steelprofile

Architectural steel innovation with BHP Steel Limited

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Cover photograph: The State Emergency Services Victoria headquarters building is the latest evidence of the makeover of Melbourne's Southbank precinct. There's much more here than bright colours.

This page: As a sentinel on Victoria's south-east coast this beach house is uncompromising in its efforts to make the most of 360 degree views.

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Client	Department of Justice
Architect	H2o
Design Team	Tim Hurburgh, Mark O' Dwyer, Sofia Anapliotis and Jim Tsoukatos
Structural/civil Engineer	Ove Arup, Melbourne
Builder	Kane Constructions

THINK TANK

If evidence was needed of rejuvenation at Melbourne's Southbank Arts precinct, look no further than the stunning new headquarters of the State Emergency Services Victoria. When did such an organisation last have a home that has set tongues wagging all the way from the local pub to the boardroom? Against a rising skyline gone mad with cut-price towers, real architecture appears an oddity.

Cheeky, chic and provocative, the image makeover of the headquarters is a revelation. H2o architects have effectively revived their clients with a dose of smelling salts. Formerly housed in a brick box, the SES has suddenly been given a whole new lease of life with a building that breathes and responds to its site. And it appears ready-made to step straight into a quixotic Jeffrey Smart canvas.

Vibrant, even audacious, this black sheet steel and lipstick orange container is surely the envy of many more upmarket organisations. Underwritten by some super cool environmental controls, the building offers a powerful presence and performance with low construction and running costs. It's a nice combination.

Ex-Bates Smart director Tim Hurburgh and former lieutenant Mark O'Dwyer, now directors of H2o have created some sharp architecture since they announced their preference for water three years ago. H2o is a handy nomenclature when you have this level of commitment to sustainable design. While water is not an architectural feature of the project, oxygen and light are in abundance.

Located near the entrance to the Burnley Tunnel, the project combines elements of nightclub, gymnasium, ad agency and high-tech laboratory. Which all begs the question how relevant such diverse influences are to the home-making of an emergency organisation? The answer is obvious; a stereotypical, tarted up, downmarket box would ultimately cost plenty and reflect poorly on the SES.

H2o's solution represents an interesting investment. For a government organisation assisted by sponsorship and donations, the effect will clearly raise its profile among supporters. If nothing else, smart architecture says plenty about an organisation as a discerning buyer and provider of service. Anything less is a lost opportunity.

Hurburgh says the firm's aim was to produce "humane modernism". Not much point presenting the exquisitely wrapped dud. In this regard his spin is entirely convincing.

(above) South-west elevation reveals the orange bulkheads for identity and slotted sheet steel gills that assist with ventilation.

(opposite) Main street address reveals slashing corporate livery and form in section.

Curving volumes, dramatic glazing with views across the twine of freeways all speak of a responsive intelligence. So too the gills that run along the building's underbelly and suck air up, through and out to impressive effect. The project is an exemplar of the venturi air stacking effect.

Based on a slender floorplate, the linear, semi-cylindrical volume is precisely what Hurburgh describes as being humanistic. The external colour palette is muted internally and loses nothing in the transition. Office space is lively and informal. The first floor contains all administrative functions and houses 60 staff. Volunteers from across Victoria are trained at the centre as part of the SES charter.

A central control room, offices and staff canteen are backed up by three conference/meeting rooms. Underneath on the ground floor is parking for 30 vehicles, additional storage and a garage/workshop.

Given the volunteer component of the SES, there was an obligation to provide a high profile and clear legibility.

"We were never actually briefed for that but we felt that being provocative could be a very real asset to them - and that is the way it has worked out," says Hurburgh.

"SES staff are getting amazing feedback," he says. "Our creed was to be provocative but also to be reliable, and you can't be reliable if the building doesn't work. Many facility managers use terms like 'fit for purpose'. The problem is that you can have a concrete toilet block that's 'fit for purpose'. We try to provide something with real humanity and depth.

"Even though it has only just opened, everyone seems to be revelling in the attention. SES staff are probably somewhat bemused by the response. Moving from one extreme of near anonymity to one of high recognition is an absolute bonus for the client.

Instead of turning its back on the freeways as an unpleasant reality, the design employs a low slung curving steel roof and arching eyebrow window treatments to embrace views and modify traffic noise. The effects are startling. A deep

(below and far right) Workspace of the future. Interiors reflect funky colour palette, variable floor ventilation coils and soft, indirect lighting.

ribbed COLORBOND® steel roof in the colour Ebony intersects with a series of sunglass style window treatments. Beneath are the 'air intake' slots fabricated from sheet steel. Inset window treatments and awnings incorporate galvanised sheet steel highlights and splashes of orange.

"Because of its hands-on practical background, the SES liked the idea of getting a building that required less energy to light, heat and cool. They were quite excited that this allowed individual decision-making to occur," says Hurburgh.

