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(WARE)HOUSE
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 panelists are:

ADAM HADDOW
Adam is director of SJB Architects in inner-city Sydney. He was awarded a 40th Anniversary Churchill Fellowship in 2006, and holds a Bachelor of Architecture with first class honours from the University of Melbourne

PROFESSOR TOM HENEGHAN
Tom is the former co-ordinator of the Design in Architecture Program at the University of Melbourne. This is Tom’s farewell appearance on the panel. Tom is now professor in the architecture department of Tokyo National University of Arts

DANIEL GRIFFIN
Daniel Griffin was born in Australia and raised on a yacht. His award-winning architectural thesis at RMIT examined the urbanisation of Pakistani refugee camps. He is currently teaching architecture at the University of Melbourne, and establishing a Humanitarian department with RMIT

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In Steel Profile 102, the feature Baynes Again referred to the use of ZINCALUME® steel when the picturesque shed was reimagined in a classic architecture style.

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Eleventh Hour – Smith Street (Ware)House

Principal Corporate Partner
Australian Institute of Architects
The EDO building at 88 Crown Street in Woolloomooloo is a living laboratory for the exploration of new notions of collective, or multi-dwelling, residential developments, according to architect Frank Stanisic.

Words: Josh Gliddon. Photography: Patrick Bingham-Hall; Brett Boardman; Paul Bradshaw.

ARCHITECT Frank Stanisic
PROJECT EDO Apartments
LOCATION Woolloomooloo, NSW

architectural steel innovation • STEEL PROFILE #102 www.steelprofile.com.au
The EDO building – EDO stands for Environment, Diversity and Operability – is situated in a gritty part of the harbour city. Rising over four floors, with a Mediterranean restaurant at street level and surrounded by pubs, cafes and nondescript apartment buildings, EDO runs north-south along Crown Street in Woolloomooloo, with a former luxury car dealership next door.

The 31 apartments, a mixture of studio, one-, two- and three-bedroom units, are oriented east-west, with the living areas on the western side of the building and bedrooms to the east.

The building’s architect Frank Stanisic owns an apartment in the development. “Owning an apartment in the building, it’s as though you don’t want to let a piece of yourself go,” he says. “It also serves as ongoing research. I see it as a process. I am very interested in how things age: if they are robust, then they have a long life.”

“There has been a big shift,” he continues. “People now are happier to live in a compact environment.”

Steel is integral to the fabric of the building, from the LYSAGHT LONGLINE® roof sheeting, made from COLORBOND® steel in Shale Grey™, to the grid-like steel framing of the poured concrete structure. Steel frame, used as an in-situ form for the concrete, gives an appearance of lightness and strength that is unique to the material.

The steel is painted with Dulux Ferrador micaceous paint. “It’s the same paint that’s used on the Sydney Harbour Bridge,” says Stanisic. “It will age gracefully and take on a patina.”

“Use of steel in EDO is innovative because it shows that steel can be used in collective housing and as an important part of the construction and aesthetic of the building.”

In this design, Stanisic wanted to liberate the apartment building from the mausoleum-like structures that he says make up most collective, or small and medium-sized residential developments, and turn it into a building that directly addresses environmental, diversity and operability considerations.

The environmental aspects of the design aren’t immediately obvious. On the western facade, where each apartment has a sunroom or terrace constructed from plantation-grown Australian Blackbutt, the form takes on a grid. But it’s a grid that can be pixelated by the raising and lowering of Luxor Nyssan external aluminium venetian blinds and Aluxor fabric awnings (the blinds automatically rise when the wind blows stronger than 40 knots, thanks to three wind sensors mounted on the roof).

“Most apartment buildings always look the same, and you can’t tell if someone is home or not,” he says.

ABOVE: EDO’s western façade on Crown Street is enlivened by operable louvred blinds and a ground-floor restaurant

OPPOSITE: The grid-like steel frame of the poured concrete structure, painted with Dulux Ferrador micaceous paint, imparts a lightness and strength that is unique to the material
dead or alive,” says Stanisic. “With EDO you know if someone is there because their venetians are either raised, lowered or providing filtered light.”

The venetians also block out harsh afternoon sun. Changing and adjusting the blinds provides an infinite variability to the building's façade, and allows the building and its occupants to engage with the street.

“You are able to vary the light and the air flow and change these things according to your mood,” Stanisic says.

One of the building's most notable features is on the eastern courtyard side: a gallery, framed by bespoke fixed glass louvres, that provides access to the lower two levels of apartments. In winter it's a sun trap in the morning and in summer, thanks to the bamboo that screens a small, lush, Eastern-influenced courtyard, the gallery is a pool of filtered light. It has no artificial lighting (apart from safety lights) and at night it's illuminated by the street and the sky.

As well as being a beautifully framed space, the gallery performs an essential environmental function. Each apartment has glass louver vents above the door, secured behind aluminium grilles. In summer the gallery acts as a sink of cool air, inducing cross-flow ventilation through the apartments.

When we visited EDO, virtually every apartment had its door-vents open. “This shows that people get it!” Stanisic says, with some excitement in his voice. “They get the airflow through the building without the need for air-conditioning or a fan.”

