu, Natalie Minasian, James Polyhron, Chris Su, Daniel Upton **STRUCTURAL & CIVIL ENGINEER** Taylor Thomson Whitting **BUILDER** AWW Edwards **STEEL FABRICATORS** DME Engineering Services, Cullen Steel Fabrications **SHOP DRAWING CONTRACTOR** Detailed Design Drafting **CLADDING CONTRACTOR** Townsend Group **LANDSCAPE ARCHITECTS** Johnson Pilton Walker Architects **LANDSCAPE PROJECT TEAM** Andrew Christie, Adam Robilliard **PRINCIPAL STEEL COMPONENTS** ARAMAX® profile aluminium roof; BlueScope steel plate used throughout, including to fabricate the long-span, curved roof purlins; LYSAGHT purlins and girts **PROJECT TIMEFRAME** 12 month **CONSTRUCTION PERIOD** 2012-2013 **AWARDS** World Architecture Festival Awards 2013: Transport winner: Sydney Cruise Terminal, Australia **BUILDING SIZE** 4600m² internally and 5000m² external works **TOTAL PROJECT COST** Approximately \$28m

For someone who uses helicopters for high-altitude construction, Kathrin Aste is incongruously nonchalant. *Steel Profile* met the impressive Austrian architect her during her recent Sydney visit. Words **Naomi Stead**
Photography **Paul Bradshaw** (portrait)

KATHRIN ASTE

Kathrin Aste is absolutely poised and calm as she stands in front of more than 1000 people, presenting the work of her practice, Laac Architekten, founded in 2009 by 43-year old architect and partner Frank Ludin. She's jet lagged and presenting in English – a language she professes to be uncomfortable with, despite speaking it fluently – so her self-possession is remarkable. But the work is even more astonishing.

The occasion is *Material*, the 2013 conference of the Australian Institute of Architects, held in Melbourne. Aste is composed, but still warm and funny – joking that while this is her first visit to Australia, it is so often confused with Austria that it all seems quite familiar. Describing a popular souvenir from home – a yellow road sign with silhouetted kangaroo and the tagline 'No Kangaroos in Austria!' – she is evidently excited to be here.

Opening the second day of the conference, Aste holds the assembled members of the Australian architectural community captivated with a video showing the daredevil, high-altitude, entirely helicopter-dependent construction of the Top of Tyrol project. This is a spectacular steel structure on a ridge of the Great Isidor mountain chain, near the border between Austria and Italy. An observation platform for "activating summer tourism", it also provides the melancholy opportunity to watch the slow, global-warming-driven melting of the Stubai glacier. At more than 3000 metres above sea level, with a panoramic view of the surrounding Tyrolean Alps, the platform "invites the visitor to take a rest and to enjoy the peace and beauty of the mountains", she says.

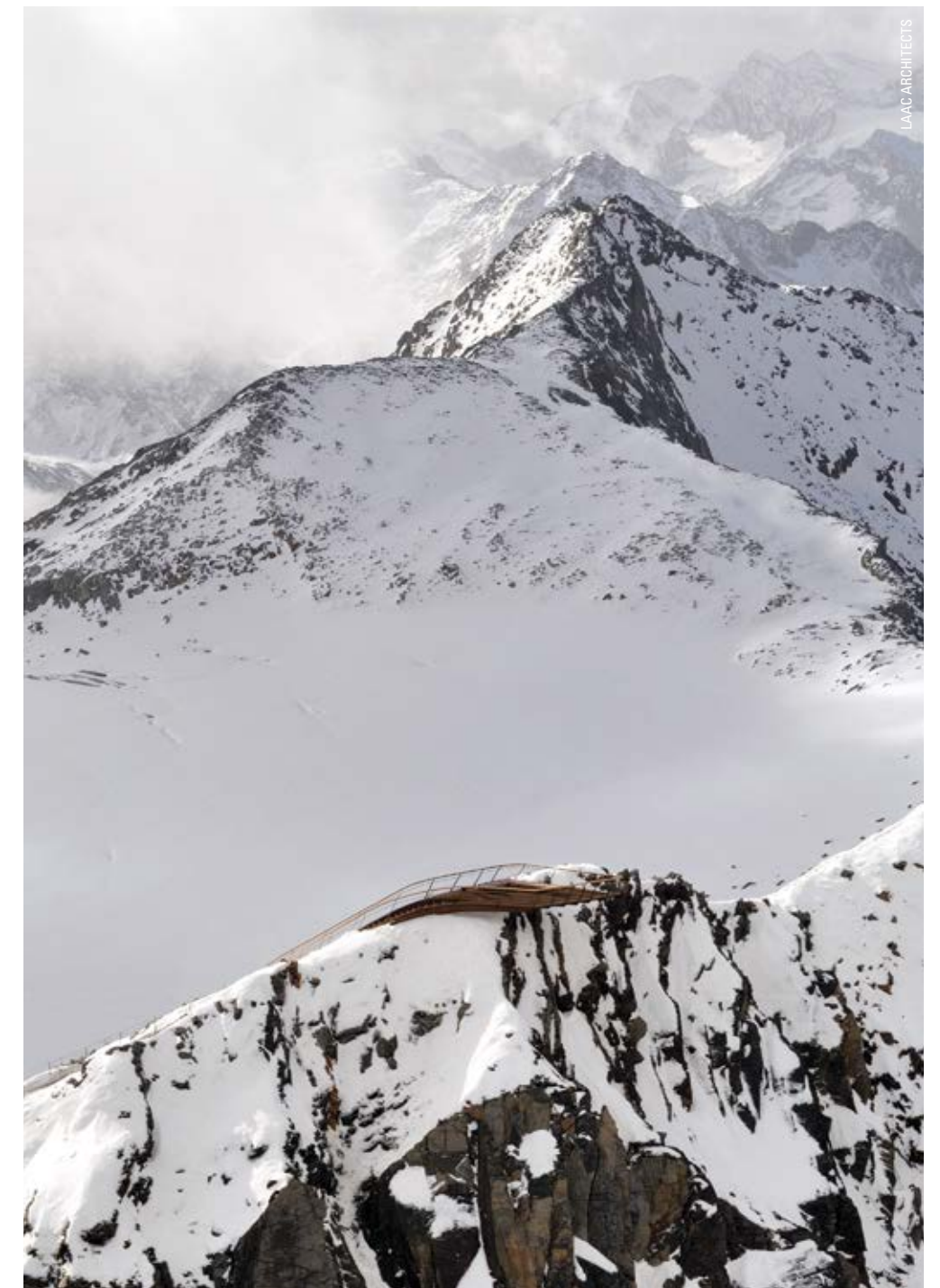
The construction video is breathtaking – high up in the rocky snow, a small team of heavily dressed, harnessed and helmeted construction workers catch hold of a series of curved steel plates as they are lowered by helicopter. Again and again the helicopter returns, each time a slim, shaped steel member swinging below. In all the tumult and wind of the hovering aircraft, perched precariously on the steep icy slope, the workers place and bolt each member delicately into position. To the audience – largely unschooled in high altitude construction – the whole project seems astonishing: the site, the brief, the material and construction constraints.

After her presentation I catch up with Aste and ask her how they found a contractor with expertise in both high-altitude helicopter manoeuvres and pre-fabricated construction. She is nonchalant, explaining that if you live near the Alps you're used to building like this, adding that this project was relatively easy because it fell below the permafrost level of 3500 metres, where the ground is almost impossibly hard to build on.

She concedes that the fabrication had to be absolutely precise, and that the drawings had to fit the design exactly to the topography, but Aste comments that the most difficult constraint was weight. The maximum allowable weight of each member was 750 kilograms "which is not very much!" due to the load capacity of the helicopter – the only means of bringing materials to site.

Steel was the only possible choice for the extreme environment and construction conditions – the only material light and strong enough for the job, she says. ➤

The alpine work in particular faces fluctuations of heat and cold so dramatic they would cause fracture and failure in almost any other material



RIGHT: The Top of Tyrol Mountain Peak Platform was designed to boost summer tourism and is accessed by visitors who ascend via cable car



ABOVE: The platform overlooking the Great Isidor mountain chain near the Austrian-Italian border is made almost entirely of steel, including steel mesh, stainless steel structure and weathering steel sculptural elements

BELOW: The steel lamellas that form the structure are flat with no profile: their strength comes from the unique curve along the length of each, and its place within an irregular structural grid

LAAC ARCHITECTS

“Any other material would be ruined in one year,” Aste adds. The Top of Tyrol platform is thus made almost entirely of steel – steel mesh, a stainless steel structure and weathering steel sculptural elements, with timber for the bench seating.

The steel lamellas that form the structure are flat, with no profile, and their strength comes from the unique curve along the length of each, and its place within an irregular structural grid. Steel mesh was essential for grip on the platform, which would sometimes be accessible in winter, on days when the weather and depth of snow cover might allow intrepid hikers in. The poetic idea of the platform as “a kind of drawing in the snow” was realised only by using the toughest materials imaginable.