Individual controls include the 'mosquito coil' floor vents that require a gentle twist of the foot to manage air flow. For the uninitiated, it could seem puzzling to see staff twisting on the spot as if recalling the dance craze, but with these individual controls fitted throughout, once set, comfort levels remain consistent.

"People work better when they have some sense of control over light and temperature. Everyone responds differently to their conditions so it is vital that individuals are comfortable in their workplace and not given the 'one size fits all' treatment," observes Hurburgh.

This helps explain the absence of corridors, although there is one with a ziggurat influence along the north elevation that feeds meeting rooms and conference areas linking a simple hierarchy of internal volumes. A control room at the eastern end is the nerve centre for operations, beyond are open plan administration and office areas.

A narrow floor plate on a south-facing orientation allows indirect light to suffuse work areas without the usual glare problems for computers. Skylights along the northern corridor provide ample daylight while fluorescent uplights have individual dimmers for infinitely adjustable artificial light as required.

"There's a lot of practicality in the curved wall," says project designer O'Dwyer. "Some of it is deliberate, some not. The not so deliberate was that after construction we found that with the curve and the step up to the computer adjusted skylight panels, the building performed exactly the way a car ventilation system works... which is to create a negative pressure at the top of the skylight and suck the air out at even higher velocity. We instinctively knew that, as well as notions about how the drainage would occur. Those big COLORBOND® steel sections are the world's most decorative eaves/gutters."

Externally, the COLORBOND® steel shell in Ebony might seem formidable, but the effect is dramatically different. Because of its roadside position, there was a concern that white or silver cladding could have dazzled motorists. "We wanted to avoid being saddled with major correctional work after opening so the choice was settled on without much argument."

"The issue of celebrating black is interesting," Hurburgh says. "It has become a kind of uniform for Melbourne - certainly among the design and arts community - and an important part of our culture."

H2o specified a shell made from COLORBOND® steel in Fielders' TL5 profile in the colour Ebony. The architects are quick to praise their steel fabricator Scrobar who had to handle 'cuts' of varying sizes along the building's entire length.

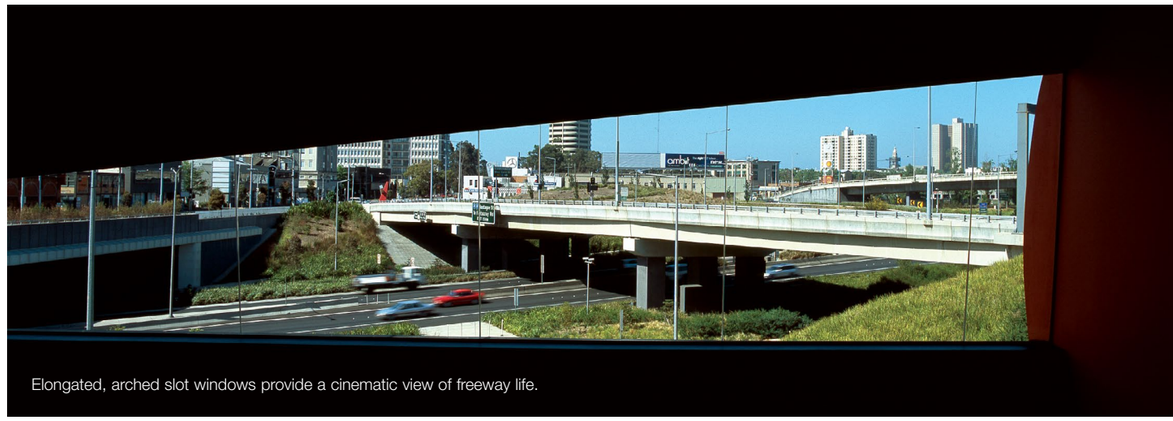
"The 'non-standard' steel envelope came about without agony," recounts O'Dwyer. It needed a good engineer and we had that in Arups. But it also needed an informed, coordinated team of tradespeople who understood that we were doing something quite different on this project.

"Sustainable buildings really need to be seamless. The industry needs to take a more collaborative approach with consultants, tradespeople and sub-contractors. That is what made this project possible. Everyone needs to fully understand their role and relationship to the site. The idea of subbies coming and going in isolation would have been hopeless here.

"Essentially the structure was built in three parts. Off-site

(top) Westerm elevation provides vehicle service bay and undercover parking.

(below) Feeder lane to the Burnley Tunnel entrance offers an exhilirating glimpse of the SES home.



Elongated, arched slot windows provide a cinematic view of freeway life.

fabrication and restricted site access meant we needed to crane in the structure as three 'modules' and assemble these on the masonry base. Steel sheet gave great flexibility to deal with the geometry. It provided speedy fabrication and eliminated wet trades," O'Dwyer adds.

Hurburgh explains the SES design process as much about "knowing what we had to avoid. I don't think anyone wants to work in a building designed with mineral fibre tiles throughout and 400 lux illumination. It is just not the way we would choose to live any other aspect of our life. Why not have a higher ceiling height, a skillion roof, uplights, different materials and views?"