The gallery is also a social area, allowing people to mingle as they come to and from their apartments. The owners' corporation also uses the space for its meetings. “They just drag chairs out and hold the meeting out there,” Stanisic says. “The gallery is a templed space, it becomes a veranda between the inside and the outside.

The passive heating and cooling is enhanced by the interiors, which feature moveable screens. The screens reference Japanese building practices, and allow the occupants to open up their space. In particular, the studio apartments feature solid and glass bedroom walls (and beds) that slide away. “The interior screens take their cue from Japanese design,” says Stanisic. “We have sliding walls, and you can use the screens to collapse the room into a single space. The bedrooms are internal to that space.

As an exercise in contemporary living spaces, this is a prototype,” he says, harking back to the idea of EDO as a living laboratory.

The upper-level apartments, which are a mix of two and three-bedroom units, don’t directly connect to the wintergarden / gallery. Instead, they’re accessed through a single stacked central cross-over corridor lined with veined brown marble walls and with slotted ceiling panels painted in a metallic finish.

“The interior screens take their cue from Japanese design… We have sliding walls, and you can use the screens to collapse the room into a single space. The bedrooms are internal to that space”
PANEL SAYS

This project is simple, elegant and ideally suited to an urban lifestyle, as opposed to that oft-published Australian house set in the middle of a paddock, all of which makes it worthy of our attention. In addition, it’s extremely sustainable, and therefore even more deserving of publication because the architect has achieved a very high quality outcome in a developer-led project. EDO provides an optimistic view of what Australian medium density housing might look like in the future.

“When you move out of a house into an apartment you have to give up a lot of things… With this building you are able to change its behaviour depending on your mood, and on the environmental conditions.”

At one end a window is masked with opaque dots that echo the public artwork by Peter McGregor in the entrance foyer, which usability uses a series of “O”s to evoke the name of the suburb Woolloomooloo (the crosses are arrayed on the floor). The sculpture (above) is made from steel rings and perforated steel panels, echoing the building’s external steel frame. The polished marble walls and painted metallic ceiling ensure that light bounces all the way along what could otherwise be a gloomy space.

EDO also addresses diversity. The demographics of the inner-city location mean the building is predominately inhabited by singles, although there are some children and they use the gallery courtyard as a play area. Operability, which Stanisic defines as having control over the environment, is important. “When you move out of a house into an apartment you have to give up a lot of things,” he says, speaking of the space and relative tranquillity of the suburbs. “With this building you are able to change its behaviour depending on your mood, and on the environmental conditions.”

EDO is a building that engages with the street, and the city around it. It creates a synthesis between public and private space through the clever use of the blinds on the western side of the building. And those blinds also help create a facade that’s always on the move.

The building, through its use of dynamic decoration and passive heating and cooling, constantly changes and, in a sense, it also breathes, exhaling through the gallery, the louvers above the doors and the open plan inside each apartment.

The building has won several prestigious architecture awards, including the Australian Institute of Architects national Frederick Romberg Award for Residential Architecture – Multiple Housing.

The jury said that the “architects have demonstrated sensitivity, skill and expertise in negotiating an impressive balance between the commercial interests of the client, the comfort and amenity of the occupants and the architect’s responsibility to the public domain. They have created an exemplary model for multiple housing in an urban setting.”

“EDO provides an optimistic view of what Australian medium density housing might look like in the future.”

“PANEL SAYS”

July 2010

Right and below: The gallery overlooks a Japanese-inspired courtyard, and has become a gathering place for residents and their children.
At first glance the Bellbowrie Community Church seems like the church you have when you’re not going to church. Community is the operative word in the title, well deserving of its capital C. The spiritual and biblical components take on a more subtle, though no less powerful agenda, but more of that later.

Studio 39 (the dynamic offshoot of Thomson Adsett architects) was briefed to design the building after the old church was resumed by the Queensland Government as part of a road-widening project in Brisbane’s outer western suburbs.

The former, more conventional, church building sat closer to the centre of town in the well-established suburb of Kenmore. The first challenge for architect Phil Horwood was to find a site for the new facility in the belt of voracious expansion extending west of the suburb. Finding a site in the blue ribbon acreage belt adjoining suburban Kenmore was never going to be an easy task.

Rolling green hills are dotted with mansions and grazed upon by pet ponies and donkeys, while pristine creeks meander along their base. Bellbowrie, reputedly named after an Aboriginal word meaning “flowering gum”, was formerly a pineapple and dairy farming region that was subdivided from the 1970s and later. An expansion continues to roll westwards, the conurbation stretches closer to Brisbane’s historic sister town of Ipswich, and the linking road between the two metropolises cuts a busy swath through these green hills. It’s not a setting likely to welcome a new church with open arms, and was one where council zoning certainly did not support the idea.

After a thorough two-year search a suitable 3.5-hectare site was found on the main drag out of town, a couple of kilometres from Bellbowrie. An original house crowns the hill above, and a creek (abundant with platypus) forms a boundary at its base. The building enjoys a prominence...
set back from, and above, the busy commuters’ corridor, overlooking a patchwork of green fields and established trees. Strangely, there is even a herd of alpaca grazing next door and feral deer make their way through the site on a daily basis.