The design concept for the platform was derived from the landscape – it takes the existing topographic conditions and amplifies them to create an “artificial landscape” integrated within the natural environment. Aste describes the intent as “the design of a situation in space, rather than a building”. The sculptural weathering steel is the same colour as the iron-rich rock around it, and so it accentuates the relationship between the new platform and its surrounding topography and environment.

Aste says that resilience is one of the qualities she most admires about steel, resilience being the essential quality that enables both structural applications and facade treatments, and secondary structures. The alpine work in particular faces fluctuations of heat and cold so dramatic they would cause fracture and failure in almost any other material. Steel is highly resistant to such conditions, and Aste says it has “already proven itself in the mountainous regions, especially when used in shelters and traffic routes”.

“Steel is extremely powerful even with small cross sections, and if you use it properly you don’t even have to treat it,” she explains.

Surprisingly, alpine projects such as Top of Tyrol and a body of speculative design research work on alpine powerplants is not the work that Laac is most known for. The practice has four distinct themes that describe the kinds of projects it takes on, and the conceptual approach used for each. These include ‘new environments’, ‘build in velocity’, ‘active landscape’, and ‘sustainable design for alpine infrastructure’, representing a remarkably orderly approach for a practice which is still relatively young. The Top of Tyrol project falls under the ‘active landscapes’ theme. But it is under the rubric of ‘new environments’ that Laac’s most high profile project was conceived.

The Landhausplatz, also known as the Eduard Wallnöfer Platz, was a competition in Laac’s home city of Innsbruck, and Aste still seems surprised they won the project, especially given the nature of their radical competition entry. The Landhausplatz was the largest square in Innsbruck, at 900m², but had fallen into neglect. Dominated by an oppressive government building left over from the Nazi period, it also accommodated four monuments in a proximity and relationship that was politically uneasy. These included a Freedom memorial which, because of its style, was widely mistaken for a remnant fascist monument, and a menorah commemorating the Jewish people murdered during *Das Novemberpogrom* of 1938.

Part of Laac’s concept was to negotiate the contradictions between these objects by re-contextualising them, literally re-setting them and thus transforming the way they were interpreted, used and understood. This was

achieved partly through form: a reframing of the four monuments in a “landscape-like counterpark” defined by a new “concrete floor sculpture”. The design also rejuvenated public use, making “pedestrians and users the protagonists on a new urban stage”, Aste explains. Now complete, the square has become a harmonious pleasure park where skateboarders co-exist with urban dwellers enjoying the sun, and children play in new fountains.

The Landhausplatz is a fitting expression of the ideas that Aste describes when I ask her about her motivations for studying architecture. She showed interest in the field in secondary school, believing it offered a “landscape of possibilities”.

She says that: “For me, architecture represents the stage where life takes place. To develop visions and concepts for this stage, for both private and public life, to give it a shape and thereby shape the image of our environment, our cities”; this was a job she couldn’t resist.

Prospects are looking good for Laac: Aste teaches and undertakes design research alongside practice, and the firm continues to enjoy success in design competitions. Projects currently underway include a multi-functional commercial and residential building, and an exhibition building for a nature park. Working between these two extremes – the urban and the landscape – is well suited to Laac’s interests. Aste says she hopes to design a project by the sea one day, working with a coastal topography and the material constraints of salt and sand, using conventional materials in unconventional ways. “We are just at the beginning of our career,” she says. “Fortunately, we were able to realise a couple of projects that changed something. Maybe someday we’ll build in Australia, that would be another big step in our career.” **SP**

The poetic idea of the platform as “a kind of drawing in the snow” was realised only by using the toughest materials imaginable



LAAC ARCHITECTS



GÜNTER RICHARD WETT



GÜNTER RICHARD WETT

LEFT AND ABOVE: After the Landhausplatz in Aste’s home city had fallen into neglect, Laac Architekten won a competition to re-design the square by re-contextualising four significant monuments within it. It now acts as a welcoming urban space where skateboarders co-exist with people enjoying the sun, and children play in new fountains

With a deferential nod to the '50s elevated beach house and a mischievous wink to childhood camping adventures, this playful holiday home invites fun at every corner.

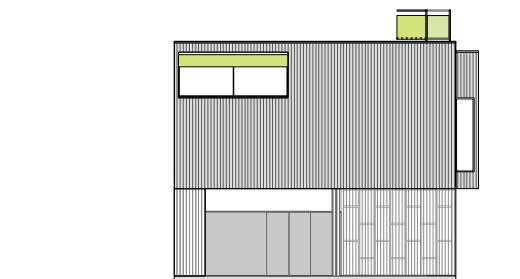
Words **Micky Pinkerton** Photography **Brett Boardman; Paul Bradshaw**

BAREFACED BEAUTY

ARCHITECT
Neeson Murcutt Architects

PROJECT
Undercroft House

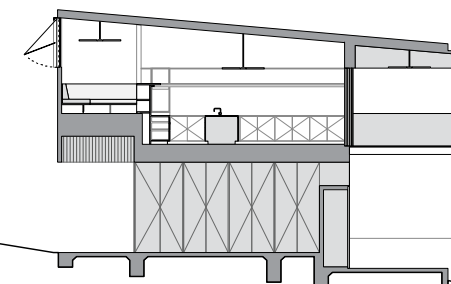
LOCATION
MacMasters Beach, New South Wales



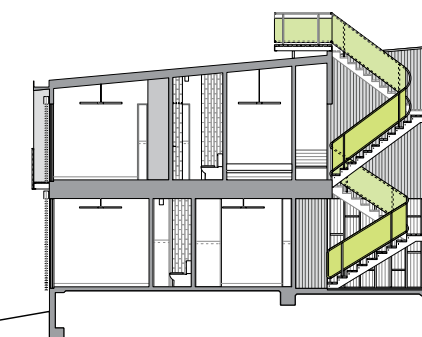
SOUTH WEST ELEVATION



NORTH EAST ELEVATION



SECTION A



SECTION B

0 1 2 3

OPPOSITE, TOP LEFT: Facing the street, the south-facing undercroft blurs the boundaries of the site and shows off the fine detailing of the LYSAGHT SPANDEK® profile made from ZINCALUME® steel

OPPOSITE MIDDLE ROW, LEFT AND RIGHT: The concrete slab and open bath house at the rear of the site were specifically designed with camping friends in mind. The north-facing undercroft provides a protected space to retreat to

OPPOSITE BOTTOM, LEFT AND RIGHT: The overflow space and open stairs accentuate the holiday atmosphere and connection to the outdoors. A special T-shaped folded trim provides the termination detail between walls and ceilings hiding the cut edge

MacMasters Beach is a small, mostly unpretentious place. While time hasn't quite stood still, there's a healthy historical spread of more modest holiday homes among the new multi-million dollar builds.

It was a mid-century example that caught the architects' attention when visiting the site: the '50s beach house, a rectangle perched on stilts to capture the ocean view. Elevation also created a large space underneath for storing the tinny, fishing rods, bikes and surfboards. It was an overflow space for which parents were grateful when the heavens opened and the boredom of children loomed. This concept of the ancillary place, a backdrop to the more prosaic aspects of the holiday experience, was the starting point for this project.