Sub-floor flexibility is provided by hatches for technology upgrades and incorporates fibre optics and ventilation ducting for easy access instead of bundling everything into a ceiling cavity. Office materials are low or non emission materials and recycled timbers. "Hopefully," says Hurburgh, "this will be seen as a thoughtful building."

Hurburgh says the time should be up for the dumb, energy guzzling high-rise. He cites the typical commercial office block as far removed from the way most people would choose to live. "This really provided the cue... to treat it virtually as a lively residential response instead of a drab, commercial product... so it really does represent our style, which is really about producing a humane modernism".

"The key issue," says O'Dwyer, "was about accepting heat in winter and rejecting it in summer." H2o worked closely with Tim Elgood from Hyder Engineering of Sydney who came to Victoria as a consultant on Federation Square. "Tim helped us to refine the details. It's effectively a double skin so you can vent heat from the side or accept the energy available."

Hurburgh says that there has been a major shift towards steel buildings. "The advantages are now widely accepted. The past 20 years have seen a huge turnaround in the way people see them. Because they are lightweight and of dry construction they are much more relevant to the age. We just don't have the time to do the ponderous things like standing around getting filthy mixing mud."

There is something of a renaissance occurring around Southbank with the recently opened Australian Centre for Contemporary Art (Wood Marsh) and refurbed National Gallery of Victoria (Mario Bellini) amongst immediate, distinguished neighbours.

Not far away is an encroaching generation of office towers and apartment blocks. Hurburgh hopes that "thoughtful design" will prevail. Strong-willed architects and informed clients are the best defence against the rising tide.

For a modest budget Victoria's SES has acquired headquarters notable for all the right reasons. If nothing else, it confirms Melbourne's reputation as the capital of Black.

Peter Hyatt

ESD SUMMARY

- Designed for a five star energy rating (to SEAV criteria)
- Retain existing concrete slab to avoid disturbance of possible in-ground contaminants and need to cart to prescribed landfill area
- Natural ventilation to open plan office areas for 40 percent p.a.
- Reduced size of mechanical equipment from increased natural ventilation
- Natural lighting to open plan office areas for 45 percent p.a.
- Inverted concrete flooring to produce floor plenum
- Displacement ventilation outlets to plenum adjusted by the occupants for localised temperature control
- Improved quality of life and productivity from improving internal office environment
- 25 per cent return on investment
- Target maximum annual operational energy of 440 MJ / sqm

Client:
Department of Justice

Architect:
H2o

Design team:
Tim Hurburgh, Mark O'Dwyer, Sofia Anapliotis and Jim Tsoukatos

Tel:
(03) 9417 0900

Structural/civil engineer:
Ove Arup, Melbourne

Services engineer:
AHW Consulting Engineers

Environmental engineer:
Hyder (Australia)

Builder:
Kane Constructions

Steel fabricator:
Scrobar

Principal steel components:
Feature steel roofing - COLORBOND® steel in Fielders TL5 profile in the colour Ebony.
Non-feature roofing - ZINCALUME® steel in KLIP-LOK® 406 profile.
Tray gutters - ZINCALUME® steel in KLIP-LOK® 406 profile.
Profiled sheet steel walling - Fielders™ SPANFORM®

Size:
1,700 sq.m upper level, 1400 sq.m (car spaces) plus 300 sq.m accommodation lower level

Cost:
$3.532 million - Construction
$6.500 million - Total end costs

Photography:
Peter Hyatt

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Project Coastal House,
Waratah Bay, Victoria

Architect Holan Joubert
Architects Pty Ltd

Structural Engineer Tim Hall & Associates

Builder Campbell and Sons
Constructions

OUT OF THE BLUE

Rippling with good ideas writ large, Daniel Holan's design for a beach retreat at Waratah Bay on Victoria's rugged south-east coast is convincing from head to toe. Lightweight, tough and cool, the design makes vivid use of coastal imagery to create a house of brilliant vertical action.

In most professions the age of 40 is a watershed. If the gravy train isn't carrying you briskly into a golden future, you are probably laying track. There are advertising gurus and futures market traders in their middle '20s pulling serious six figure salaries boosted by princely bonuses. In architecture such swift development and glittering recognition of early genius is all but unknown.

At the ripe old age of 39, Melbourne architect Daniel Holan has quietly developed a repertoire of modern, functional buildings. He is company CEO and pencil sharpener rolled into one. He typifies the career anomaly that is architecture. Most hit their stride about the time other professionals are on the dark side of middle age. Now a stellar cultural export, Glenn Murcutt was barely known outside of the profession at 40.

"It was often said at university," Holan recalls, "that it takes almost two decades to mature as an architect. It keeps things in perspective," he says. "Architecture is not a path to vast wealth, so you might as well enjoy the journey."

Such slow-motion starts are not un-typical in architecture, where careers rarely coalesce until the age when many people are weighing up retirement. It illustrates once again that in architecture, experience is more asset than liability.

