steelprofile

Architectural steel innovation with BHP Steel ***number 77, december 2001***

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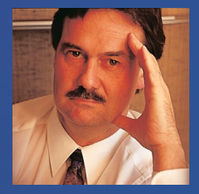

NUMBER 77, DECEMBER 2001. PRODUCTION: Sean Moylan **PHOTOGRAPHY:** Hyatt & Associates, Anthony Browell and Fred Albronda **ART DIRECTOR:** Natasha Krncevic **CORRESPONDENCE:** Steel Profile, PO Box 961, Crows Nest, NSW 1585 AUSTRALIA. Email steel.profile@theprojectgroup.com.au

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(cover) Steel and glass frame Max Pritchard's latest design set amongst McLaren Vale's gums and grapes. Galvanised sheet steel is used extensively on doors, built-in wall cupboards and kitchen joinery of this suprising McLaren Vale residence.

(this page) St. Joseph's church at Bracken Vale in suburban Brisbane - a local landmark with its LYSAGHT SPANDEK® finished in COLORBOND® Ultra steel in Off-white. P16.

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Project The Australian Prospectors and Miners Hall of Fame
Architect Ferguson Architects
Structural Engineers Trevor Williams and Associates
Builder Devaugh Constructions Pty Ltd.

MINING METAPHORS

Australia may have ridden on the sheep's back, but it really took off with the mining industry – first with the gold rushes, then with iron ore and nickel. The Prospectors and Miners Hall of Fame in Kalgoorlie, Western Australia celebrates the industry as a living mix of past, present and future.

So much has been said about the traditional Australian shed as an inspiration for contemporary buildings that one suspects the case has been over-stated. So, should we be worried when the principal architect of the Hall of Fame, Ahmad Abas, says "I keep coming back to the old shed and lean-to…I mean, you drive past a house in Kalgoorlie and there's the main roof at a certain pitch and ten years later you have an extension, five years later the next addition…some just tumble off into the back yard."?

Fortunately, no. What might have been a giant sculptural conceit in the middle of the red bulldust of Kalgoorlie's Eastern Goldfields, is a splendid tension between form and function, metaphor and contemporary museum.

This success stems from the inclusive and collaborative process of conceiving and building the complex.

The idea was born five years ago when the Kalgoorlie Prospectors Association decided that a tangible celebration of the Australian mining industry was needed. With help from legendary prospector, Mark

(below) ZINCALUME® zinc/aluminium alloy coated steel in SPANDEK® profile clads the outer form of a building which mimics the additive quality of lean-to miner's shacks.

(opposite) The shed becomes a monumental temple with soaring verticals.

Creasy, an architectural competition was held, attracting 46 entries. The judges consisted of three architects and three representatives of the mining industry. Project Manager, Norma Latchford, admits now that she misjudged the latter: "I thought these guys are going to want something traditional. But they didn't. They could see that the design worked in a practical way that some of the other designs didn't. You could put inside what we wanted to say, but at the same time it was an interesting building in itself."

In fact, what the committee wanted existed only in broad outline – four themed gallery spaces, a hall of fame, a research and library component and an existing site cleared of slag heaps and adjacent to Hannan's North open air mining museum.

The process, then, became a collaborative effort with a constant dialogue between architect and client. But it was also a process in the way Ahmad Abas conceived the building. Although he began with images which would help shape the outer form of the building - the additive quality of the lean-to miners' shacks with their one-way pitched corrugated iron roofs, together with the ad hoc pitted landscape of the Goldfields with its huts, head frames and shafts - the external form is very much an expression of the building's interior function.

The 'sculpted' interior spaces form a rhythmic flow from the low entry, around a series of spaces varying in size and shape, along the low-ceilinged Hall of Fame to the immense Business of Mining hall with Lang Hancock's Auster plane suspended from the roof. They have helped generate the building's exterior appearance. Also contributing is the building's circulation. This is signaled by the uneven, weaving journey across the forecourt with its five mild steel and lyten steel sculptures by Stuart Green.

Once inside, the visitor can follow a similarly zig-zag pattern through the lower galleries or an upward spiral plotted by the continuous stainless steel handrail, first to the hangar-like Business of Mining hall, then to the steel-framed observation deck and ZINCALUME® zinc/aluminium alloy steel clad light tower relaying natural light to the foyer below.

In plan, the building is a pinwheel expressed externally by the massing which is like a cluster of lean-to sheds. Built into a platform of compacted stones on the entry side, the slope of the site enables the rear side of the building to rise to a triple-height volume clad in ZINCALUME® steel in SPANDEK® profile. The shed becomes a monumental temple, its soaring verticals topped by a one-way pitched roof above a tall, gridded orange-painted feature window and doorway.

"Using ZINCALUME® steel in this light," says Abas, "it comes across looking matt. Even when it was first finished, it didn't look glary. Also the dust which settles on it takes out the intensity." The other advantage of using SPANDEK® with its flat ribs was ease of cutting – important in a building like this with its interlocking irregular planes.

Inside, a zig-zagged steel ramp and stairway (evoking the terracing of open-cut mining pits) hugs the perimeter of this massive space, leading eventually to a viewing platform. The ramp is an internal articulation of the building's animated exterior while the industrial character of the space with its expressed steel structure declares an allegiance not to the tradition of museum buildings, but to the industrial history the building celebrates.

The building also defies the tradition of museums by the way it opens itself up to a constant dialogue between

(above left and centre) A continuous stainless steel handrail guides visitors on a zig-zag pathway throught the exhibits.
(above right) Veins course through floors and ceiling to remind us of the prospectors' holy grail.
(below) Pioneering aerial prospector Lang Hancock's Auster light aircraft is suspended above display areas, earmarked for giant mining equipment.