“The church undertook some consultation with the local community to allay their concerns,” recalls Horwood. “Environmental measures in relation to site planning and design generally were carefully considered and seen as a benefit to the community, rather than a negative. This approach was a key to gaining development approval.”

Moreover, the church itself takes on a decidedly domestic air in keeping with both its residential context and strong community agenda. The building runs north-south along the site’s natural contours and roughly parallel to the road. On approach from the road, its long two-storey eastern elevation is the first point of encounter. Rather than an imposing front door and vestibule which announce its religious purpose, the prominent view is of the shaded verandah running the length of the building. Steel balustrades march along the side, echoing elements of the familiar timber vernacular, and extend downwards to form a battened screening device for the undercroft.

As Horwood notes, the place “presents as a big house”, as the brief was originally to avoid overt symbols of Christianity, and the large cross on a timber blade wall near the entry is a recent addition that was requested by parishioners to help with identification. Perhaps the softly-softly design approach had been too successful, he says.

Above the verandah balustrades, the roof is dragged over the side and downwards in, “a contemporary version of a bull-nose verandah”. Horwood’s material of choice to perform the feat is LYSAGHT KLIP-LOK® 700 HI-STRENGTH in Woodland Grey®, which is also used as cladding on the western wall. The effect is utilitarian and robust, and is nicely complemented and domesticated by grids of stained plywood and bands of glazing.

“Environmental measures in relation to site planning and design generally were carefully considered and seen as a benefit to the community, rather than a negative”
As well as being a place of worship, the church is a gathering place for the community, and is used for school graduations, kindergarten classes, political gatherings, and is used for weddings and bush dances to name just a few. The church is a community rather than merely existing within it. Environmental concerns played a significant role in the design – the passive air-conditioning system is very innovative, and somewhat unusual in a building of this scale. While the project incorporates a wide range of materials, they come together beautifully to create a unified whole.

The eastern verandah acts as a giant lung for cooling and circulating air and shading the interior spaces, as verandahs do in Queensland homes, while the 360-seat congregation hall employs passive air conditioning for most of the year. Glazing along the eastern edge opens up to the verandah, and a series of wide stainless steel floor grilles run the length of the interior, above a rawness of the place, while creating awe through its sheer scale and repetition. Freestanding external galvanised steel columns act as light reflectors, with in-ground uplighters at their base. Floodlit at night, they are a new and distinctively Australian take on the church buttress.

The eastern verandah acts as an air movement, the greater the comfort.” Needless to say, other environmentally responsible elements such as recyclable and low VOC materials and water storage are also employed. Rejuvenating the landscape was also key to the brief. New plantings are of native grasses and trees, and views to them from the building are established at a myriad of points, while the creek banks were cleared of weeds and replanted.

The architects have instead created a building that is a church and more. Environmental concerns played a significant role in the design – the passive air-conditioning system is very innovative, and somewhat unusual in a building of this scale. While the project incorporates a wide range of materials, they come together beautifully to create a unified whole.

An exposed steel portal frame splices the interior and extends to the exterior, elaborating on the articulated palette and further blurring the indoor-outdoor line. The materiality of the exposed steel portal frame is in keeping with the honesty and rawness of the place, while creating owen through its sheer scale and repetition. Freestanding external galvanised steel columns act as light reflectors, with in-ground uplighters at their base. Floodlit at night, they are a new and distinctively Australian take on the church buttress.

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Boroondara Sports Centre is a new model for community centres. Its innovative use of space and creative deployment of steel – along with its subtle references to the buildings that used to stand there – make it a landmark for its local community.

Words: Stephen Crafti  Photography: Paul Bradshaw
The North Balwyn swimming pool, with its four-tiered diving tower, has serviced the local community since the 1950s. The pool, featuring a boomerang-shaped kiosk and change rooms, was a landmark in Melbourne’s leafy eastern suburbs. While the cream brick building offered a sense of nostalgia, Boroondara City Council realised its shortfalls. The facilities were antiquated, and it lacked sufficient space for the increased number of people using the swimming pool.

“Council was also aware of the acute need for an indoor sports centre,” says architect Stephen Cheney, principal of Suters Prior Cheney Architects. While the original building had become outdated, the idea of erecting a large industrial shed on the site held little appeal for the Council or its constituents.

“The traditional model for sporting centres has been a cheap shed that’s quickly erected. It’s a dumb response,” says Cheney. The architects, along with the Council, were also keen to broaden the notion of a sports centre. “We saw it as a community centre, where the doors are open to various groups and clubs in the community, not just those playing basketball or netball,” adds Cheney.

Suters Prior Cheney Architects was mindful of designing a robust sports centre, but the architects were also keen, given the Centre’s proximity to neighbouring homes, to reduce the scale of the building. “We wanted to create a sense of transparency through the building rather than creating a blank wall to Belmore Road,” says Cheney. “At night, when the lights are on, you can see movement on the courts,” he adds.

To break down the scale of the building’s eight-metre high southern elevation, the architects segmented the translucent glass walls into four panels, each one corresponding to the four basketball/netball courts. To deflect harsh light from entering the building in late summer, each panel is skewed. “The building (approximately 80 meters in length) would have appeared massive as one continuous band of glass,” says Cheney. The double-glazed windows also provide acoustic control. “We wanted to minimise the thumping noises (caused by basketballs). Even though we’re on a busy thoroughfare, there are houses directly opposite.”