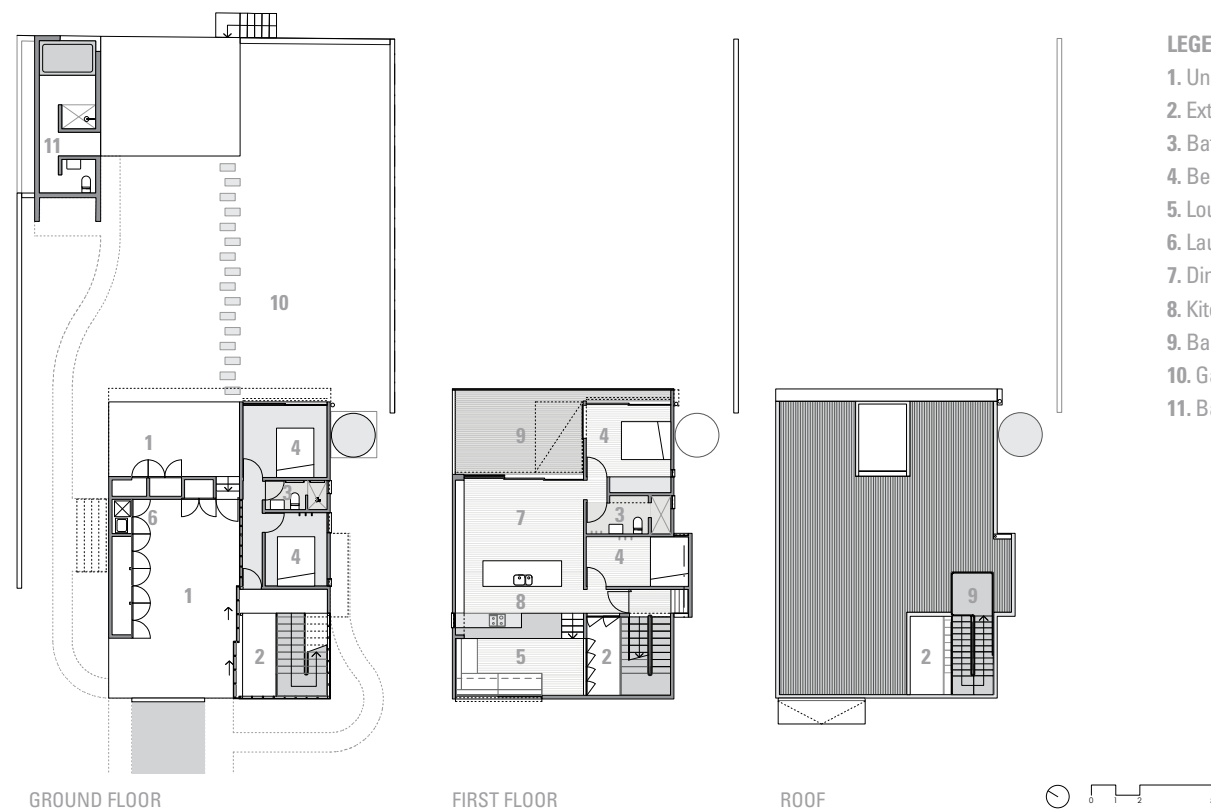
The clients, a couple from Sydney with four grown children who bought at MacMasters Beach 17 years ago, embraced the undercroft idea wholeheartedly. Drawn to Neeson Murcutt Architects by Murcutt's Box House (2002) and its elemental approach to off-duty living, they were after a building that was completely different to their city home – something that was only a few steps removed from camping and which re-created a tent-like, breezy feel. The notion of the undercroft forming an integral part of the living area equally appealed to their unassuming sensibilities.

However, whereas the Box House was entirely constructed with timber, this project fronts onto Bouddi National Park and bushfire constraints called for a different material selection. Steel was used structurally to achieve the cantilevers that were necessary to accentuate the undercroft, and the building is wrapped in LYSAGHT SPANDEK® profile made from ZINCALUME® steel.

For architect Rachel Neeson the material has significant aesthetic potential beyond its structural and bushfire-compliant properties. "It wouldn't have its character without the steel cladding. It was very important that it was ZINCALUME® because of the way that ZINCALUME® subtly weathers and develops a patina," she says. "And as the building is elevated off the ground there's the potential to really bounce light around and steel products just work so beautifully for that."

Apart from a small amount of polycarbonate at the entrance of the building, the house is almost entirely clad in steel. Even the soffit of the undercroft is LYSAGHT SPANDEK® profile made from ZINCALUME® steel, which emphasises it as an unfussy, outside space. This idea is echoed internally with the same profile found in the metal ceilings made from COLORBOND® steel in the colour Thredbo White®. This unorthodox use of LYSAGHT SPANDEK® required clever detailing at the ceiling-wall junction, Neeson explains.

"The COLORBOND® steel ceiling sheets are finished against internal walls with a 'T'-shaped folded trim, which is fabricated from LYSAGHT® flat sheet in matching Thredbo White®. The trim provides a simple termination detail regardless of the ceiling sheet orientation, hiding the cut edge. This gave us flexibility in the set-out and allowed the plasterboard a direct butt joint which simplified the interaction of trades."



Neeson is particularly happy with how the SPANDEK® sheeting provides a beautiful reflected light which helps transform the more conventional white plasterboard walls and timber floors.

The organisation of spaces is focused on the kitchen-dining area and the large deck overlooking the bush and beach. The clients were not after a large building, knowing from experience that leisure time at MacMasters is largely spent outside. They left the real estate commandment of maximising area-for-dollars back in the city and told Neeson Murcutt that they wanted their beach home to relate to the site and capture a feeling of fun. As a result the four bedrooms are small – with enough space for a bed and a bag – but plenty of other details delight the eye and invite adventure.

The external staircase made from tubular steel is a sight not easily forgotten with its lime green canvas skirt. While canvas – with its evocations of sailing and deck chairs – was a deliberate material choice, the vibrant colour selection was a happy accident. On the various sketches and drawings of the project the canvas had always been highlighted in green to delineate it from the steel cladding, and when the time came for the clients to choose a colour they couldn't imagine it as anything else.

The stair winds up to a small turret where the owners can check the surf in the morning, whale watch in the afternoon or have a quiet evening drink. The temptation to make this roof landing bigger has been resisted, resulting in a special niche to retreat to when the house is full over summer.

“And as the building is elevated off the ground there's the potential to really bounce light around and steel products just work so beautifully for that”

A more central escape space is found in a raised nook behind the kitchen which features a built-in banquette, and it's while sitting here that the subtle architectural touches of this project become apparent. Although surrounded by houses on three sides, the house and its slender windows have been beautifully positioned to edit-out the neighbours. All you can see are trees. Cut-outs in the roof allow the owners to see the stars at night from their bed, and permit additional sun to enter during the day to enhance the play of light on the ceiling.

Moving down the stairs through to the undercroft, the clever yet understated details continue. Internal doors are full height and without a headframe so the ceiling sheets could carry through. The external

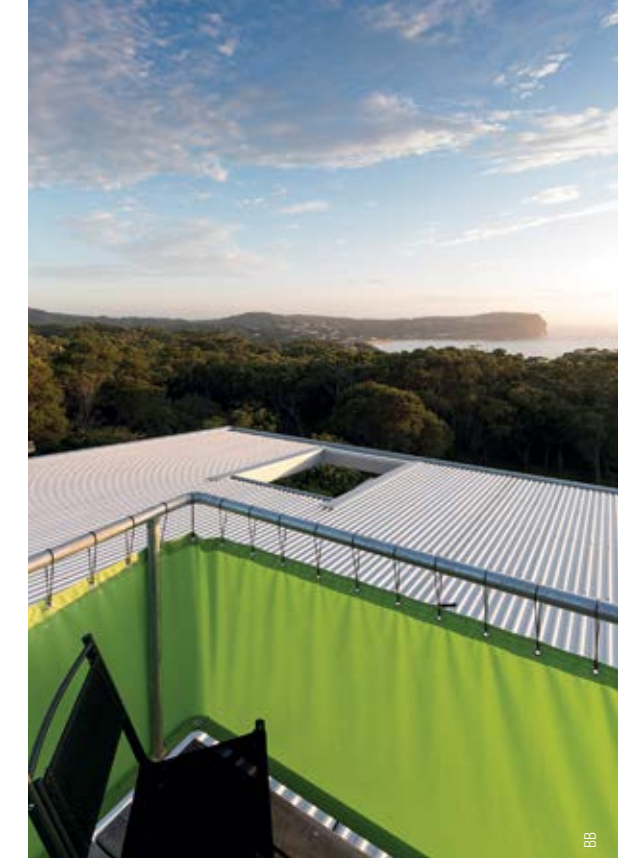
door between the carport and hallway has a head frame for bushfire protection, however this works in the design's favour – allowing it to mediate the transition from ZINCALUME® steel soffit to profiled white ceiling. The alignment of sheet ribs is matched throughout. Structurally, the cantilever allows the northern corner of the building to open it out as much as possible without revealing all of suburbia.

A wedge of native plantings separates the house from a concrete slab at the rear of the block, where visiting friends can pitch tents. Attached to this is an open bath house with a huge concrete bath – it's more like a small pool – which has been finished just enough to be comfortable while still retaining the uncomplicated character of the overall project.

The clients love how they are able to be as “outside as possible” in the house and Neeson, when pushed to consider her favourite aspect of the project, agrees. “Even though it's a very defined object, it does, somehow, altogether reach out to the corners of the site. Somehow you need the whole of it, including the bush.”