(above) Steel and off-form concrete are juxtaposed with salmon gum and blackbutt flooring.

inside and outside, where the natural and mined landscape is inseparable from the contents of the museum.

On the inside, the industrial materials of steel and off-form concrete are juxtaposed to a discrete use of timber – salmon gum (local Goldfields hardwood) and blackbutt flooring and Tasmanian hoop pine paneling. The pinwheel circulation constantly throws up unexpected views to the landscape outside, either through modestly scaled square windows or through the massive windows of the Prospecting Gallery framed with 80 year old recycled hardwood and the heroic vertical window/doorway at the end of the east/west spine of the building.

Conversely, it is possible to see into the building from the outside, notably on the side facing the Prospecting Gallery. Here the glazing becomes a feature window with Mark Creasy's ancient, rusting Toyota pick-up proudly visible.

This elevation also summarises the rhythms of the building's exterior where flat, geometric patterning engages in an arm wrestle with the building's playful asymmetry – for example, the jaunty lean of the pseudo-headframe above the observation deck. This is reinforced by the angular volumetric exterior articulation of the building, by the restrained use of coloured elements against the neutral SPANDEK® and CUSTOM ORB® profiled ZINCALUME® (interior) cladding and by setting natural and industrial elements against one another – like the single, vertical orange steel supporting column next to the bold timber grid of the Prospecting Gallery.

The boldest gesture of connection between inside and outside is the curved blade wall of off-form concrete which sweeps into the foyer. Inside, a brutal incision reminiscent of the open-cut pits allows the insertion of an internal steel stairway.

An interesting feature is the lack of gutters. Instead, the building's generous overhangs use pressed ZINCALUME® steel sheet fascias to protect the roofs from cyclonic winds, while the rain is left to

cascade down from the apparently floating assembly of roof planes.

Light and heavy, permanent and impermanent, natural and industrial, continuity and interruption – these are just some of the oppositions which make this building a wonderful metaphor for one of Australia's first industries.

Paul McGillick

ARCHITECT'S STATEMENT

Since winning a national architectural competition in 1997, the design has been developed into a first-class exhibition complex housing a hall of fame, four main exhibition galleries, a research centre and library, theatrette, shop and ancillary facilities over a total building area of approximately 5000 square metres.

The exhibition spaces are located over two main levels, including the soaring volume of the Business of Mining hall which has been designed to house large mining equipment donated by the industry. An observation deck located on the top of the building allows views across the existing open air heritage precinct, Kalgoorlie and the surrounding Eastern Goldfields. One of the main gallery spaces, the Geology and Minerals Gallery, has been designed also to serve as a venue for receptions and functions.

The contemporary design incorporates concrete, steel, recycled timber and glass and is an expression of the scale, materials and forms evoked by the mining industry. Bold forms combined with an additive approach to the massing of the complex characterise a robust industrial aesthetic. The use of simple and stark materials such as off-form concrete and ZINCALUME® steel cladding further enhance an appearance appropriate for the striking Kalgoorlie landscape.

The unique site and context have strongly influenced the resolution of the building into a stark sculptural mass to be viewed from all angles of approach. The breakdown of forms and the varying pitches and falls of the roof planes help to create a rhythm around the perimeter of the building.

Once inside, the continued expression of the concrete superstructure further reinforces a 'structural expressionism' evident in the treatment of the interior of the building. The use of exposed large steel components brightly coloured against the neutral backdrop of raw concrete and white infill walls proposes the building interior itself as an animated evocation of an almost 'constructivist' aesthetic.

The overall outcome of the form of the building has been driven from the interior of the complex. The functional requirements of the brief, combined with a distinct spatial momentum between the exhibition spaces, generated a structure which was then treated from the outside as a mass cluster of separate buildings. The cluster is unified by a rational and consistent approach to additive building – much in the style of typically Australian lean-to sheds.

Effectively, the entire building is a series of simple skillion-roofed lean-to sheds, massed against the 'original structure' which has been abstracted into the north-south RC wall and the central east-west axis of the building which houses the Hall of Fame itself.

Project
The Australian Prospectors and Miners Hall of Fame

Client
Australian Prospectors and Miners Hall of Fame Ltd.

Architect
Ferguson Architects
Tel: (08) 9322 4044

Structural Engineers
Trevor Williams & Associates

Builder
Devaugh Constructions Pty Ltd.

Steel Fabricator
Fremantle Steel Fabrication Co.

Principal Steel Components
External Cladding – ZINCALUME® steel in SPANDEK® profile
Internal Cladding – ZINCALUME® steel in CUSTOM ORB® profile

Business of Mining Gallery:
Prefabricated main roof truss components – 114CHS, 165CHS 88CHS and 60CHS
Vierendeel trusses: Components – 150UB and 150UC
Quadropod frames: 114CHS and 88CHS
Headframe: 200UC and 150UC
Observation Deck: 6mm Chequer plate floor, main beams – 530UB, 250UB; Deck framing – 200UC
Roof Fascia and Barge beams: 180PFC with folded zincalume pressing
Hall of Fame gantry: Box beams – 2 x 380PFC
Stair, Ramp, Deck and mezzanine Stringers: 300PFC
Foyer Stair: 600 x 200 welded box beam stringers
Roof Framing: Incorporating numerous hot and cold rolled steel sections
Composite Steel Framed Glazing: 150UC, 100TFC and 25 x 25 EA

Cost
$10.5 million

Photographer
Fred Albronda

(opposite top and bottom) The complex echoes the lean-to shed much favoured by the mining industries' early practitioners.