In contrast to the glazed southern facade, the east and west elevations are clad in HH Robertson Shadow Rib profile made from COLORBOND® Metallic steel, in the colour Facade®. “We wanted to give the building a sense of sophistication. A slimmer steel profile wouldn’t have the same effect,” says Cheney. “It would have been lost, looking back at it from any significant distance,” he adds. The rear elevation leading to the swimming pools features concrete block walls.

“The pool area receives a pounding. Water is sprayed everywhere, either by swimmers or staff cleaning equipment,” he says. In acknowledgement of the original 1950s kiosk and change rooms, the rear elevation has a slight boomerang curve. Likewise, the skillion-shaped roof, angled to catch the northern light, has a post-war ambience.
Although the swimming pools appear new, they have been completely refurbished rather than replaced. “We wanted to reference the past. But we also wanted to satisfy the highest standards required today,” says Cheney. As important in realising the architectural vision has been the recognition of the community’s sporting achievements, rather than hiding them away. “These spaces can be used for meetings or demonstrations by pulling back dividing walls. “The weight of these steel trusses is extremely low per square metre. The purpose was to accentuate these volumes,” Cheney says. From the project’s inception, steel was the only contender. “With steel, you can cover large spans, and you can customise steel to suit your requirements,” says Cheney. “The other benefit with steel is dispension with cumbersome flashings (perforated lead foil and gutters is fitted into eaves and gutters),” he adds.

On the northern side of the building are the café, community/rooms (including a childcare facility), and change rooms. “We’ve created a series of multi-purpose spaces,” says Cheney, who demonstrates by pulling back dividing walls. “These spaces can be used for meetings or opened up for larger gatherings, such as local festivals.” There is a separate office wing, expressed with a bright green protruded fibre-cement box. Used by various basketball and netball associations, the wing can be locked when not in use.

One of the most dramatic features in the centre is a tapered corridor dividing the courts from the café, meeting and change rooms. Tapering from seven metres wide at the entrance, to 1.5 metres at the eastern point, the shape of the corridor corresponds to the flow of people using the building. “There are less people is exiting to the end court. We wanted to be efficient with the space. But we also wanted to satisfy the highest standards required today,” says Cheney. While the filtration system and ultra violet in the pool are new, the form of the original remains the same.

The plant room, adjacent to the original diving tower, is also fully clad in bands of HH Robertson Shadow Rib profile made from COLORBOND® Metallic steel in the colour Facade®. Used to treat the water both from the swimming pools and within the centre, the plant room appears as a folly with angular walls and roof. “There should be an element of playfulness in the design. We didn’t want to hide it away, like most plant rooms,” says Cheney. “It also responds to the angles in the diving tower.”

In contrast to the monumental bands of steel wrapping around the courts, the canopy over the entrance appears lightweight. Y-shaped steel columns, supporting the canopy over the forecourt, allow unimpeded views over the grounds and neighbourhood. “This area doubles as an assembly area, where sports teams head out to different schools,” says Cheney. Although the steel columns appear pencil thin, they conceal their strength. “We worked closely with structural engineer Don Kerr. We wanted to reveal mass wherever possible and create a more elegant solution,”

“So that, when the wind flares up,” says Cheney. Equally as important for the architects was the need to ensure the courts were protected from the rain. In order to achieve this, Suters Prior Cheney designed the roof (flashers profile KingKlip® made from COLORBOND® Metallic steel in Facade®) as a series of individual single strips, rather than larger spans. “The individual strips reduce the risk of water penetration. Moisture on a timber floor can result in major repairs,” says Cheney, who also used the roof to harvest water that’s then channelled into steel tanks. The harvested water is used for the lighting and for irrigating the landscape.

With a concept to develop a community centre, rather than a shed for a few basketball courts, the design has been thoughtfully conceived for the ‘trigger point’. On the south side of the centre are the four basketball/netball courts, supported by eight-metre high ceilings. For acoustic control, Suters Prior Cheney lined the ceiling and walls of the courts with Durra Straw Panels, a straw composite that, ironically, was also popular with architects in the 1960s.

The Dura Straw Panel ceiling also provides a backdrop for the steel trusses, which hover above the courts like a giant spider’s web. “The weight of these steel trusses is extremely low per square metre,” says Cheney. “With steel, you can cover large spans, and you can customise steel to suit your requirements,” says Cheney. Locals have warmed to the design. From the project’s inception, input from the local community was integral to the decision making process. “We had numerous information sessions for the public. It was important to address their concerns from the start,” says Cheney, particularly reservations expressed by some nearby residents about the scale of the new building. To allay those fears, the architects constructed models to show the effect of the Centre on surrounding homes.

As important in realising the architectural vision has been the recognition of the community’s sporting achievements. Trophies, along with memorabilia, are proudly on display in customised cabinets along the corridor. “It’s important to acknowledge people’s achievements, rather than hiding them away. The Boroondara Sports Complex is much more than simply a place to play basketball or swim,” says Cheney. $15.5m

“With steel, you can cover large spans, and you can customise steel to suit your requirements.”