From the tower to the al fresco bath, this place is going to be the coolest holiday house for the clients' grandchildren. Perhaps the greatest gift the Undercroft House has to offer those 21st century children (when they arrive) is a taste of the past: a carefree, barefoot existence and the incentive to explore – to ditch the iPad for a game of ping pong before breakfast, scampering around in the bush and having leaf boat races in the bath before falling physically exhausted to bed, and still wearing swimmers... **SP**

PROJECT Undercroft House **ARCHITECT** Neeson Murcutt Architects **PROJECT TEAM** Rachel Neeson, Nicholas Murcutt, David Coleborne and Amelia Holliday **STRUCTURAL ENGINEER** SDA Structures **HYDRAULIC ENGINEER** O'Hearn Consulting **BUILDER AND SHOP DRAWING CONTRACTOR** Gecko Homes **STEEL FABRICATORS** King Steel, West Gosford **LANDSCAPE ARCHITECTS** Client **PRINCIPAL STEEL COMPONENTS** Roof, walls, soffits: LYSAGHT SPANDEK® profile made from ZINCALUME® steel and LYSAGHT flat sheet made from ZINCALUME® steel. Internal ceilings: LYSAGHT SPANDEK® profile made from COLORBOND® steel in the colour Thredbo White®. Flashings, trims, box gutter and rainwater head made from LYSAGHT® steel **PROJECT TIMEFRAME** May 2008 – December 2012 **AWARDS** House Magazine Awards 2013 High Commendation – New House 200sqm and under **BUILDING SIZE** 140m² + 60m² covered undercroft



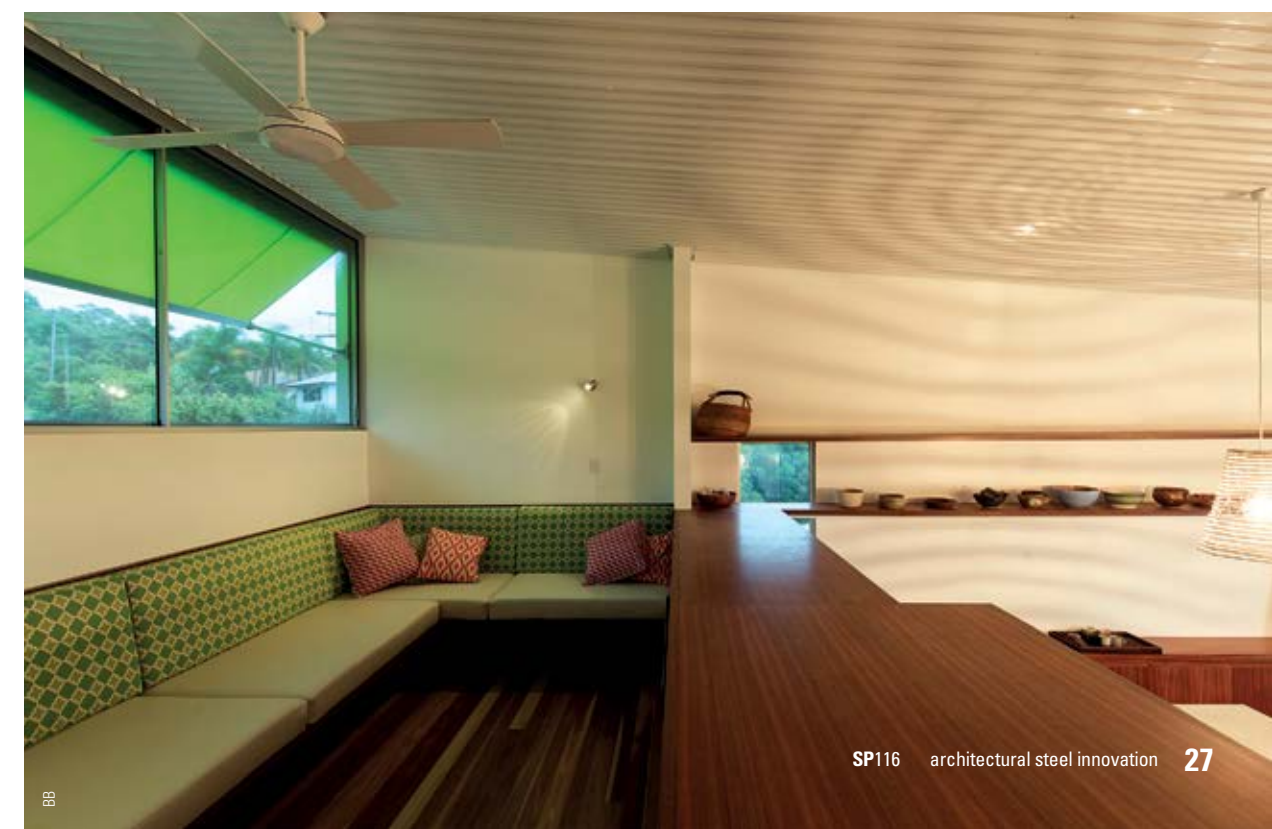
PANEL SAYS

Like all the projects we've seen by Neeson Murcutt, this is a fine, thoughtfully detailed building that demonstrates its prowess at architectural resolution. The smallest details are all carefully considered, and nothing is left to chance. Combined with the undercroft – a deliberately ambiguous indoor/outdoor room – the use of ZINCALUME® and COLORBOND® steel (for the roof, wall cladding and ceiling lining) blurs the boundaries between inside and out. The plan enhances that sense of permeability, with its focussed vistas and an impressive range of spatial qualities – dark or heavily shaded contrasted with dappled light and full sun. The connection to beach and surf is always present thanks to the open stairs and rooftop lookout, so that occupants can enjoy an elemental holiday experience.

TOP LEFT, MIDDLE AND RIGHT: The external staircase, made from tubular steel and finished with a canvas skirt, winds its way up the building to a small viewing area looking across the roof made from ZINCALUME® steel to the beach and headland beyond

ABOVE: Cut-outs in the roof allow additional sun in during the day.

RIGHT: The LYSAGHT SPANDEK® profile creates a beautiful play of reflected light on the ceilings throughout the building



POISED PERFORMANCE

We all know you have to be something of a narcissist to be an actor, and there is no shortage of buildings that want to be centre-stage as well. The Canberra College Performing Arts Centre, however, is more a presence than a performance.

Words **Paul McGillick** Photography **John Gollings**



ARCHITECT
BVN Donovan Hill
PROJECT
Canberra College Performing Arts Centre
LOCATION
Canberra, Australian Capital Territory

These days there is a lot of talk about how the interior architecture of a building can help change the culture of the organisation within. But what about the external form of a building? Yes, it can certainly make a statement about the people who live and work in it, but can it also change the culture?

Schools are a fascinating case in point, especially as their buildings tend to be relentlessly functional. This is particularly true of government schools where the budget bottom-line invariably takes precedence over subtleties such as a sense of community, healthy interaction and identity-building.

You catch a glimpse of the new Performing Arts Centre when driving along Launceston Street in the Canberra suburb of Woden, but it only fully reveals itself after you enter the campus proper. In other words, you first have to go through the original 1970s buildings of this vocationally-oriented senior high school – and these buildings are, to put it mildly, uncompromisingly functional and of their time.

The architects, however, saw this as an opportunity to go beyond the immediate function of the new building and explore how it could contribute to the school at an urban level and help generate a new culture. Or, perhaps, simply facilitate a more confident expression of a culture that was already there.

The brief called for an integrated complex which contained dance, drama and music studios, and a fully equipped theatre which could also be rented out. The theatre was to seat 175 people in a raked auditorium, have a deep, sprung stage, generous wings for large casts, cyclorama, lighting bridges and a bio box. All three studios (including a recording studio) were to be acoustically isolated from one another to enable classes to be conducted concurrently. There was also to be front-of-house amenity, including a box office.

The school already had a strong reputation for its performing arts program, and the aim was to enhance this by replacing an inadequate facility

in an existing building with a sophisticated new amenity. A secondary objective was to make the new complex a model for similar ones elsewhere as the ACT government rolls out performing arts centres in other schools.

It was decided to design a building which would express the idea of performance, but without making a spectacle of itself. “The building,” says project principal, Matthew Blair, “tries to mediate between the everyday and performance, but doesn’t try to be a performance in itself”.

On the contrary, the aim was to create a sense of calm, and the journey from the street through the campus to the building would represent a transition from the busy, outside world to a point of composure before the performance.

This was an important consideration in the decision not to site the building on the street, but within the campus. In addition, the architects saw an opportunity for the building to contribute to the development of a new urban space, a kind of forecourt, when the existing 1970s buildings were eventually re-developed.