Holan's clients would surely be grateful that he stuck it out in architecture rather than chase other careers offered to him. Going beyond the call of duty in this relatively remote location, he remarks, "It was partly a labour of love. Why did I do it? Because it is something I am passionate about."

His work demonstrates that elite architecture can be aspirational and affordable.

Cost aside - inexpensive considering its remoteness and substance - Holan's design is a savvy combination of art and engineering. Perhaps this defines all great architecture. By optimising opportunity he confirms why this project is special.

Perched on a steel chassis and rising the equivalent of three-levels, the steel and glazed 'cube' house rises to the occasion and provides full 360 degree views to the hinterland, along the coast and out to sea.

On a wide green site, the obvious temptation is to occupy plenty of pasture. Instead the house it expresses a strong vertical attitude with a minimal, light footprint. Being held aloft to the prescribed height limit, the house easily catches prevailing breezes during hot summer months.

Tough and confident in concept, muscular steel columns generate the trunk to this tree house clothed in COLORBOND® steel cladding in the colour Gull Grey. At each of its corners, galvanised steel blades project shade without compromising aspect.

Almost the modernist cliche of steel and glass box atop the grassy knoll, the design speaks of uncluttered symmetry and simplicity. Just a kilometre or two away at Walkerville, the conventional

(above and opposite) Top floor living spaces accessed by spiral stairs connect with first floor sleeping quarters to provide sweeping views towards Wilson's Promontory and Waratah Bay hinterland.

(top) Double skillion roofs in counterpoint rake up to take in views towards Wilson's Promontory

(above) North elevation reveals an elegant steel frame and clad structure

(opposite) View from the south-east corner through the car port. The staircase conceals laundry and storage areas.

wisdom of development has produced a comucopia of styles as varied as Swiss chalet, brick veneer and alternative lifestyle love shack.

Previously with the Melbourne office of Bates Smart, Holan says his ambition was always to develop his own perspective on Australian architecture. "There is a certain safety and security in the larger practice," says Holan, "but against this is an anonymity that means an absence of real risk-taking and rewards that come with running your own business."

Strong architecture invariably has strong bones and Holan hangs plenty off his steel framed skeleton - notably the crisp, high performance COLORBOND® steel in CUSTOM ORB® profile.

Poised on just four double I-Beam portals, each at the middle of the four sides of a square, the corners are free to float without immediate support. These corners are further dissolved using butt-jointed glass through two storeys.

At ground level are two water tanks, stairs with laundry underneath and cover for two cars. The first 'platform' is for sleeping - two bedrooms with one bathroom. The top 'platform' is an open-plan square of living and dining while the projecting balcony to the east allows direct sun.

Holan has taken great care in siting the house on its ridge-line. With no obvious 'front' and 'rear' to the house, the design makes few decorative concessions. On the top floor, east facing, is a glass-framed balcony. The staircase on the south provides access to the first level bedrooms/bathroom and spiral staircase to the top floor.

Double skillion roofs in counterpoint permit the ceiling's rake up to views of Wilson's Promontory as well as the verdant green pastures inland. As the house is relatively isolated, it also integrates water collection using the geometry of the house and its roof forms; rain-water from a central gutter is collected by two opposing tanks at the base of the building.

All exposed faces of the roof are clad in COLORBOND® steel in the colour Gull Grey to form a protective shell to envelop the building. The use of COLORBOND® steel is also extended to the wall cladding, clearly expressed in large rectangular panels between the structural beams and expansive glazing on all four elevations. Furthermore, at mid-level the first-floor glazing is protected by innovative steel sun-shades.

Nevertheless, it is Australia's contemporary expression of steel structure, corrugated steel cladding and large glass windows that is the dominant theme with this project. Steel members were precision-cut off-site and assembled in a factory and constructed on-site like a huge meccano set in just one and a half days. In turn, the specialised double glazing system and CUSTOM ORB® clad stud walls were treated literally like infill panels and efficiently constructed (despite the strong headwinds!). With these weather conditions in mind, it should also be noted that all the rafters are bolted to 6mm thick plates.

Holan describes the design as a vital expression of various metaphors that are unique to Australia.

"With its floating structure, it is influenced by the contemporary architecture of the Sunshine Coast, Queensland or Northern Territory. Yet, its deliberate lack of refinement in structure and interior respects the 'blustery' south-west winds and stoic lifestyle of residents on this southern headland.

"The double-skillion steel roofs and plastic forms offer new possibilities for the Australian vernacular in this new century," Holan says. "Also, our growing confidence of engagement with the Asia-Pacific enhances our architectural expression. For instance, the pagoda roof form of this house is devised from familiar single-pitch corrugated iron roofs - the Waratah Bay House becomes a temple by the sea.

"Architecture often takes the form of a silhouette image in our collective memory. Popular examples would include The Eiffel Tower or Sydney Opera House. At a more defined architectural level, Glenn Murcutt's famous bush houses, for example, with their long pavilion plans and crisp roof-lines come to mind."