PROJECT
Boroondara Sports Complex, North Balwyn, Victoria
CLIENT
North Balwyn Council
ARCHITECT
Suters Prior Cheney Architects
PROJECT TEAM
Stephan Cheney, David Nareved, Vicki Lee, Sean Stone, Scott Francis, Peter Smith, Peter Byrne
STRUCTURAL ENGINEER
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STEEL FABRICATOR
Irwin Consult
PRINCIPAL STEEL COMPONENTS
Steel columns, roofing, and accessory items
WELDING/CONSTRUCTION
Principal Steel Components
STEEL FABRICATOR
Irwin Consult
STEEL FABRICATOR
Steel columns, roofing, and accessory items
STEEL FABRICATOR
Irwin Consult
STEEL FABRICATOR
Steel columns, roofing, and accessory items

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The making of architecture is always a collaborative process, but the dialogue that underpins its creation can range from perfunctory to enthusiastic. When all the parties come to the table with a willingness to solve the architectural problem together, extraordinary buildings can result.

Aurora Energy’s Operations Facility at Cambridge is one such project. It was designed by a team of three directors of Heffernan Button Voss Architects (HBV) – James Jones, Paul Newman and Charles Voss – with crucial input from ‘creative genius’ and structural engineer Jim Gandy, and unflagging support from Aurora’s facilities manager Gerard Gowans. Their shared vision was brought to life by the building contractor Fairbrother Group, with steel fabrication by Crisp Bros, both Tasmanian companies.

Aurora Energy provides and maintains electricity services for domestic customers in Tasmania, following the separation of the state’s Hydroelectric Commission into three separate entities. In 1999, Aurora’s facilities management team engaged HBV Architects to review its accommodation as part of a continuing reorganisation of their facilities. HBV was then commissioned to design the Southern Maintenance and Operations Centre at Cambridge, near Hobart, to accommodate employees involved in core maintenance, operations and logistics.

The brief called for a building to accommodate storage and workshop functions. For safety and security reasons, the operational and administration area and staff amenities were located in a separate building. In the storage precinct, forklifts and mobile cranes are used to process equipment, spare parts and electricity poles through receiving, unloading, storage, packing, loading and despatch.

According to Charles Voss, the longstanding association between client and architect meant that, in some ways at least, this was a seamless project from start to finish. “Aurora Energy has been a most supportive and receptive client to work with on the project. It was proactive in the concept and realisation of the final solution, and made the whole process an enjoyable and rewarding experience,” Voss says. “Working with them on previous accommodation projects since 1999 had established a confident working relationship, and the ability for us to have an intimate knowledge of their organisational structure and their goals.”

Coming up with the initial concept – for a long narrow building – was relatively straightforward, according to HBV director and co-designer James Jones. “There was a decision taken early in collaboration and discussion with Aurora to make a long rectangular plan, facing east,” he explains. “The floor plate was a product of racking layouts, and the orientation provided a wind break for the store building entries and shelter for line trucks. For efficiency of layout and storage, the main store building required a 38 metre clear span with a building length of approximately 148 metres, enclosing 5,500 square metres of internal space on one level. The roof extends with a 12 metre overhang toward the logistics platform, allowing all-weather loading and protection for power-line trucks.”

Having established the parameters, translating them into a buildable structure was somewhat more complicated. “Once it was determined that the width was nearing 40 metres, with a required overhang of 12 metres, the renowned architectural steel innovation...”
structural engineer Jim Gandy advised that we were outside the normal parameters and efficiency of a portal frame,” Jones recalls. “The architects wanted a slim structure and they also wanted a flat skillion roof,” says Jim Gandy, engineer and director at Gandy & Roberts. “That resulted in a twofold problem: deflection and ponding of water on the roof. The site plan meant that from the carpark, visitors would look straight along the skillion roof, and deflection may have caused them undue concern.”

“Deflection control was very important in achieving a slimline structure that was stiff,” Gandy adds. “That meant the portal frame member sizes would be governed by deflection, not strength considerations, and large welded beam sections would have been required.”

As an alternative, Gandy proposed a post and rod design, and put the scheme to the quantity surveyor for costing. “We were keen to deliver a column-free storage space for flexibility of use, and using a tension structure in this way suddenly brought the building alive,” Jones says. “So there was a flurry of emails and facsimiles between HBV and Gandy & Roberts, investigating whether this structural type was economical, given that steel is generally costed by weight.”

“The quantity surveyor said that the savings we would achieve by using 460UBs instead of 800UBs would pay for the extra labour required to construct it,” Gandy explains, “so that we could give the client an iconic structure for the same price as an ordinary one.”

Gandy further refined the engineering solution to accord with the architects’ vision for a delicate structure. “The original design called for posts on top of every rafter, but James suggested we use posts on every second rafter with diagonal rods to the intermediates,” Gandy says. “I found that this configuration also worked structurally and it was adopted, which resulted in a good mix of architecture and engineering.”

HBV director and co-designer Paul Newman refined the structural system in terms of its component parts, buildability and the utilitarian structure. “Paul produced a very detailed set of junctions and connections that further sharpened the embedded ideas we had developed earlier,” Jones says.