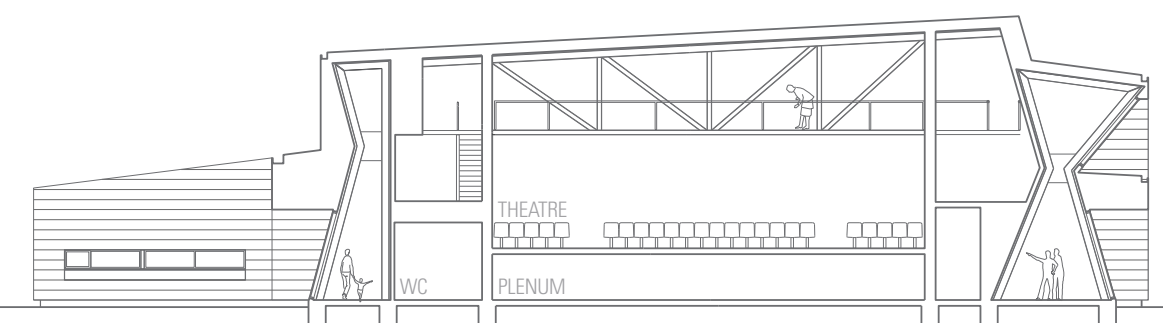
More than that, when the architects had worked out the footprint, the height and the relationship with the other buildings, Blair says they recognised that “some of the forms of the existing buildings weren’t without their potency, in that Canberra kind of way”. The result is a satisfying (if subtle) relationship between old and new, not just in terms of scale and siting, but also in form. ➤

The building tries to mediate between the everyday and performance, but doesn’t try to be a performance in itself

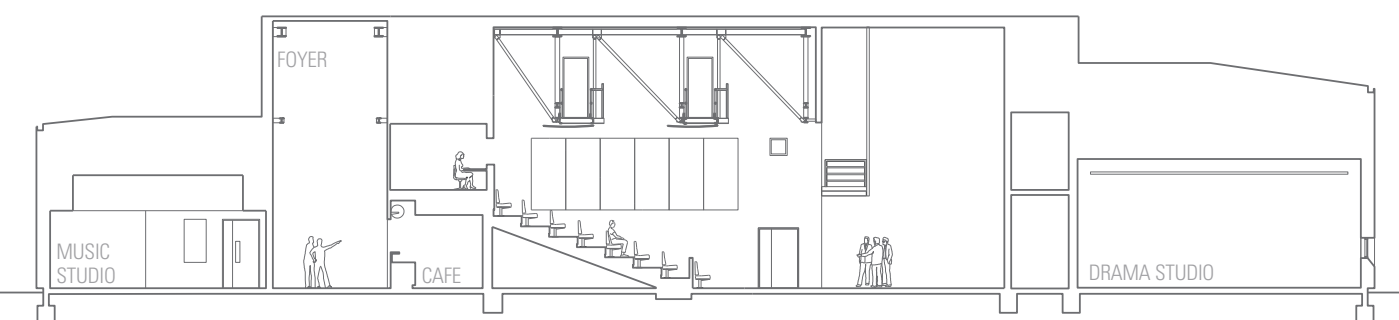


ABOVE: The ribbed cladding gives the building a dynamic, linear quality

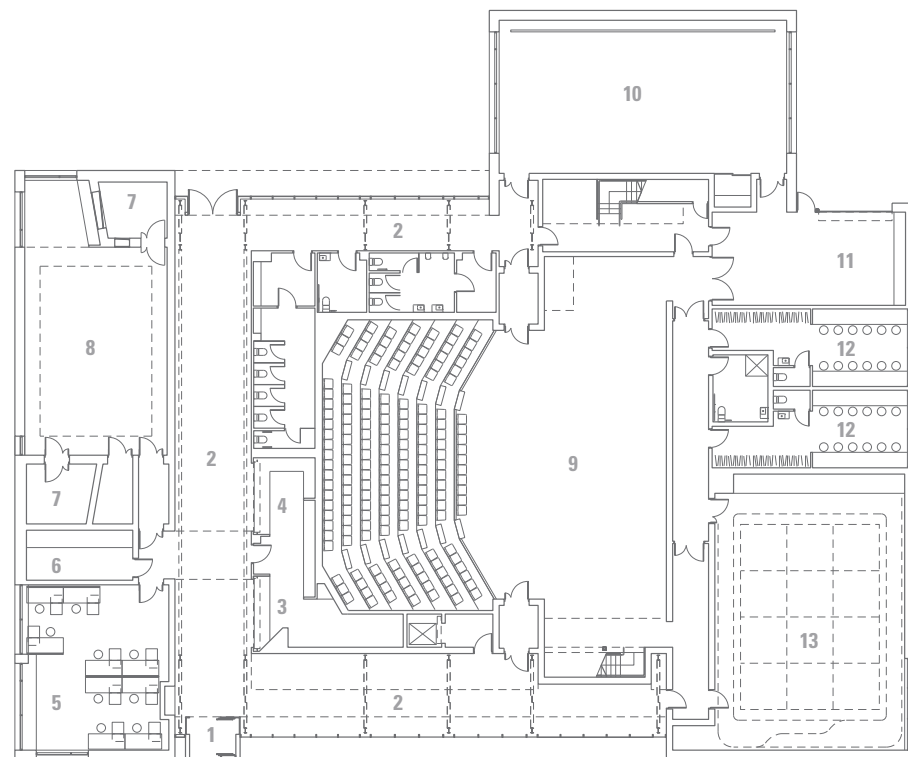
OPPOSITE, LEFT: The monolithic form is animated by the angled glazing on the entry facade



CROSS SECTION



LONG SECTION



LEGEND

1. Entry
2. Foyer
3. Box office
4. Cafe
5. Staff room
6. Plant
7. Practice room
8. Music studio
9. 175 Seat theatre
10. Dance studio
11. Loading/Workshop
12. Change rooms
13. Drama studio



GROUND FLOOR PLAN

PANEL SAYS

This is a striking building from BVN Donovan Hill: modest in its ambitions, yet highly accomplished in its execution. We particularly appreciate the canting upper windows in the main facade, which provide animation that is only enhanced by the presence of people in the foyer spaces around performance times. Externally, the simple form uses structural steel and steel cladding very effectively. While the penetrations may appear simple from the exterior, from inside they open the building up to its location and embed it within the broader school campus. The cross-section emphasises all that we like about it, with its strong and bold vertical and diagonal structural elements simply wrapped in ribbed steel cladding.

In fact, the whole project is marked by two pivotal factors: the creative response to constraints and the astute choice and innovative use of steel products.

In terms of constraints, siting was a challenge. The site sits on top of infill from the 1970s, designed to provide protection from flooding. But this meant the foundation design was complex and expensive, and underground services, existing buildings and significant trees – along with the car park which is deemed ‘valuable’ – restricted where the building could go.

Additionally confronting was a modest budget and the complexity of integrating a professional performance space with teaching and rehearsal areas – while keeping them all functionally separate.

Achieving this was partly a matter of materials, but also of planning. Hence, the plan is a kind of pinwheel with the theatre at the centre wrapped around on three sides by the foyer which both isolates the various studios and provides a clear circulation.

Approaching the theatre, it presents as somewhat monolithic, but incised in the middle by the angled glass wall of the foyer with the reverse-angled highlight windows above. The glazing allows the building to celebrate its structure – black gloss-painted UC and UB steel sections – which dramatically express what Matthew Blair calls the “structural genetics” of the theatre. Robust, dynamic and geometrically exciting, at night the theatre glows like a lantern with its patrons seen milling in the foyer, creating a great sense of anticipation.

The foyer is framed by an envelope of LYSAGHT L'ATTITUDE® 100 profile panels made from COLORBOND® steel in the colour Monument®. This product was chosen for a mix of reasons. Firstly, it provided energy efficiency in the Canberra climate, which is quite extreme in its range. The L'ATTITUDE® panels form an outer skin, behind which is an air gap, insulation and then a blockwork wall.

Although this strategy does not entirely eliminate the need for active climate conditioning in Canberra's summer/winter extremes, it does go a long way towards maintaining a constant temperature throughout the year. It also served the acoustic agenda, as well as providing an intriguing aesthetic.

Matthew Blair says the material has a “calm reflectivity” and at certain times of the year “the overall profile of L'ATTITUDE® gives this almost chrome-like, instantaneous reflection”. Its linearity is elegant while, at 350mm, its thickness gives it the robustness necessary in a school context where footballs tend to fly in all directions.

“All those things conspired, if you like,” says Blair, “to being an obvious solution: it dealt with the environment, was cost-effective, was robust enough, achieved the architectural aims and was, we think, very successful in creating this calm, sophisticated enclosure to the building.”

The roof uses a LYSAGHT KLIP-LOK® profile made from COLORBOND® steel, again in the colour Monument®. It was important for the building to respect the scale of the existing campus and using KLIP-LOK® allowed a low roof pitch without the risk of leaking. “It was quick to install,” says Blair, “and the colour matches the walls, so the building is a contiguous form rather than trying to be too many different things”.

The steel structure and cladding has some very practical benefits – cost effectiveness, speed-of-erection, off-site fabrication and the opportunity to deal with large spaces in an elegant and unobtrusive way. And aesthetically it gives the building a lightweight and dynamic quality which feels just right for its purpose.