Perhaps the most arresting aspect of the architecture is its absolute graphic resolution. One of modernism's principal characteristics - its appearance of bare necessity - has also been its undoing for many observers. In this regard the design advances modernism by being structurally creative. Its steel cladding skins the structure in a way highly responsive to light and shade, thus avoiding the need for alternative surface decoration.

Holan's choice of cladding creates a changing canvas that responds to changing light conditions. COLORBOND® steel in the colour Gull Grey has textural qualities that have been well documented in Australian architecture.

The house appears like a lonely, hatted figure in profile, looking out to Bass Strait from its coastal headland. With the Wilson's Promontory lighthouse, it shares the exclusive right to the highest and best vantage points on the southern-most area of mainland Australia.

The frameless, glazed balcony, ground-to-ceiling corner windows, geometric plan and sparse fit-out, combine to push the concept of habitation towards a raw, spiritual experience - a suspended stage-set to encounter the sun, coastal winds, sea-spray, and panoramic views.

Holan confirms an emerging trend that, even a decade ago, would have been unlikely. On reflection, such assured design isn't so surprising. The influences of a recent generation have given emerging Australian architecture the confidence to spread its wings.

Such design is quintessentially Australian without resorting to the equivalent of a bob-cork or slouch hat. It points to a coming of age by local architects with work that relates to place. Sometimes poetically. The Waratah Bay house deserves all of the praise it wins.

Peter Hyatt

Project:
Coastal House,
Waratah Bay, Victoria

Architects:
Holan Joubert
Architects Pty. Ltd.

Project team:
Daniel Holan, Richard Joubert, Peter Wolfenden, Anthony Radl

Structural Engineer
Tim Hall & Associates

Builder:
Wayne Campbell - Campbell & Sons Constructions

Building area:
Carport undercroft - 38m^2;
building and laundry - 83m^2;
suspended deck - 13m^2

Principal steel components:
Roofing COLORBOND® steel in the colour Gull Grey in CUSTOM ORB® profile

Walls:
COLORBOND® steel in the colour Gull Grey in CUSTOM ORB® profile

Cost:
$220,000; includes septic system & rainwater tanks

Photography:
Peter Hyatt

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Project: Kangaroo Island Visitors' Centre
Architect: Shannon Architects
Project Manager: Savant
Structural Engineers: Bastick Llewellyn

STRIKING A BALANCE

Architect David Shannon's excitement for Kangaroo Island isn't just about the new visitors' centre he recently completed. Even before the centre appears, the architect is keen to show me every breathtaking aspect of the island, from 'Remarkable Rocks' (a Daliesque configuration) to Admiral's Arch. The architect's overwhelming enthusiasm for the island (a half hour plane trip from Adelaide) is contagious, and grew with the drive across the island to the Rocky River Precinct, at the Flinders Chase National Park, where Shannon's new building is located.

Even before the visitor centre comes into view, there are stories about the treacherous laterite (a reddish stone) that covered most of the unmade roads until recently. "Cars used to regularly roll off the side of the road, even when they carefully applied their brakes," says Shannon. But the new sealed roads weren't laid as an invitation to spoil one of the most idyllic islands in the Southern Ocean. And with one hundred thousand visitors (a large proportion international) coming to Flinders Chase National Park each year, this was a real possibility.

Finding the balance between conservation and tourism requires an experienced architect. For Shannon, competence not only comes with years in practice, but also with the experience obtained through some of the firm's projects. One of the firm's earliest projects was to restore an engine house in the historic mining site of Burra (in northern South Australia, where the regulations governing historic buildings, known as the Burra Charter, originate). "There's a fine balance between conserving and providing a new experience for visitors. I generally put myself in the position of coming to a place for the first time," he says.

The first experience for Shannon and his colleagues in seeing the original visitor centre at the Rocky River National Park was certainly memorable. The main building consisted of a rudimentary site office with a tacked-on verandah and the most elevated part of the site was given over to the carpark. The 1970s cream brick administration block toilet facilities were not only unsightly, they didn't cater for the increasing number of tourists. Two houses, built for the park rangers, were appropriate to a suburban context, not a pristine bush environment.

While the brief from the National Parks and Wildlife South Australia, Department for Environment and Heritage, was for a new visitor centre and improved facilities, the client didn't want a series of new buildings at the expense of the sensitive environment. Ironically, as Shannon says, "it's more about getting people out of a building and setting up a journey in which they can explore the site." And while many architects might be keen for visitors to leave with memories of their design, for

(above) Limestone walls which recall the geology of coastal cliffs contrast with the ZINCALUME® cladding seen at the visitors' centre and elsewhere on the island.

Shannon at least, it was the last thing on his mind. "I didn't want people to leave the National Park with the impression of a village. I wanted them to leave the place with their experiences of the bush and all the wildlife on the island," he says.