(left) Recycled hardwood is a prominent reminder of mining methods of times long gone.

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Project Noosa Hospital
Architect Woods Bagot Pty Ltd
Structural Engineers Low & Hooke
Construction Engineers John Holland Constructions & Engineering

SUCCESSFUL PRESCRIPTION

When Mayne Health, then known as Health Care of Australia, submitted a tender to the Queensland Government to build and operate a new hospital on the Sunshine Coast, the building plan it presented was unlike any of the competitive proposals. And it was precisely this point of difference that gave it the winning edge.

In funding terms, Noosa Hospital was to be one of the first of its kind for Queensland, if not for Australia - a BOOT hospital. That is, it would be privately built, owned and operated, and after a period (in this case, 15 years) ownership would transfer back to the Government.

Mayne Health's plan for Noosa was designed to provide 35 private beds and 74 public beds, with services for the public component contracted to the Government at agreed rates. So while coming up with the right costings was crucial to winning the tender, providing the most appropriate and appealing built facility was the other deciding factor.

The land was provided by the Government - a slice of bushland surrounded by scattered housing on the back blocks south of the Noosa River on Queensland's Sunshine Coast. The site and its sub-tropical location provided the initial impetus for the scheme. The preferences of the Government and the green leanings of the local council gave it extra momentum.

Nobody wanted to see a metropolitan hospital in the middle of the Noosa bush. They wanted to retain the natural vegetation and habitat and were looking for an approach that was suitably Sunshine Coast in its sensitivity to the elements - heat, light, sun, rain - and to the casual local lifestyle.

Architects Woods Bagot, who had been working closely with Health Care of Australia for some years, came up with the winning scheme. The initial concept, conceived by Keith Lapthorne, was based on seven low-rise, steel-framed pavilions connected to a central corridor. The seven pavilions, which also link to each other where required, logically divide the functions and facilities of the hospital.

The main entrance and administrative pavilion includes consultants' rooms and a cafe. The pavilion on one side houses a medical centre, radiology and renal facilities and on the other, a hydrotherapy pool and allied health services. Of the four rear pavilions, one is an operating theatre, which is positioned between the private ward and the two public wards.

(above left and right) Seven pavilions joined by corridors in a bushland setting - no lifts.

While this low-rise, spread-out layout creates a much larger footprint and greater disturbance to the site than would have resulted from a more compact plan, it produces plenty of perimeter. This delivers outlook and daylight, not just to the wards, but to many other areas as well. Everyone gets a room with a view, whether it's of a nature area contained by the buildings or of the surrounding bush.

But the long and the short of it is that there's a trade-off - and the long is really long. The central corridor, called the galleria, is 165 metres long and if you had to shuffle down it with a walking frame you might wonder if you were ever going to make it to the end. On the other hand, there are no lifts or stairs, which is a real advantage whether you're in a walking frame or not.

That aside, the domestic scale and feel of the scheme definitely hit the spot with the community, the Council and the Government. It draws together some of the familiar features of Sunshine Coast design - lightweight construction, the combination of steel and timber, unlined steel awnings, screening and shading systems and an emphatic linear quality - natural responses when similar climate, site and cost considerations join forces.

"We set out to maintain as much of the site as we could and to impact on it as little as possible," says Richard Hudson of Woods Bagot. "But when it rains up here, it rains, and the highly reactive ground can move up to 75 or 100 millimetres." To avoid the impact on the site of a cut and fill approach, the front three pavilions were each constructed on a ribbed raft slab on grade and the rear four on piers. The surrounding trees were mapped, as many as possible were marked for protection, and the areas between the pavilions were fenced off during construction.

Managing all that rainwater resulted in another fundamental facet of the design. "We didn't want to collect a whole lot of storm water and drain it away into the local system," says Hudson, noting that the size of the gutters required to remove that volume of water from the site would have been considerable. As a result, the scheme has virtually no gutters and no downpipes. The hospital is roofed entirely in CUSTOM ORB® profile COLORBOND® prepainted steel in Gull Grey, with wide overhangs.

Rainwater flows down the natural channels in the sheeting into rock swales around the base of the pavilions and into dissipators. These spread the water across the site, providing moisture to the vegetation within the hospital precinct and, mimicking the natural run-off characteristics prior to development, out through the surrounding bush.

With development approval gained on the basic design, the project proceeded to the construction phase with a strictly fixed budget. The team of consultants engaged by Mayne Health then spent the next three weeks working together on the design to maximise its cost efficiency.

Time and weather placed further demands on the construction process. Managers of the fixed-time design and construct contract, John Holland Constructions had 345 calendar days to complete the project, of which 130 working days were directly affected by rain.

Rob Fullarton, site manager of the project, maintains that it was only the use of structural steel, CUSTOM ORB® profile COLORBOND® prepainted steel roofing, MINI ORB® profile COLORBOND® prepainted steel for the walls and the almost modular nature of the pavilions that made on-time completion possible.

"By constructing an all-weather road down the middle (the length of the galleria) we were

Budget Rules

When any private operator bids to build a facility like Noosa Hospital, return on investment is the critical factor. "You win the tender, not just on the scheme itself, but also on whether you're providing the services to the Government at the cheapest price. So there's an imperative to make the cost of the building the lowest it can be – otherwise you go broke," says Woods Bagot's Richard Hudson.