Feedback suggests that the building has achieved the architects' aim of going beyond functionality and driving a new culture. “I think it has changed the nature of this college,” says Blair, “from its perception of being the somewhat tired buildings of the '70s to this new, sophisticated building of the future”. **SP**



The steel gives the building a lightweight and dynamic quality which feels just right for its purpose



ABOVE LEFT: The theatre combines intimacy with the space required for large casts



ABOVE RIGHT: The music rehearsal room, with a sound recording booth in the background

PROJECT Canberra College Performing Arts Centre **CLIENT** Education Training Directorate **ARCHITECT** BVN Donovan Hill **PROJECT TEAM** Matthew Blair (project principal), Peter Clarke (project director), Ratko Vatauvuk (project architect), Simone Schade (interior designer), Alex Chaston, Soo Kim, David Flannery, Melanie Dodd **STRUCTURAL AND CIVIL ENGINEER** TTW **BUILDER** Cobul **STRUCTURAL STEEL SUBCONTRACTOR** Baxter Engineering **STRUCTURAL STEEL SHOPDRAWER** Corvedale Design **METAL CLADDING** Lysaght Building Solutions **LANDSCAPE ARCHITECT** Envirolinks **PRINCIPAL STEEL COMPONENTS** Cladding: LYSAGHT L'ATTITUDE® 100 panels made from COLORBOND® steel in the colour Monument®; Roofing: LYSAGHT KLIP-LOK® profile made from COLORBOND® steel in the colour Monument®. Structural steel: various sections – UCs and UBs painted gloss black **MECHANICAL AND ELECTRICAL ENGINEER** Steensen Varming **HYDRAULIC ENGINEER** THCS **QUANTITY SURVEYOR** WT Partnership **LAND SURVEYOR** Land Data Surveys **THEATRE CONSULTANT** Marshall Day Entertech **FIRE ENGINEER** Defire **PROJECT TIME FRAME** October 2009 – August 2012 **AWARDS** 2013 Australian Institute of Architects ACT Award for Public Architecture, 2013 Australian Institute of Architects COLORBOND® Award for Steel Architecture **BUILDING SIZE** 2050m²

With distinctive steel cladding that dances its way along the building's northern and western facades, it appears that 'Aunty' is young once again.

Words **Margie Fraser** Photography **Paul Bradshaw;**

Christopher Frederick Jones

GOOD VIBRATIONS

ARCHITECT
Richard Kirk Architect

PROJECT
ABC Brisbane Accommodation Project

LOCATION
South Brisbane, Queensland



When we meet at the new Australian Broadcasting Commission building in Brisbane's South Bank, architect Richard Kirk is fresh off an overnight flight from Kuala Lumpur. Fresh is probably a misnomer, given the sleep deprivation common to red-eye travel, but winging in from Asia reinforces an important link to Kirk's design of the national broadcaster's premises. The distinctive steel cladding that dances its way along the northern and western facades of the building is part of the language of layered shading that is common parlance in tropical architecture, and which Kirk's practice embraces in projects in Australia, Malaysia and Singapore.

Deeply carved reveals, open atriums, generous overhangs and a series of operable skins salute the simplicity and pragmatism of a design ethos that viscerally responds to the environment. "Our buildings are about the climate," says Kirk.

His firm won the nationally advertised project from a shortlist of eight, he explains, through its recognition of the local context as well as its credentials in designing technologically advanced buildings for the film and television industry. Part of that roll-call includes the Brisbane headquarters for Cutting Edge and its eight subsidiary national studios.

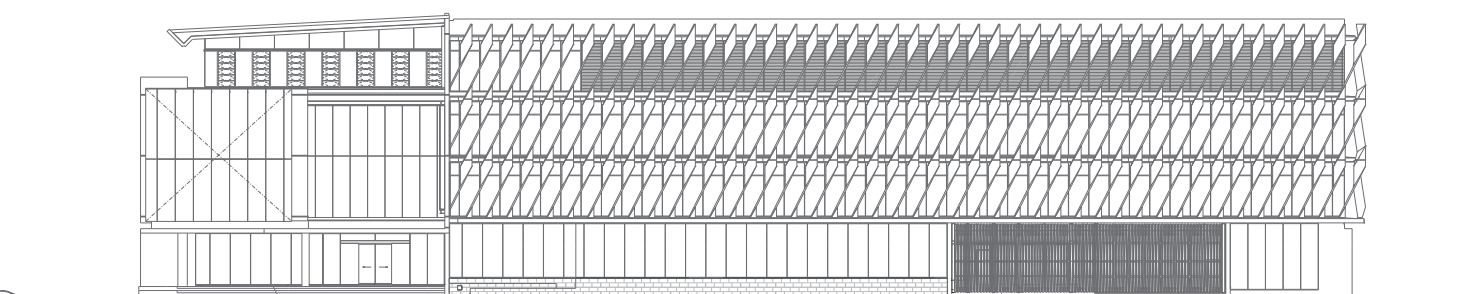
The four-storey ABC building sits on a pivotal corner site at the intersection of the playground that is South Bank and the city's cultural precinct: a cluster of concrete buildings designed by architect Robin Gibson in the 1970s and '80s. To add heft to the cultural quotient, The

Queensland Conservatorium Griffith University nudges against the ABC's southern side, while the Queensland College of Art sits uphill a little further south. A bougainvillea-encrusted arbour that snakes its way along South Bank begins (or ends) at the ABC's front door on the eastern, riverside edge, where a sightseeing ferris wheel leaves no doubts as to the precinct's tourist branding.

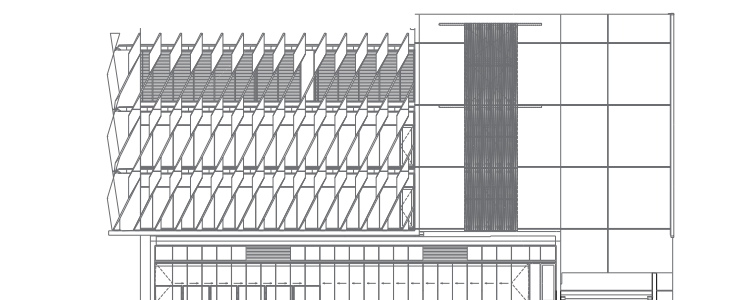
The key siting was established by the former Bligh state government. Between the State's treasure houses of theatres, concert halls, museums, art galleries, university campuses, and the popular, democratic South Bank strip of leisure en plein air, the position underlines the function and mandate of the national broadcaster as a service for the people, belonging to the people. It also physically and symbolically cements its position within the visual and performing arts which form so much of its programming. But while the siting is clearly public, the brief was more "hardnosed commercial and sensitive to public opinion", says Kirk, than the sort of brief an architect might expect of a public building rich with meaning and importance.

"It was important the building appear as affordable and as modest as the budget dictated," explains Kirk. "It is a sedate building that doesn't dominate its surrounds, but rather defers to the Parklands setting. We wanted to let the arbour live."

Part of the act of deference involved taking it to four floors instead of the allowable five, to establish a pleasing scale and conversation with the Gibson QPAC building across the way to the north, and to



NORTH ELEVATION

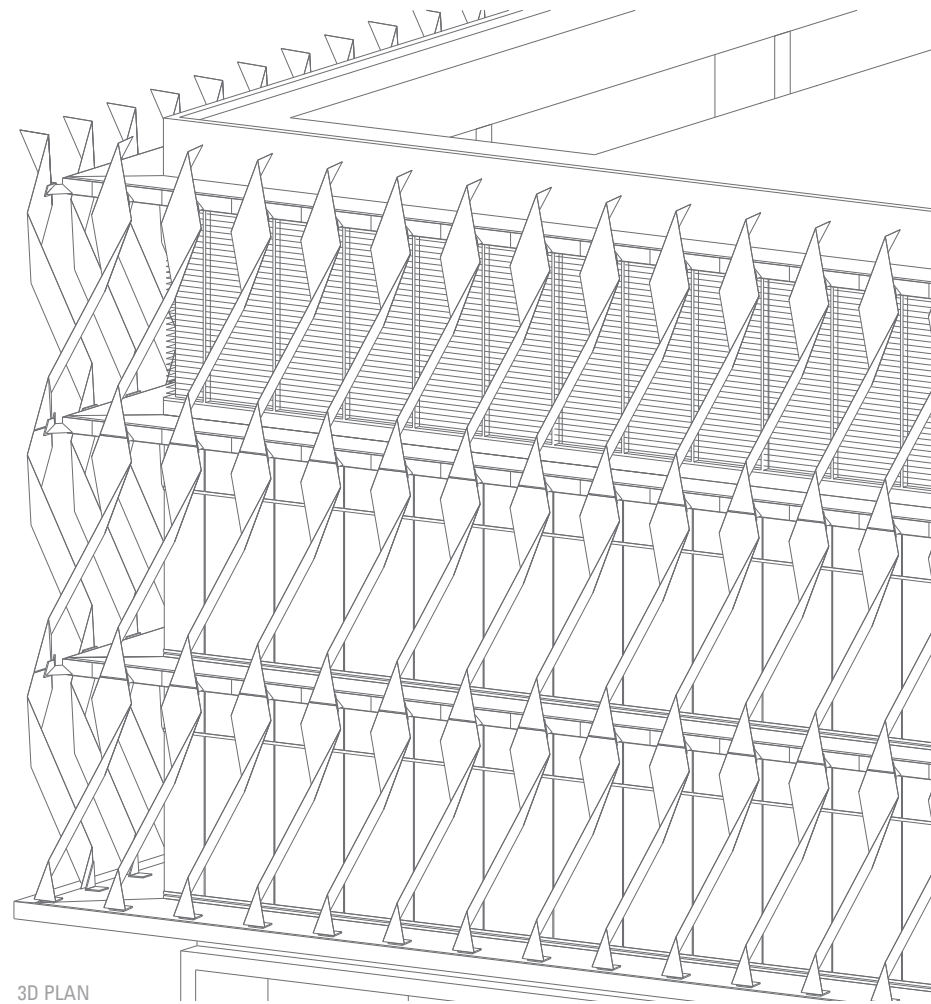


WEST ELEVATION

ABOVE: Broadcasting studios have a prime view of South Bank Parklands from the cantilevered glass boxes