“We were keen to deliver a column-free storage space for flexibility of use, and using a tension structure in this way suddenly brought the building alive.”
He has overseen the construction of larger spans – which is suspended from 16 suspended wires.

The protruding masts and suspension rods that support the mid-spans and cantilevered overhangs enter the realm of a bridge, and so the building structure has become a set of eight bridge trusses, each spanning 54 metres. The trusses provide up to 5,000 square metres of column-free space.

The client and other architects agree: the project makes it float above the building.

“The brief was clear span at minimum cost,” says Davis. “So I devised a truss and tailored the roof shape because of roadways and a boiler on one side. It wasn’t possible to have outriggers on both sides of the corridor.”

The building is a truss made from steel connected using V-shaped bolts, with a ribbed surface. The steel is painted with Dulux P39A8 blue charcoal.

Aurora is designed to be painted with Dulux P39A8 blue charcoal. The steel columns, beams and tension rods are also painted with Dulux P39A8 blue charcoal.

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The new project is in construction and due for completion later this year. “It investigates the idea of a roof hanging below its structure in order to reduce wall heights, so that material use and cost are reduced,” Jones says. “A 54 metre span is entering the realm of a bridge, and as the building structure has become a set of eight bridge trusses, each spanning 54 metres. The trusses provide up to 5,000 square metres of column-free space.”

And as it becomes apparent that the award-winning Aurora project is in part of an ongoing exploration of ideas that the team at HBV Architects, and their clients and consultants, embrace wholeheartedly.

“With the current debate in Australian architecture concerning buildings generated by ‘form and surface’ versus ‘structure and a response to place’, HBV is pursuing an expression through the utility and economy of structure by the use of minimum materials for maximum spatial enclosure,” Jones explains. “The Tasmanian economic context is a little different from other states. In our region, office rents are still quite low and the budgets for most buildings and major projects are well below the other eastern states.

“Over a sustained period of architectural practice, this engenders an approach to designing buildings that are by definition economical and utilitarian,” he continues. “If we can also make buildings delightful, useful, and meaningful to their inhabitants and the general public, we achieve guaranteed satisfaction.”

Aurora Chief Executive Officer, Dr Peter Davis, said that the facility, which houses 300 employees, has become the company’s major resource centre for southern Tasmania and has contributed to improvements in operational management.

“The national award represents months of planning, innovative design and construction to deliver a first class facility, which is an absolute credit to Tasmania’s HBV Architects and Aurora’s planning managers,” he said.

“Much can be improved in terms of making intelligently composed industrial operations and logistic facilities. Structural and spatial efficiency can then save money, time and expended energy.”

The operations facility was tested in March 2008 when storms brought down hundreds of power lines across Tasmania, leaving more than 35,000 homes without power, with the southern part of the state the worst affected area. “Coordinating an emergency response from a single point meant that Aurora’s people were able to restore power as safely, quickly and efficiently as possible,” Davis said.

Since the completion of Aurora, members of the project team have applied lessons learned in its construction to create even larger steel roof projects. Gandy recently devised a column-free 57m by 28m roof structure for Te An Verena at Smitton, Tasmania, where he matched the cost-per-square-metre of a comparable facility that is bisected by columns.

“The brief was clear span at minimum cost,” Gandy says. “I started out with the idea of a utilitarian version of Aurora, but it didn’t work because it wasn’t possible to have outriggers on both sides because of roadways and a boiler on one side. So I devised a truss and balanced the roof shape to maximise the efficiency of the truss while keeping component sizes transportable.”

HBV Architects has since designed a logistics facility for another energy sector client. “The success of a project such as the Aurora facility inevitably leads to other projects and we want to ensure that we can continue to develop and apply our corporate knowledge of logistic facilities, which we believe are important building types that should not be devalued,” Jones says. “Much can be improved in terms of making intelligently composed industrial operations and logistic facilities. Structural and spatial efficiency can then save money, time and expended energy.”

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80 AURORA ENERGY PTY LTD PROJECT Southern Operations Facility CLIENT Aurora Energy Pty Ltd ARCHITECT Flemming Button Yass Architects DESIGN TEAM Charles Yass, Paul Newman, James Jones STRUCTURAL AND CIVIL ENGINEER Gandy & Roberts ELECTRICAL MECHANICAL HYDRAULIC ENGINEER Johnstone McGee & Gandy BUILDING CONTRACTOR Fairbrother Pty Ltd STEEL FABRICATOR Crisp Bros PRINCIPAL STEEL COMPONENTS LYSAGHT SPANDEK® roofing made from COLORBOND® steel in the colour Shale Grey™, with gutters, pipes and soffit linings made from COLORBOND® steel, also in the colour Shale Grey™; Steel columns, beams and tension rods painted with Dulux P39A8 blue charcoal; VSSL galvanised steel rigging to storage building; Paston reinforced and reinforcement BUILDING SIZE 5,500m²
Kennel of Truth

The redevelopment of the RSPCA’s Quarantine Kennels provides a timely opportunity to re-examine some long-standing architectural concepts in Burwood, Victoria.