"Mayne were insistent on a certain percentage return on their capital, otherwise they wouldn't invest and it did get fairly difficult to achieve that. So while the built facility isn't a Rolls Royce, it's not deficient in any area - in terms of quality, maintenance and lifecycle costings. The things that usually get pulled back are the finishes. Originally the external façade had a Vitripanel banding around the middle with MINI ORB® above and below. That was scrapped because it was three times the price of MINI ORB®." The curving roof projections were designed with plant rooms at the mezzanine level but more cost effective alternatives were found and the roof forms were scaled back.

"You have to make a number of these sorts of decisions," says Hudson, "but when you look at the building you wouldn't know. There's no compromise to quality or finish or how the building performs.

"Mayne is taking all of the risk in terms of the end cost of the project, but they've engaged consultants to make sure their interests are looked after. Probably, one of the ironies is that the cheaper we make it, the less money we make. We can work a lot harder to get paid less – that's just one of the ironies of life as an architect."

able to build virtually every one of these buildings with one old steel pin-jib crane, with occasional assistance from a second. We had to mitigate a lot of delay and do things out of sequence, but steel lends itself to that process because it's adaptable, quick to fabricate and can be readily modified. One of our main objectives was to use as many local people as possible during the construction and we found the skills were available here to do the sheeting and to put it all up.

"To make the facade read a bit more, the architects developed a lot of simple pressed metal profiles which were manufactured off-site easily and at a good cost. They create vertical lines and a rebated shadow line under and above the windows, which breaks the surface up into segments."

The cladding is practical too, he says, "in that it's low maintenance and if you do want to get inside the walls you can easily take the outside wall sheets off and then replace them. Also, cost-wise it was a very efficient process. I believe if we'd used other materials and other building systems, there's no way we could have achieved our budget."

Richard Hudson considers the design has been successful in what it set out to achieve. "It's light and airy, which we thought was appropriate for the community. We were trying to make it open, relaxed and comfortable, not too much fuss. We didn't want to impose a building on the site that would dominate it, so we let the pavilions sit into the bush. We even tried to make the car park a bit more organic," he says, indicating the way it curves with the contours of the site.

The additional landscaping at the hospital was also designed by Woods Bagot, and the new plantings - of native shrubs and grasses endemic to the Noosa area - have thrived. Eucalypts, acacias, banksias and native irises have blended with the bushland and now, looking in at the buildings, or out from the rooms, the predominant impression is of the natural environment.

Noosa Hospital has been presented with awards for Excellence in environmental management and Excellence in quality assurance; the overall award for Regional Project of the Year 2000 and the award for Health Facilities over $3 million.

Jan Howlin

(above) Noosa Hospital's seven pavilions sit in a sub-tropical bushland setting.

Project
Noosa Hospital

Client
Mayne Health

Architect
Woods Bagot Pty Ltd
Tel: (02) 9957 5919

Design Team
Keith Lapthorne, Richard Hudson, Frank Bianco, Robina Swinney, Debbie Nichols, Esther Dickens.

Structural Engineers
Low & Hooke

Service Engineers
DSA & Associates, ACOR Consultants, Addicoat Hogarth Wilson.

Construction Manager
John Holland Constructions & Engineering

Principal steel components
Structural elements: steel columns and roof structure; exposed galvanised angle and fabricated 'T' roof overhang supports; exposed fabricated steel entrance canopies painted Dulux Dress Blue.
Cladding: CUSTOM ORB® and Custom BLUE ORB® profile roofing in Gull Grey COLORBOND® steel. MINI ORB® profile wall claddingand entrance canopy soffit with folded COLORBOND® expressed joints in COLORBOND® Off White.

Cost
$13 million

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Project	St. Joseph's Church, Bracken Ridge, Queensland
Architect	Heathwood Cardillo Wilson Pty Ltd
Structural Engineers	Sheehy and Partners Pty Ltd
Principal Builder Contractor	Col Palmer Constructions

DIVINE ORDER

Ivan the Terrible attempted to create a dire precedent for architects in 1555. He ordered his two superstars to be blinded after completion of St. Basil's Church in Moscow, to ensure they could never design anything more beautiful. Plenty of contemporary architecture suggests a modern Ivan or two has wielded an influence before work has begun. But blessings come in all shapes and sizes. Church architecture has moved on. And not merely in terms of client/architect relationships. At Bracken Ridge, Brisbane the religious architecture of Heathwood Cardillo Wilson (HCW) keeps the faith in architecture to deliver us from evil or, at least, incompetence.

Melbourne architect Daryl Jackson recalls how competing for church design work can give architects a devil of a time. In competition against Philip Cox and Noel Robinson for the proposed Anglican Cathedral in Canberra (as yet unrealised), Jackson fronted the Bishop, for a design review briefing. The three architects took their turn for an audience with their prospective client. "The Bishop's final question," says Jackson," "seemed innocuous enough, but it was the cruncher. We were asked: "And what would you ask of me?"

"Philip Cox was first in. To this final question, he replied that he felt confident in producing a suitably high quality result. "I was interviewed next," says Jackson. "My answer, coincidentally, was similar to Philip's....that I felt comfortable and positive about our ability to deliver. Noel Robinson was last in. He requested the Bishop's prayers to guide his design. The Bishop warmed to Noel immediately and so Philip and I were no longer required."

Church architecture is challenging at the best of times. Creating an iconic form that is a credible alternative to historicism is a big ask. Transplanted styles and types do not necessarily travel well. All the better to begin from first principles and work up. Having survived the selection process, this is precisely what Heathwood, Cardillo and Wilson (HCW) have done.