RIGHT: Steel blades ripple across the ABC building's northern and western facades





3D PLAN

A striking pattern of blades made from BlueScope steel plate give the building its strong identity and have inspired its nickname

the triangulated glazing, and continues along the southern elevation. Reminiscent of the roll-down timber blinds of domestic Queenslanders, they adjust to prevent glare on the myriad television and computer screens in use inside.

Along the northern and western elevations – the “second” street address – a striking pattern of blades made from 10mm high-tensile grade 350 BlueScope steel plate give the building its strong identity and have inspired its nickname: the “Alessi cheese grater”. The moniker, true to a characteristic Australian humour that combines sledging with perspicacity, aptly tags their practical application as much as their stylish elegance.

The blades, which recall the bends and tilts of the many surfaces in the building designed to deflect sound, also act practically as sunshades.

In-situ post-tensioned concrete floor slabs project beyond the facade to assist in shading, and provide the bases for attaching the blades.

The “service layer” surrounding most of the building allows for much of the screening attachment, while the concrete slab plays an important role in harnessing the thermal load.

Kirk initially designed the blades in weathering steel, but the clients preferred a thicker profile in the high-tensile grade 350 steel.

Kirk continued his weathering steel experiments elsewhere in the form of the Fitzgibbon Community Centre project (see *Steel Profile* 114), where the blades were painted with an iron oxide paint from Dulux, Micaceous Mio, that is also used on the Sydney Harbour Bridge.

The steel sheets from which the blades are made measure 600mm wide by 4.5 metres long, so zero wastage was achieved in slicing three columns from each of the nine-metre sheets. Like the sheets used at Fitzgibbon, the grade 350 steel is folded through the simple mechanics of being fed through a brake press. Besides the astounding economy, Kirk enjoys the “legibility of the material, and its primal quality. The facade moves as you walk along the street – it is static, but the shadows move.”

Fixings are made from 12, 16 and 20mm plate, requiring much tolerance for the movement of the building. Kirk praises the ingenuity of steel fabricator ACLAD’s shop drawings process which determined the tolerance factor. At Kirk’s practice, the folds were experimented with more manually, by hand-folding paper card. The thinness of the material is crucial, and an origami crispness was achieved in the pattern. “We had to be careful about harmonics too,” says Kirk, “and make sure the blades were rigid enough not to cause vibrations. And another satisfying outcome was that steel was proven to be the most cost-effective material to achieve the desired results.”

The sheer blade of the LYSAGHT TRIMDEK® profile roof responds to the simple elegance of the elevations. Made from COLORBOND® steel in the colour Windspray®, the 0.48mm-thick roof slice folds its way over deeply recessed gardens and verandah spaces on the top level. It is an elegant lid to a discrete building. ➤



PANEL SAYS

Like the Fitzgibbon Community Centre that we featured in *Steel Profile* 114, this project by Richard Kirk Architects boasts a striking facade that demonstrates how steel can be used in truly innovative ways. This inventive use of folded steel plate to form a series of fin-like blades is entirely specific to the material, with the twisting effect offering many functional and aesthetic advantages to the building’s north-eastern and north-western elevations. These include shading the offices within, breaking down the mass of the building at street level, and imparting a beautiful, sculptural quality to the object. It is remarkable that something so unconventional as ‘twisted’ steel plate can produce such a delightful and tactile result.

ABOVE: Blades made from 10mm high-tensile grade 350 BlueScope steel plate deflect sound and double as sunscreens

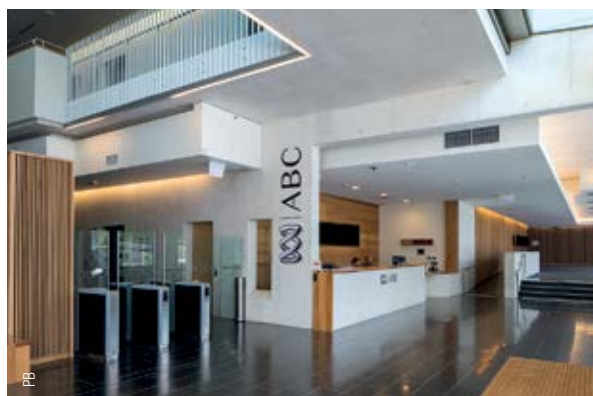
The ABC occupies a pivotal position near the Queensland Performing Arts Complex



retain views from the Convention Centre to the west. The building houses both the ABC and the Queensland Symphony Orchestra (as a tenant). Kirk’s first scheme made it a dual complex, with the two institutions on either side of a wide, permeable, central atrium. The void was conceived as a tribute to, and metaphorical extension of, the watermall promenade in the nearby Queensland Art Gallery – an iconic volume that Kirk admires. When the equal tenancy concept was somewhat modified and further budgetary restraints came into play, the generosity of the void was scaled down. The entry void is now an intriguing intersecting geometry of staircases that allows visitors or passersby to observe activity of the staff within their secure zone. A series of lightwells punctures the roof and floods the space with rays of natural light.

The chiseled-out entry foyer is a pivot between two street addresses. The different treatments of the external facades emphasise the two addresses and functions. “The fabric of the building is conceived in two parts,” says Kirk. “The blades are the urban side, and the transparent glazing faces the Parklands.”

The three tiers of east-facing office space are visible from the Parklands through floor-to-ceiling glass. A cantilevered corner projects beyond the rigid rectangle of the building and houses two levels of broadcasting studios; one for the local radio station 612 4QR and one for RN 792 (Radio National). The prow-like projection makes these spaces a voyeur’s delight, enjoying a transparency uncommon to the genre. A layer of adjustable aluminium blinds that automatically tracks the sun drapes over



The recent history of the ABC accommodation is a chequered one. When a cancer cluster was confirmed in the former studios in Toowong in 2007, the entire 300 staff were shifted to eight different premises around town. Besides the need to heal a wounded workplace culture, the new building was also required to urgently and properly accommodate new digital technology, and address the consequently changed nature of journalism. Previous silo arrangements were no longer functional. Staff efficiencies demanded one workplace and the decision was made to make Brisbane the online hub for Australian operations.

The new floor plan puts the entire production staff within shouting distance of one another for the first time. Work stations occupy the edges and enjoy the outward views, while recording studios and executive offices take up the core. The newsroom

is a reflection of increased automation, occupying a single height-space and significantly reduced floor area than its earlier cousins, with all cameras operated robotically.

The Multi Production Studio (MPS) is a unique facility on the ground floor that is shared with the QSO and is able to morph between a full recital hall and an acoustically 'dead' television studio, according to needs. The 14-metre-high ceiling supports sound treatments that tilt and move up and down, as well as accommodating a 250-strong audience.