Shannon's earliest sketches (and remarkably the ones which were used in the final design) clearly separated the carpark from the visitors centre. "I wanted to take people away from the road and into a completely new environment," he explained. The gently sloping site that was once a carpark was earmarked for the new centre.

A new more environmentally sensitive car park was designed by landscape architects Taylor Cullity Leathlean, (one that was interspersed with the bush).

Visitors, arriving both by car and bus, leave the carpark and make their way across the road to the new centre. The limestone (built by the local stonemason) and ZINCALUME® steel facade follows the contours of the site and creates a fortress-like wall to the passing cars. To allow the experience of entering a new environment to be easily digested, Shannon Architects and Taylor Cullity Leathlean designed a meandering timber ramp that zigzags across the site.

The limestone wall acts as a plinth for the lighter material, steel, used not only in the facade, but also as the primary structural material for the centre. The structural steel frames in the building are hot-dipped galvanised steel. ZINCALUME® steel in CUSTOM ORB® profile is used for the roof and partially for the walls. "The ZINCALUME® steel is flexible, light, and economical to use and there's an appropriateness to its weathered colouring in a bushland setting," says Shannon. "You don't have to paint it. ZINCALUME® steel dulls off to a grey and will blend with the colours of the tree trunks. It's also low maintenance. Its patina is the finished form," he adds.

The simple roof plane, made of ZINCALUME® steel in CUSTOM ORB® profile, was designed to channel the rainwater across the site for collection and reuse. And with the steel's flexible qualities, the architects could scallop the edges of the roof to create a dramatic entrance to the centre. "The shape is loosely based on eucalyptus leaves. It creates a softer edge into the bush," says Shannon. To create the same dappled effect as the leaf in the bush, the architects inserted a series of translucent fibreglass sheeting panels into the steel roof. These soften the light and make the steel appear even more animated. Of particular concern for Shannon was the creation of spaces that would be comfortable for both small and large groups of visitors. "I wanted the spaces to feel right, irrespective of the numbers who used the centre. The forecourt wasn't designed to be overwhelming."

The visitor centre had to include a number of functions under the one roof: kitchen facilities and a café (outdoor seating), a retail space for souvenirs, a gallery to display the flora and fauna of the area, toilet facilities and an entirely separate office/ administration wing for the staff and park rangers on the island. Like the irregular shaped canopy that greets visitors, the different functions within the building are loosely defined. "There's a simplicity to the design. The two roof planes are not complicated. But there's a complex arrangement below the steel rafters," says Shannon.

The gallery, for example, which occupies one of the highest

(above and below)
The visitors' centre interior reflects David Shannon's determination to provide "spaces that feel right, irrespective of the numbers who use the centre."

points on the site, had to meet the requirements of its function (the black box is generally favoured by curators) and provide a strong connection to the bush. Remarkably, Shannon was able to bring together these incongruous requirements. The wall clad with ZINCALUME® steel in CUSTOM ORB® profile, punctuated with cypress pine panels, gives the exterior a hatch-like appearance. And from inside the gallery, the 'hatches' double as windows. "The idea was about looking for wildlife. You look down on the ground for lizards. You'll find kangaroos crossing the middle panes and the sky is filled with native birds."

Steel poles feature along the walls of the gallery. Through its angular floor to ceiling window, steel poles support the cypress pine battens, used to screen the northern light. Extending the entire breadth of the centre, including the separate office wing, steel poles fabricated from mild steel are used to define the open plan spaces. Like a corridor, the hot dipped galvanised poles suggest a direction for visitors.

"Steel provided the framework for everything else. Its strength provides the freedom to create more interesting spaces," says Shannon. One of the other benefits was the ability to fabricate the steel near Adelaide (Bowhill Engineering). "There was very little cutting on site. And the way the composite columns have been fabricated, you can't see the seams".

Water tanks made from AQUAPLATE® steel and solar panelsharvest the environment's riches in sustainable style.

The rear facade, which is currently framed with small native saplings, will eventually merge with the bushland setting. Constructed in plywood and painted in laterite and silver grey, part of the brief included a sheltered outdoor eating area. "The facade was designed to protect diners from the south-westerly winds. We didn't want the outdoor space to feel like a hangar. We also used steel for the pergola to create a more human scale. There's also the option to attach awnings if further weather protection is required," says Shannon.

While function is crucial to the design, there's also an important sense of joy evident in the architect's solution. The AQUAPLATE® steel rainwater tanks, for example, create a tail-like appearance in the design. Reduced in height as they 'climb' the site, they add a whimsical addition to the visitor centre. "We didn't want to cut into the landscape. We wanted to minimise the impact of this building. This vegetation has been here for decades. Rejuvenation is the last resort," says Shannon.

For Shannon Architects, it was the small things as well as the larger design concepts that were crucial to the project's success. "There has to be a consistency even with the smallest buildings," says David Shannon. And with only one phone line available to contractors and a dividing sea making building operations that much more difficult, the more that could be fabricated in Adelaide (in particular the steel structure), the easier it was to complete on time.