An integral part of St. Joseph's Primary School with 500 primary school age students, the Church also services the local community. It occupies one of the area's most elevated sites, purchased by the Catholic Church during the 1930s. Bracken Ridge is a middle-class suburb, 20kms north of Brisbane and part of a major population growth corridor north towards the Sunshine Coast.

HCW was approached by the Catholic Parish of Bracken Ridge in 1997 to design a new church beside their existing place of worship which it had outgrown. The brief was to produce a new church to accommodate 400 people that reflected a contemporary liturgy. The parish emphasised that the church building should form a gateway to the parish precinct comprising church, primary school, amenities, parish offices and hall.

After studying the community's requirements HCW responded by presenting eight alternatives to the parish. To the architect's surprise and relief, the parish opted for the most challenging of the options. The selected scheme embraced site opportunities oriented towards the setting sun and the mountains of the hinterland.

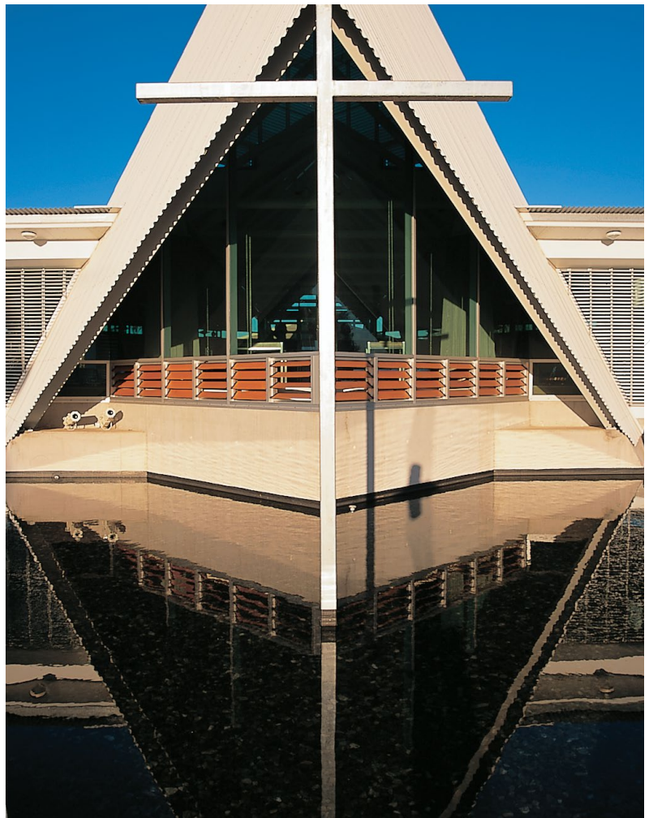
With a budget of just $1.2 million, HCW has almost

delivered a loaves and fishes performance, creating so much from so little. Consider the offering that includes religious furniture, car parking, external spaces and landscaping. This speaks volumes for the economy of the main structural and cladding program that permits so many add-ons. For the money, the result seems hardly short of miraculous.

Lofty, yet understated, the crisp wafer-like cladding system features LYSAGHT SPANDEK® in COLORBOND® prepainted steel. The result of sharp, some might argue stark, geometric clarity, bears an uncanny resemblance to a nun's habit. The traditional steeple is replaced by this tall steel bonnet, or pyramid. Others will see the folded surface as giant origami, or paper sculpture. Its appearance of lantern lightness is boosted by cantilevered sections on the north and south elevations.

Architecture needs to be much more than surface. Prise away the veneer and what honesty is there? St.Joseph's reveals plenty on the inside. One of the design's strengths is a seating plan that puts all parishioners within close contact of the altar. Traditional church seating arrangements are very linear, partly a response to ceremonial and processional requirements.

But this is rarely, if ever, a very appropriate floorplan for a school/suburban church. The difficulty for parishioners beyond the first dozen or so rows, is that the relationship to the priest tends to become quite remote. St.Joseph's serves a dual role as parish church and school. HCW's design of a broadly fan-shaped floor plan, provides for greatly improved interaction for student religious instruction and services.



Access at the entry and from the northern verandah to the courtyard is at ground level whereas spaces requiring privacy are elevated in relation to adjacent external ground levels.

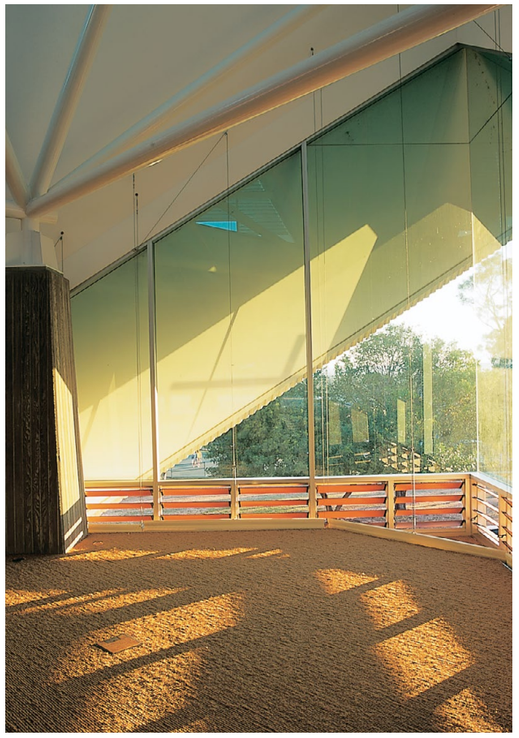
The building has a clearly defined triangular plan with the baptistry and entry at the apex and the Reconciliation and Blessed Sacrament Chapels at the other corners. The sanctuary is located centrally on the long west side with the priest facing east.