Words: Toby Horrocks  Photography: Paul Bradshaw

Architect: NHArchitecture
Project: RSPCA Burwood Redevelopment
Stage 1 Quarantine Kennels
Location: Burwood East, VIC
A book called Don’s Own Animal was published in 1964 featuring a photograph of a poultry shop in the shape of a duck. This became a metaphor for Denise Scott Brown and Robert Venturi in their critique of contemporary architecture. “Our thesis is that most architects’ buildings today are ducks: buildings where an expressive aim has distorted the whole beyond the limits of economy and convenience” they wrote in 1980 in an article published in Architecture Canada titled “On Ducks and Decoration”.

They suggested architects find a different strategy, where structure and decoration were kept separate — the extreme version would be a shed with a sign out the front. “We’d rather see the need admitted and the decoration supplied... so easily so the billboard is pasted on its superstructure,” they wrote. “This is an easier, cheaper, more direct, and basically more honest approach to the question of decoration; it permits us to get on with the task of making conventional buildings conventionally and to deal with their symbolic needs with a lighter, defter touch.”

Forty-five years later we have come full circle – from post-modernism back to a kind of late-modernism. Jørn Utzon’s Sydney Opera House is an example of a duck building from the era in which Venturi/Scott Brown were writing. Frank Gehry’s Guggenheim Museum in Bilbao is a contemporary example. Which explains why a project that design architect Barbara Bamford describes as “essentially sheds” won a national architecture award in 2008 from the Australian Institute of Architects in the sustainability category. Venturi and Scott Brown’s thesis has remained significant since, though more than just aesthetics are at stake — we are in the midst of an environmental crisis, where any use of resources must be carefully considered.

The RSPCA briefed NHArchitecture with two simple stipulations for the new Quarantine Kennels at Burwood: they had to be self-sufficient with water, and there was to be no mechanical air-conditioning. “They are demonstrating their interest in the welfare of the planet, as well as the welfare of animals, as there is a fair degree of symbolism involved.”

“The design is all tied up in that image of where that called for the use of steel. According to Dredge, the project is “using steel in a very direct manner, without being too experimental.” The innovation of the construction lies in making the passive environmental systems work. “Building the section to work properly was quite difficult,” he explains. “It was all done from first principles, and there wasn’t much trading off here or there.”

The section leans toward north, to create summer shading angles. It had to be fully sealed for acoustics, but achieving natural ventilation wasn’t as simple as opening windows. Air is pre-cooled by trickling water down a thermal chimney south wall of each kennel ‘dorm’. Shower towers along the air flow is restricted to one direction to prevent the transmission of airborne bacteria between kennels.

OPPOSITE ABOVE AND BELOW: The design for RSPCA’s “medium density housing for dogs” manages sight lines to ensure that canines have great visibility to the outside but can’t see each other. It provides peace and space.

ABOVE RIGHT: The ground-floor kennels have direct access to the landscaped courtyards, where the stones and gravel are bordered by rope into shapes sourced from the patterns of dog coats.

PANEL SAYS
The way the form of the new RSPCA Quarantine Kennels responds to the functional needs of the brief makes this a very striking project. As well as being visually appealing, the black and white facade is tailored to the building’s main clients: dogs. The design also incorporates many environmental design initiatives that contribute to human and canine comfort, and help to reduce running costs for the charity.
Neither Drudge nor Bamford had designed a kennel before. “We really worked from first principles, starting from each kennel – its size, and what needed to be in it,” says Drudge. The kennels are oversized, bigger than the Australian Standard, and, cleverly, hydraulic floor heating is located over every small area – just large enough for a sleeping dog. The frequent hosing down meant that concrete pre-cast concrete could not have achieved. Even though it’s plain, and surface orientated, the pattern gives it a sense of life,” says Drudge. “It’s a curious building because it is very dog-centric. So as a human wandering through, you might be wondering why it is that way, but if you reduce yourself down to the size of a dog, with the vision and distinguishing the black and the white – it makes a bit more sense.”

“It’s a curious building because it is very dog-centric… if you reduce yourself down to the size of a dog, with the vision and distinguishing the black and the white – it makes sense”
The bare brick walls of a warehouse in North Hobart encase a sensuous interior that architect Scott Balmforth created for his own family, using steel as his foundation.

Words Rachael Bernstone  Photography Paul Bradshaw
Transforming a warehouse into a home for his family was initially a daunting experience for Terroir director and architect Scott Balmforth. He bought the warehouse in North Hobart with his brother, divided the space in two, and "found it difficult to get started because there were many ideas rolling around in my head."

"I owe a debt to my wife, who was also the 'client' on this job and is not an architect," Balmforth says. "She took the project on board with a leap of faith."

While he had completed many projects for third-party clients, Balmforth had only undertaken a minor renovation to his family home previously, and he found the "blank canvas" of the warehouse – with its 300m² of concrete floor space – overwhelming.

"I started thinking about ideas from our practice, and about research I'd done as part of the RMIT Masters course I was invited to undertake in conjunction with fellow Terroir director Gerard Reinmuth. But thinking about how we practice, what we do and where to start, it was difficult," Balmforth says. "However as the job got going, once the design, documentation and construction were underway, it found its own life."

Balmforth aimed to maintain the industrial aesthetic of the warehouse while making it habitable for his family, which includes three children aged under seven. "I wanted to achieve balance between the original character of the warehouse as well as moments of cosiness," Balmforth says, "so there is a contrast between the soft enclosed spaces of the bedrooms which are lined with plasterboard and have roof-light windows with views of the sky, and where galvanised steel predominates, and the lower level which is darker, with greater use of Formply that gives it a heaviness."