And while the time line was important for the architects and the clients, the retention of the unique bushland setting was crucial. "We had to make sure the builders remained in the footprints of the building. It didn't matter what part of the site they occupied. I want visitors to leave with memories of the bush, not the human elements of the site".

Stephen Crafti

ARCHITECT'S STATEMENT

Developments at Rocky River had taken place in an ad hoc manner over the past 60 years. Since 1985, the provision of improved ferry services and roads, and active promotion of Kangaroo Island as a priority tourist destination has resulted in a dramatic increase in the number of park visitors.

Shannon Architects was commissioned to provide architectural services for the comprehensive redevelopment of the Rocky River Precinct. This complex development incorporates many diverse functional elements:

All spaces have strong connections to the landscape, with external spaces accommodating functional elements to maximise outdoor experiences and activity. Design themes include site geology and topography, "Island", flora and fauna. Conceptually, visitors pass through a limestone wall reminiscent of coastal cliffs. The wall physically and figuratively separate visitors from the road and car parking.

Project:
Kangaroo Island Visitors' Centre

Architects & Principal Consultants
Shannon Architects
Tel. 08 8344 2933

Project Manager
Savant

Risk Manager
Dept of Administrative and Information Services

Landscape Architects
Taylor Cullity Leathlean

Hydraulic Engineers
Secon

Structural Engineers
Bastick Llewellyn

Electrical and Mechanical Engineers
Bestec

Civil Engineers
Dare Sutton Clarke

Quantity Surveyors
Rider Hunt Adelaide Pty Ltd

Builders
J.M. Berden Pty Ltd (houses and campground amenities)
A.J. Chappell Pty Ltd (visitor centre and infrastructure workshop)

Photography
Paul Bradshaw

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Project: Jingili Kindergarten, Darwin, Northern Territory
Architect: Jackman Gooden Architects (NT)
Engineer: Connell Wagner
Landscape: Marisa Fontes
Builder: Sunbuild Pty Ltd

HOUSE OF FUN

From the outside, the single-storey building blends with its suburban surrounds, but walk through the child-proof gates and you enter an alternative world of colour, fun and noise... and that's even without mentioning the kids.

Jingili Kindergarten on the outskirts of Darwin's CBD transforms the traditional stereotypes of school designs, creating a kindergarten that encourages fun and stimulates imagination.

The new facility became reality when the Jingili Primary School Council looked into developing an existing pre-school facility – which sat isolated by a football oval from Jingili Primary School – into an integrated childcare and pre-school centre.

Establishing a new childcare facility immediately adjacent to the existing preschool would allow for the integration of staff, greater flexibility in activities and facilities and reduce travel concerns between the childcare and preschool facilities. At the same time the Marrara Family Centre was looking for a new location. Discussions between Jingli and Marrara ensued, and Jingili Kindergarten was formed.

With the location decided, the architectural concept began to develop. Jackman Gooden Architects (NT) created a design to address the needs of the children, the demands of the

(above) The horse-shoe skillion steel roof reflects Darwin's hot sun away from the children's play areas.

(far right) The multi-coloured, curved walls create an intriguing, fun, practical playground for the kids at Jingili Kindergarten.

location, and the requests of the Primary School Council. Initial briefing and design work was carried out by design director Colin Browne, with the implementation phase handled by colleague Melanie Ford.

According to Ford, the design was generated by integrating the client's and the Education Department's standard briefing requirements with a concept that captured the children's world and imagination. The aim was to design something fun, creative, flowing and with opportunities for adventure. "We responded with interesting shapes, different materials, colours and textures so the kids could touch, learn and experiment with their own creativity," Ford explained.

The brief called for the childcare centre to be built adjacent to the existing pre-school, which was to be given a facelift to complement the new Jingili Kindergarten while maintaining its individual character. The design by Jackman Gooden Architects created two wings for the childcare facility, linked into the existing pre-school. Each wing opens up onto wide, sheltered verandahs, which along with the generous roof overhangs protect the buildings from the sun and tropical downpours. Single doors and larger openings with roller shutters increase the airflow through the wings and blur the boundary between internal and external areas. Louvre windows and skylights in the verandahs provide extra light to accentuate the integration.

Materials were chosen on the basis of considerations which included look, ease of use, cost effectiveness, environmental friendliness and thermal effectiveness. "Exposed materials were selected on the basis of providing interest in texture and colour for the children and also ease of maintenance," Melanie Ford said.

The horseshoe-shaped steeply pitched roof is clad in ZINCALUME® steel in CUSTOM ORB® profile to deflect heat. "Through the use of a simple roof form and a consideration of scale to reflect the surrounding residential area, the new facility now nestles happily within its domestic surrounds, while still obviously serving a public function," Ford said.