Dynamics are one thing, comfort and tranquillity another altogether. In this regard the architect's use of a limited palette of materials throughout pays off handsomely. The steel clad exterior may erroneously convey a hot/cold/hard/shed association for some, but congregational response has been extremely positive. Properly applied and integrated, steel conveys precision and informality and these appear to be just two benefits from using the material so competently on this project.

Other materials include in-situ concrete (various off-form finishes and polished), galvanised steel, coir carpet and natural timber elements. All contribute to the uncomplicated sophistication and clarity of the building and allow the liturgy to be the natural focus of the assembly space.

(this page & opposite) Plenty of upthrust and anti-gravitational effects from cantilevers and roof projections create a remarkable lightness – even for the parish school's youngsters.

(this page & opposite) A fan-shaped floor plan, flexible balance between natural and artificial light combined with efficient venting contribute to an interior of high comfort, convenience and tranquility.



Many congregations overheat, especially during summer, because of European church styles transplanted, often awkwardly, into the Australian climate and with scant regard to ventilation.

St. Joseph's begins life well, being elevated and sited to capture prevailing hinterland and ocean breezes. It also has a venting system that uses cool basement air which is siphoned into the church before rising through the roof cavity. The alternative of whirling fans and air-conditioning held little interest for the architects and client.

To enhance the process of natural convection, doors along the north and south wings open to act as fins that direct breezes and create a brilliant inside/outside linkage. In automotive terms the effect is similar to a convertible. On a balmy day or evening, with the doors spun open, the floorspace extends to the concourse and, beyond.

Additional solar controls are achieved using high level external sun-louvres over the east skylight. Sun-louvres and custom-designed computer controlled blinds exclude all direct western sunlight yet permit views out of the building for as long as possible. Sun control louvres and blinds are programmed to retract during overcast periods or just prior to sunset when light levels fall below a preset minimum. Fabric blinds behind the sanctuary automatically rise from a floor recess when required to exclude western sun.

As the western sun control systems are activated to exclude the afternoon sun, the eastern steeple skylight sun controls open to direct daylight onto the front of the altar. An opal rooflight over the central aisle provides diffused daylight to the assembly space, reducing dependence on artificial light during the day.

Despite the immediate neighbours of brick veneer and concrete tiled roofed housing estates, the site provides impressive views to the distant mountains to the west beyond the suburban environment. The building responds to the opportunities and constraints of the site rather than ignoring them. Magnificent views of Mt. Samson and the D'Aguilar Range are revealed to the assembly upon arrival.

Distractions of the suburban foreground are filtered from view by the use of timber louvre blades below a 900mm sill. The floor level of the building is constructed as high as possible relative to the natural ground levels and existing paved areas to take advantage of breezes and views yet allow universal access without discrimination or the inconvenience of ramps.

Rarely appreciated in the past by parishioners frequenting the old church, the distant mountains now form a quiet backdrop to the liturgy. A reflecting pool outside the sanctuary provides a pleasing and lively display of light dancing on the ceiling of the steeple over the altar.

Traditional church architecture often achieved impressive states of anti-gravity with flying buttresses and Renaissance engineering techniques. But for the past 50 years at least, Australia's suburban church architecture has rarely risen above the very ordinary. That is why St.Joseph's is such a welcome relief. It demonstrates that no-one needs to be straight-jacketed by materials or budget. Higher ideals are possible and clearly affordable. At Bracken Ridge, a ripple skinned craft puts this Catholic Church squarely in touch with the 21st Century.

Peter Hyatt

ARCHITECT'S STATEMENT

Steel has been used extensively throughout the building as cladding, exposed columns and cantilevered beams, roof and steeple structure and framing. Steel was selected for its cost effectiveness, lightweight, high structural capacity, slenderness, integrity, low maintenance and consistency of integral finish. Natural timber secondary elements and coir carpet provide a warm counterpoint to steel finishes and treatments.

The exposed parallel three chord central truss 24m clear span in a triangular configuration using circular hollow sections provides an efficient structural solution and column-free plan. Natural lighting along the line of the truss enhances and highlights the exposed structure.

Project:
St.Joseph's Catholic Church, Bracken Ridge, Queensland

Architect:
Heathwood Cardillo Wilson Pty Ltd
Tel: (07) 3393 5333

Design team:
Roger Heathwood and Guy Bleney

Structural engineer:
Sheehy and Partners Pty Ltd

Principal building contractor:
Col Palmer Constructions

Steel Fabricator:
Toth Engineering Pty Ltd

Steel Detailer:
J.D. Dimensions

Coated steel products:
External treatments - LYSAGHT SPANDEK® finished in COLORBOND® Ultra(Off-white) prepainted steel.

Cost:
$1.2 million

Size:
692 sq.m

Photography:
Peter Hyatt

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Project McClaren Vale Residence
Architect Max Pritchard
Builder Starline Constructions

THE MAX FACTOR

Adelaide's McLaren Vale wine growing region is the setting for smooth, full bodied architecture. An award winning residential design has all the hallmarks of premium quality.

Max Pritchard is nothing if not consistent. A solo performer, perhaps painfully small time compared to many practices, he creates full strength architecture. He is a maverick who seizes every opportunity as if it is his first and last. Pritchard's work does not need to be cellared away or treated with kid gloves to realise its potential. His design for the McLaren Vale residence is barely more than a stick insect frame with featherlight cladding. Yet it is much more.