Balmforth also wanted to maintain the sense of openness from front to back, so he installed steel framing to carve up the space vertically and horizontally. "Now you can drive into the garage and see through the glass-walled living space to the rear of house," he says.

The dividing wall that bisects the warehouse comprises a primary steel frame with a party wall system for fire separation between the two tenancies. In his section, Balmforth installed three 200 Universal Beams parallel to the side walls to support the new upper floor. "It was important for me that the beams appeared as though they were spanning the 20 metres between the front and back walls with minimum depth," Balmforth explains.

"Upstairs, there is a sawtooth roofline, and the bottom chord of that gave the height limit for the upper floor, so to maximise the space on both levels, I set the timber floor joists within the steel beams, rather than sitting on top of them."

"The universal beam profile was ideal for this, whereby joists could be placed in to each side of the beam, and between the joists were placed infill offsets to sandwich the joists in to the UB," he adds. "These infills on both sides were then fixed through the web of the UB to hold it all in place tightly."

The integrated system incorporates the ply floor and strips of continuous diffused fluorescent tubing that light the 'undercroft' spaces and emphasise the linear character of the lower level.
Panel Says

The high level of detailing in the infill sections of this architect’s own home is a delight to behold. Handmade door pulls, the use of expanded metal mesh for wall screens to veil upstairs from downstairs, the juxtaposition of cold and hard materials against warm and soft furnishings: it all adds up to a stunning project.

Balmforth chose steel to provide longer spans for the primary structures and strength without mass. “There are a couple of columns strategically located on the ground floor, hidden within walls, so the overall effect is that you don’t know how the upper floor is hung,” he says. “Steel beams also fit with the character of the original warehouse.”

The conversion also features unconventional steel applications such as the galvanised screens – made from Expamet’s expanded metal sheet which is usually used for sun shading. “I’ve been interested in using the expanded metal product for a while,” Balmforth says. “It has a different character depending on where you view it from, and I appreciated that, installed as screens, the way you viewed it would change whether you were upstairs or downstairs. It provides a good balance between privacy and openness.”

The same screens were installed on the ceilings over the double-height living room to protect two north-facing windows in the roof. “I didn’t want the windows to dominate that space, so by putting the expanded metal screens underneath, we still get light into the space but it isn’t so prominent,” he says. “The screens have the added benefit of blotting summer sun but letting the winter level sun in through.”

Also departing from convention, Balmforth brought some flat ZINCALUME® steel sheeting inside. “This project embodies ideas we’ve previously used at Terroir, such as using flat ZINCALUME® steel sheeting as a ceiling lining,” he says. “It has some surprising effects: it acts like a lid for the house, because there was ZINCALUME® steel on the rear elevation already, so now it is wrapped around to the inside. We’ve used flat sheet in ceilings before, and putting it on the ceiling seemed like a logical extension to my project.”

The existing galvanised sheet cladding on the rear wall took on an unusual character when new openings were inserted in that elevation. “When we cut the new windows, we peeled the sheet back so that it sits proud of the building, and the rigidity of the material means it doesn’t move too much,” Balmforth says.

Once the steel framing was in place, it provided the foundation for an experimental building process that produced some quirky outcomes. “A lot of the subsequent work resulted from very personal discussions I had with the builders from Tascon constructions,” Balmforth says. “We were playing with opportunities that arose. A lot of the detailing, particularly in the way that the timber linings and beams are set within the steel framing and steel beams on the upper floor, was done on site with the builder rather than in documentation.”

The strong rapport that existed between builder and architect-client allowed Balmforth to incorporate unique details into his own home. The tactile door handles are one product of their collaboration, and symbolise the different approaches taken on the ground floor and upstairs, where four bedrooms...
“I was interested in exploring the extremes of hardness, toughness and rawness in the living spaces, for example by leaving paint stains from the warehouse’s previous uses on the walls and floors, and working around those.”

“I wasn’t consciously trying to mediate the effect of hard and cold against warm and comfortable, other than knowing the bedroom spaces needed to be cozier and softer,” Balmforth says. “I was interested in exploring the extremes of hardness, toughness and rawness in the living spaces, for example by leaving paint stains from the warehouse’s previous uses on the walls and floors, and working around those. Then we overlaid our life — by putting in our furniture and hanging artwork on the big wall, and the rock climbing grips for a softer sensual feel.”

The play of light also adds warmth and complexity to the space. “On summer mornings, there is brilliant light from the south-east facing roof-lights, and we installed additional skylights in the areas that needed them, such as the playroom and the bedroom that isn’t connected to the sawtooth roofline,” Balmforth says. “There are also large windows off the kitchen and second living area that bring light into the ground floor.”

So how have the Balmforths adapted to their new unconventional home? They like the fact that there is a large walled garden at the rear where the children can play safely, and Balmforth enjoys the weekday bustle and weekend hush of the street – with its commercial neighbours on both sides and houses opposite. “We moved from a house that was too small for a young family, and in many ways, this is the reverse!” he laughs. SP