ZINCALUME® steel in both CUSTOM ORB® and MINI ORB® profile is used on the walls of the wings, while panels of COLORBOND® steel in the colours Torres Blue and Homestead are used sporadically along the walls. All the window frames have been powder-coated to match the wall cladding and roller-doors (hiding storage areas) are finished to blend with the design.

"We wanted to use bright, exciting colours, but also wanted to steer clear of primary colours as they are a bit too severe. COLORBOND® steel gave us a range of colour options that made it possible to create the look we wanted," Ford explained.

(above) Climate rules! Design and materials chosen for Darwin's Jingili Kindergarten help the facility make the most of tropical conditions.

The two wings of the building create a horseshoe-shaped courtyard that includes the large overgrown trees that previously stood on the unused property next to the existing pre-school, making the most of the shade and breeze they provide. While a large African mahogany tree has since been removed, trees and fabric sails shade the courtyard, making it possible for children to play outside as the heat hits the mid-30s.

The separate wings provide two quite distinct areas within the childcare facility. On one side a fully-air-conditioned wing can be opened up fully or enclosed as the weather dictates, and on the other a passively-cooled activity area was established for older children. But it is the courtyard that is the epicentre of activity during the day, where children play, eat on the verandahs or draw and do craft work while seated at tables. The importance of the shaded, breezy courtyard in the searing tropical heat cannot be underestimated.

"The childcare brief required flexible internal and external spaces that could be adapted to suit the imaginations of the children - and the staff," Melanie Ford explained. "We needed to cater for individual children sitting quietly to read a book, and for groups of up to 15 children participating actively in a task. The structure of the roof allowed for walls below to be relatively free in their location, and thus a delightful sequence of internal and external spaces evolved."

Both wings join the existing preschool, in effect providing a core of shared staff facilities at the junction of the 'new and the old', with shared fringe facilities such as an interview room and kitchen. The outside areas remain dedicated childcare and pre-school spaces - so that these two can remain independent.

It was important to both maintain the identity of the existing preschool - which was built pre-cyclone – and to ensure it fitted under the 'Jingili Kindergarten' umbrella. To achieve this, the pre-school was updated and upgraded to match the overall design of the childcare centre, but separate entry ways and independent spaces remained so as to keep its own pre-school identity.

Understandably, the kindergarten has generated a good deal of publicity in the Territory. The 53-person childcare facility boasts a waiting list attributed in part to that publicity. Local feedback on the non-intrusive design has been uniformly positive and matched by accolades from the architectural community. Jackman Gooden Architects recently won both the Public Building award and the Tracy Memorial award for the design at the 2002 Royal Australian Institute of Architects (NT) awards.

(above) The Innovation Centre is flexible and adaptive with office 'modules' and communal technical resources.

"The building is quite a simple construction really," Ford explains. "The different angles of the walls and the use of bright colours are what make an impact – and COLORBOND® steel has been a part of this. It's a design that works well, both functionally and aesthetically, with the pre-school."

The final word on the design should perhaps go to the person who has experienced its effects more than most. Jingili Kindergarten Manager Julie Cadd is understandably proud of the design and explains the reasoning behind it as simple. "The design is bright and fun," she says. "One wing is cross ventilated, the other air conditioned. Living all the time in air-conditioning is not healthy - and lets face it, if they were both air-conditioned we'd never go outside."

Paul Cheal

ARCHITECTS' STATEMENT OF SIGNIFICANCE

Jackman Gooden Architects recognised the pivotal role childcare centres and preschool facilities today play in the development of children. While some children may attend for only a few hours each week, others may be present at either or both facilities daily. Ages for childcare vary from s ix weeks up to preschool / primary school age. Therefore, with an integrated facility such as Jingili Kindergarten, the developmental stages of all children had to be considered.

To best encourage confidence, independence and creativity in the children, key factors had to form an integral part of the environment: scale and flexibility of space, surface texture and colour, light quality and views. These features combine to mould a child's life experience and thus influence development. The object was to provide a complete and positive experience for each child.

Project:
Jingili Kindergarten, Darwin, Northern Territory.

Client:
Jingili Primary School Council

Architect:
Jackman Gooden Architects (NT).
Tel: (08) 8981 9466

Cost Consultant:
Clive Towell and Associates

Engineer:
Connell Wagner

Landscape:
Marisa Fontes

Builder:
Sunbuild Pty Ltd

Cost:
$1.1 million

Photography:
Warren Kirby

My inspiration

"Our practice has designed several beach-related projects but this isolated site posed a unique challenge. The roof forms and wall cladding made from COLORBOND® steel act as protective barriers to the blustery environment.

In turn, this iconic building material has been combined with an expressive steel structure and expansive steel glazing - a vertical vernacular that floats above the water-tanks and stairs.

The Waratah Bay House has integrated several images familiar to this remote coastal area into a concise expression. This includes life-saver towers, the Bass Strait oil rigs and even the seagulls with their grey wings and upright stance on spindly, red legs. They have all contributed to the identity of this lone dwelling, located on the southern end of mainland Australia."

Daniel Holan

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