Away from the commotion of Sydney and Melbourne, this work reflects another kind of architecture that has nothing to do with attention seeking style and approval ratings. Used to some of the tough, at times claustrophobic, confines of the city and suburbs, Pritchard is like a genie set free from the lamp when given the luxury of space.

Schooled in the art of small budgets, often little more than pocket money, Pritchard has learned the skills of invention and improvisation. His body of work reflects a strong work ethic and plenty of thoughtful collaboration between client and designer.

When a client surprises Pritchard with a half reasonable budget, you can be sure he will not treat it as something to splurge, or with which to conceal expensive mistakes. Instead, he delivers bang for the buck.

Designed for a prominent wine-making family, this residence is just a one hour drive south-east of Adelaide. Yet it could be another world away. The house snakes along a hilltop plateau and overlooks vineyards tempting for Dionysus himself. Yet this is an Australian landscape, so instead of the gravitational pull to go Tuscan, Pritchard held his nerve to provide a far more regional response.

Like all good architecture, such work has nothing in common with the standard building industry jobs plonked contemptuously upon their site. Pritchard grooves the McLaren Vale house into its setting. Pre-fabrication and material selection allows for a slenderness of form that reads as a logical extension of its site. A "wire-frame" capped with ZINCALUME® steel in CUSTOM ORB® profile creates a recognisable language identifiably Australian and

(opposite)
ZINCALUME® steel-clad surfaces along the curved passage way provide a lustrous treatment of doors to bedrooms, ensuite and storage spaces.

never gratuitous. Pritchard describes the result as "lightweight and robust".

Having spent numerous weekends with his clients pegging out the site, Pritchard acquired a special respect for the setting and its potential. Following the hilltop contour, the house forms a slender arc along its north/south alignment. The result is a sheltered "courtyard" within the elbow, or cradled space, to the north, while to the south large glazed areas provide knockout views.

Built across two levels, the house has been skillfully integrated to cause minimal site disturbance. So much so that on a heavily timbered site just one tree was removed to accommodate the 650 sq.m. structure. Finished in a neutral, silver grey, the house creates a simple, unassuming site relationship that quickly distinguishes it from the cookie cutter variety forced to adapt to circumstance.

The client's admiration for Pritchard's own house at Kingston Park (SP. No.39, March 1992) and a sizeable body of residential work led to a request for a strong, vividly articulated site response. Because of the value placed on saving trees, a more organic, boomerang-shaped floor plan was adopted than the linear platform of his house.

At McLaren Vale an equally strong, but more complex plan emerged. On the longer, curved south radius, Pritchard exploits "outrigger" columns to create a series of virtually uninterrupted picture windows. To the north, the attitude and design is largely a response to sunlight, although vertical slot glazing in the kitchen, framed by galvanised sheet steel panels, produces a striking reference for the specimen eucalypts.

The piece de resistance is not the more obvious projection of views to the south-east, but the curved wall of glass that frames the master bedroom and en-suite wrapped around the north-east end and brings the adjacent trees into such sharp focus.

Pritchard continues a strong tradition of evolving designs that are sinewy and muscular but never ponderous. "The long, narrow-waisted, pavilion has emerged in recent years. We have really broken away from the square plan and the problems it creates - especially around the core. This design, rarely more than one room wide connects you to the outside and heightens the relationship. It's about as close as you can go without being there," he says.

Despite a large footprint, a number of experimental finishes and solid, durable construction, the cost of little more than $1,000 a square metre proves the value of hard working building materials. "You require less and build lighter," Pritchard emphasises.

Pritchard says he feels fortunate to have a client willing to test the limits of what is possible. "With most clients you feel you have to push as far as they can be pushed to achieve something new. That is one of the arts of the architect; to extract the maximum from the brief and client. On this project it was quite different. It was the client often pushing me more than I was pushing. That is a very unusual experience."

Pritchard's clients had dust allergy concerns, so floor and wall surfaces had to be hard and easily cleaned. Apart from a small child's play space, carpet is virtually eliminated. The option of a polished terrazzo style floor may appear clinical and the interior a tad corporate, but it is practical given the owner's requirement for entertainment of local and overseas guests and wine tastings.

Hard surfaces and polished finishes effectively bounce light around the interior without dazzle or glare, a point made more crucial given the total absence of internal or external blinds. Galvanised sheet steel is used extensively on doors, built-in wall cupboards and kitchen joinery to striking effect. Walls are finished in a smooth off-form render and flooring is polished aggregate.

So many hard surfaces would suggest a whisper becomes a shout and a shout could detonate, but an acoustic ceiling of insulated, perforated, plasterboard provides an effective, inexpensive alternative to standard acoustic office tiles.

For Pritchard, detail is crucial to the bigger plan and this is

(opposite) ZINCALUME® coated surfaces along the curved passage way provide a lustrous, near seamless treatment of doors to bedrooms, ensuite and storage spaces.

(opposite) A boomerang shaped floorplan brings eucalypts into play on the North, South and East. To the South-West a panorama of vineyards.

exemplified by the fine feathering of a ZINCALUME® steel roof in CUSTOM ORB® profile that fans like a bird's-wing. With its high solar reflectance qualities and rapid heat dissipation, ZINCALUME® steel provides an effective barrier without turning the solution into the main event.

Large overhangs to the north effectively restrict solar loadings yet allow lower sunlight to rake into the body of the house. Radiant heat from floor slabs assists with cooler days and nights. This use of natural light is difficult to overstate. Thus light switches are used infrequently. The major glazed element that bisects the north wall delivers additional daylight into both levels, across the internal staircase, mezzanine and living/dining areas.