The ability to cater to one soloist or to a full orchestra, then adapt to a recording of Q&A is emblematic of this gymnastically responsive building. It appears that Aunty is young once again. **SP**

A video of this project is available at steel.com.au/showcase

TOP: Occupants enjoy a prime view of the Arbour Walk, which winds through the Southbank Parklands and features overlapping 'trees' fabricated from XLERPLATE® steel

ABOVE LEFT-TO-RIGHT: A layer of aluminium operable screens filters light for the interiors and multiple work stations

Entry foyer and reception, with access to the Multi Purpose Studio located rear left

Broadcasting in action, from the glass box visible to passersby



GROUND FLOOR PLAN

TOP LEFT: A stairwell void acts as a highly visible circulation route between floors and activates the entry foyer

LEFT: Light penetrates the floors through floor-to-ceiling glazing

BELOW: The MPS hosts full orchestral recitals and sound-'dead' television recordings



PROJECT ABC Brisbane Accommodation Project **CLIENT** Australian Broadcasting Corporation (ABC) **ARCHITECT** Richard Kirk Architect **PROJECT TEAM** Richard Kirk, Karl Eckermann, Paul Chang, Jonathon Ward, Matthew Mahoney, Sam Clegg, Fedor Medek, Grace Egstorf, Justine Drummond, Glen Millar, Joe Adsett, Tess Martin, Shane Willmet, Tian Li, Richard Nicholls, Brendan Pointon, Wes Kelder **STRUCTURAL & CIVIL ENGINEER** Cardno **ELECTRICAL ENGINEER** Aurecon **FIRE ENGINEER** Aecom **HYDRAULIC & MECHANICAL ENGINEER** WSP Group **ESD CONSULTANT** Cundall **ACOUSTIC AND THEATRE CONSULTANT** Arup **ACCESS CONSULTANT** Access All Ways **BUILDING CERTIFIER** Certis Group **BUILDER** Leighton **STEEL FABRICATOR AND CLADDING CONTRACTOR** ACLAD **SHOP DRAWING CONTRACTOR** Eaton Industrial Imaging **LANDSCAPE ARCHITECTS** Gamble McKinnon Green **PRINCIPAL STEEL COMPONENTS** Folded blades: made from 10mm high-tensile grade 350 BlueScope steel plate; Roofing: LYSAGHT TRIMDEK® profile made from COLORBOND® steel in the colour Windspray®; Custom brackets and connections: made from 12mm, 16mm and 20mm steel plate **PROJECT TIMEFRAME** 2009-2012 **AWARDS** Australian Institute of Architects Brisbane Regional Commendation for Commercial Architecture **BUILDING SIZE** 15,000m² GFA **TOTAL PROJECT COST** \$70 million

BLACK BOOKS

By dressing a commercial building with an elegant interlocking cladding system, CHROFI has achieved a ‘black tie’ appearance that belies the project’s modest budget. Words **Rob Gillam** Photography **Paul Bradshaw**

Sited amongst the burgeoning construction of Sydney’s \$8 billion Green Square Town Centre development, 11 Joynton Avenue – which now serves as the owner’s office and also a commercial showroom for neighbouring developments – was subjected to council height control of two storeys, despite being flanked by multi-residential apartments up to nine storeys high.

Rather than trying to compete in the neighborhood at a vertical scale, CHROFI director Steven Fighera focused on strong horizontal expression to establish the building’s street presence – an ‘if you can’t join them, beat them’ approach.

“We wanted the building to say something, to create a confident address,” Fighera says.

The architect harnessed the site’s angles to create a concept for the building’s form. “The land is a triangular strip and we treated that shape conceptually by making the long side of the building act as a kind of book-end to the street,” he says. This monolithic impression is assisted by wrapping the entire building in cladding made from COLORBOND® steel in the colour Monument®.

Further visual interest is achieved by using a purpose-fabricated cladding profile. This is formed in two different pan-widths and applied in a random pattern reminiscent of a full bookcase.

“Quite often, the same cladding module is repeated but we wanted to create variety so we came up with the random module,” Fighera explains. “We consulted the cladding specialists, Metal Cladding Systems, to determine appropriate widths and settled on 280mm and 180mm.

“We also discovered they have a specialised roll-forming machine sourced from Germany that profiles the sheet with a slight crimp in it, so when it is fixed it locks it in, nice and tight.”

The interlocking profile was secret-fixed so that no rivets appear. “Apart from the first pan, it’s not an expressed fixing. It’s hidden,” Fighera says. “After the first panel is fixed, the tongue of the next panel slips in behind and loops back with a longer leg. They screw-fix through the tongue and then another panel slides in over the top and conceals that fixing. The little crimp then stops the two from moving.”

If the reaction of passersby is a yardstick, then CHROFI’s goal to make the building noticeable amongst its towering neighbours has been achieved.

“We wanted people to notice it and think about it, whether immediately and consciously or not.”

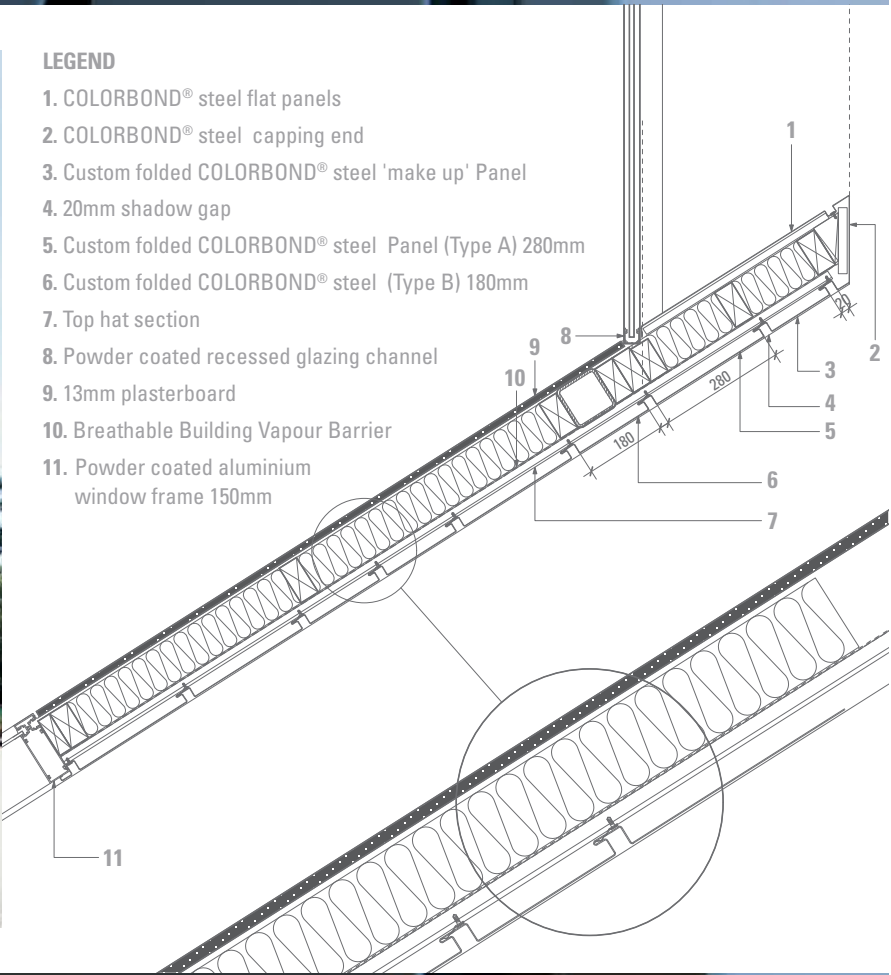
The building’s appearance changes while walking past it at street level. Approaching on an oblique angle it presents as a big, folded plane that opens up as the windows and entry appear before closing off again in passing. Intrigued pedestrians often stop to enquire about the cladding. “A lot of people ask us what the material is, and how we were able to make it look like that.”

CHROFI had initially considered using materials other than COLORBOND® steel to cloak the building, including folded aluminium. “Nothing was off the table but we were working within a quite confined budgetary framework. So it was about trying to discover the material that achieved the desired result most economically,” he says.

“The cladding was very cost-effective – especially in terms of supply. This helped contain the overall building cost, which came in at a rate of \$2500 per square metre, which is pretty good for a commercial building – particularly given the aesthetic result.”

With its innovative take on a standard detailing concept and judicious material selection, CHROFI has proven that boutique character needn’t come at a prohibitive cost. **SP**

PROJECT 11 Joynton Avenue **CLIENT** Richard Abbott **ARCHITECT** CHROFI **PROJECT TEAM** Steven Fighera (Project Director), Tai Ropiha (Director), John Choi (Director), Jerome Cateaux, Toby Breakspear, Clinton Weaver **STRUCTURAL ENGINEER** SDA Structures **BUILDER** RBV Builders Structures **STRUCTURAL STEEL FABRICATOR** Fabinox **CLADDING FABRICATOR** Metal Cladding Systems **SHOP DRAWING CONTRACTOR** Graphic Inventions **CLADDING CONTRACTOR** Wilcourt Roofing **LANDSCAPE ARCHITECTS** Paul Scrivener Landscape Architect **PRINCIPAL STEEL COMPONENTS** Facade Cladding: purpose-fabricated interlocking cladding profile made from COLORBOND® steel in the colour Monument®, formed in 280mm and 180mm pan-widths and secret-fixed in a random, repeated pattern; Roofing: LYSAGHT SPANDEK® profile made from COLORBOND® steel in the colour Surfimist® and LYSAGHT KLIP-LOK® 700 profile made from COLORBOND® steel in the colour Monument®; Structural steel: primary structural steel frame consisting of various member sizes and types including 89 SHS, 50 CHS, 100 SHS, 125 PFC, 200 PFC, 150 UB, 180 UB, 250 UB, 310 UB, 410 UB and various equal angles **PROJECT TIMEFRAME** July 2009 – January 2012 **BUILDING SIZE** 380m² **TOTAL PROJECT COST** \$950,000





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