There are other related design myths exposed by the McLaren Vale house. Namely, that sunlight/daylight is an enemy to comfort levels. Considered architecture such as siting, ventilation, insulation and roof treatments, are key components in the process to create better, more efficient and ecologically sustainable design.

Why load up a roof with a couple of tonnes of cement or terracotta? This may represent popular building practice, but it is rarely architecture. Old habits hard to shake are prevalent in most new housing tracts. Many display homes represent an environmental and design time-warp. Proof, if it was needed, is the dark toned, and increasingly popular black tiled roof looking down on attendant air conditioning machinery. This is why alternative, energy efficient housing such as Max Pritchard and many other practitioners deliver, is so vital to the energy debate. The typical award-winning brick and tiled box is to energy efficiency what a five litre V8 sports car is to the fuel pump.

There are plenty of thoughtful touches throughout the house. Storage areas and bedroom doors for example are all treated as part of a continuum, utilising galvanised steel sheet. A storage shed on the western wing upper level patio is constructed of MINI-ORB® steel and continues the language of selected elements detailed in a suitably scaled materials.

Because of its seclusion, the usual issues of privacy do not arise. Thus curtains, drapes and blinds are rendered obsolete. While all of this could suggest the comfort levels of an ice-chest, the reality reflects

Judges' Comments

The house has earned Pritchard strong commendation from a number of juries who have visited. In this year's RAIA residential category, the house was awarded a commendation of merit by that jury who observed: "This strong raw building is clearly the outcome of a creative client/architect relationship pushing the design process to achieve the absolute minimalist finish. The two level house is situated on one of the few remaining remnant wooded areas in McLaren Vale.

"The serpentine plan form of the house is cut into the contours of the site as it weaves amongst the existing trees. A spidery steel frame sets the rhythm for the house and the strong dynamic minimalist internal spaces.

"Throughout the project a limited palette of materials has been used in their raw state, concrete, cement render, galvanised steel, glass and galvanised sheet steel for joinery. The use of each material is highly considered with attention to detail and with innovative detailing of the galvanised steel to create seamless joinery elements."

Pritchard's skill with colour and form to create comfortable, insouciant spaces.

Pritchard agrees that the house may appear to resonate with "very hard, brutal finishes. We took it further with raw materials and finishes. But I don' t see the result as bleak in any way," he says. There is a lot of warmth and light that emanates from the right use and combination of materials. With concrete block walls on the north and concrete slabs on two levels, heat is re-radiated of an evening for warmth.

"From an energy point of view the evaporative air-conditioners cost next to nothing to run and are a nice healthy form of cooling that pumps in plenty of fresh air. And you can open up the windows and not feel shut in. So it is a very different approach to refrigerated cooling," Pritchard says. An underground tank collects water run-off for recycling.

"The ZINCALUME® steel roof, MINI ORB® and gavanised sheet were consistent with using materials in their most natural form," adds Pritchard.

Structural steel work is also galvanised to reinforce the consistency of this approach. Paint is only used on the ceiling. Everything else is clad in ZINCALUME® steel, galvanized steel sheet or cement rendered.

Corbusier's Machine for Living, with all of its attendant mechanical associations, was a mantra for generations of architects. But most, including Pritchard, have moved on. Pritchard though, does take Corbusier's light bulb of an idea and converts this European flash into something more relevant and enduring for the Antipodean experience.

Despite regular interventions, neither planners nor councils have managed to weigh down Pritchard's architecture with circuit-breaker regulations. No amount of pressure to adopt a slack-jawed veneer has influenced Pritchard to alter his belief in architecture as an agent for positive change.

Such projects reveal his tough persistence. Not averse to a good red, Pritchard probably deserves a vintage in his name. "Pritchard's Hill" has a certain ambrosial ring. It would be a big wine; velvety, robust and ready to show the world that McLaren Vale has another, quite unexpected, claim to fame.

Peter Hyatt

Project:
McLaren Vale Residence
South Australia

Architect:
Max Pritchard
Tel: (08) 8377 1800

Structural engineers:
Pocius and Associates

Steel fabricator:
State Constructions

Builder:
Starline Constructions

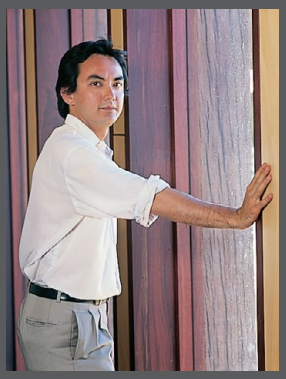
Principal steel cladding:
Roofing - ZINCALUME® zinc/aluminium alloy coated steel. Wall treatments - ZINCALUME® steel in MINI-ORB® profile Joinery - Galvanised sheet

Size:
650 sq.m

Photography:
Peter Hyatt

MY INSPIRATION...

The fact that the Australian Prospectors and Miners Hall of Fame was about mining, that it was set in Kalgoorlie and that you had this harsh setting made it perfectly justifiable to use fairly raw, industrial materials. There was a kind of harsh beauty to be explored in using off-form concrete, going with just pure ZINCALUME® steel, being quite robust with the detailing, using large steel sections quite unashamedly, expressing the structure in the Business of Mining Gallery – all those sorts of responses were things we were comfortable with which we might not have been comfortable with if we had been working in an urban setting doing a university or an art gallery in the city.



- Ahmad Abas

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