

steelprofile

Architectural steel innovation with BHP Steel Limited

number 80, october 2002





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Ken Sowerby

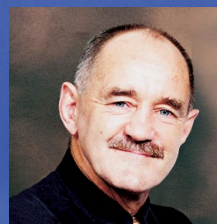
Quite apart from suitably housing cutting edge technologies, Ken Sowerby's new home for The Age printing complex in Melbourne clearly gives the public perception of a bold publisher on the front foot.



008

Lookout House

"How does a white boy in an old Koori land, an educated suburban boy now indoctrinated by Western architectural history build in this landscape?" Melbourne architect David Luck answered his own question.



014

Robert Powell

Creating regional facilities in Malaysia for a Danish pharmaceutical company sounded like a straightforward brief. Robert Powell reports on the single-level building produced by architects Skaarup and Jespersen (M) Sdn Bhd in a predominantly multi-level technology park.



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Peter Stronach

Peter Stronach found himself as architect turned client when he set out to design a NSW Southern Highlands home that rebels against the style of some neighbouring homes he deplores as "brick veneerals".



022

Colin Graham

When Colin Graham left Robert Gordon University in Scotland to take up the post of director of the Innovation Centre at the University of the Sunshine Coast, architecture played a part in his decision.



NUMBER 80, OCTOBER 2002. PRODUCTION: Sean Moylan **PHOTOGRAPHY:** Peter Hyatt, Robert Powell and K.L. Ng
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(cover photograph) The concept of pod rooms at Melbourne architect David Luck's Mornington Peninsula weekenders is accentuated by their splash of colour against black walls and an internal ramp floor which slopes at ten degrees. Page 14.

(this page) A \$6.2 million Innovation Centre uses clever design to declare itself to visitors, staff and students – and to enhance the University of the Sunshine Coast's reputation for architectural excellence.

002

Project The Age Printing Complex,
Tullamarine, Victoria

Architect Ken Sowerby, Trevi, Italy.

Project Architect Hassell P/L Melbourne

Builder Probuild Constructions

NEW AGE HOME

The best architecture has implied momentum and energy. It succeeds where so much design fails - it actually delivers on the promise of elusive abstraction and arty computer renderings. Easier said than done, and then not very often, which is why Fairfax's newest publishing stronghold is such a tour de force.

Close to the aerodynamic action of Melbourne's Tullamarine Airport, The Age suddenly has the best possible headline - a daring and dynamic publishing base. The business end of the Tullamarine freeway - the front door to the city - is little more than a traffic jam of tilt-slab construction and tacky, sign splattered boxes.

The Age building, by contrast, dramatically challenges this stale inertia. If not for the signage, this could justifiably be viewed as a radically different cultural institution - Victoria's new art gallery - perhaps.

Designed in Italy, modelled using spaghetti strands and delivered with aplomb, the facility is a triumph of sustainable design and operation. For all of this we can be grateful that expatriate Aussie Ken Sowerby returned from his medieval turret in Italy. Being surrounded by antiquity on a regular basis proves no bar to a masterwork of modernity. He has carved out a vigorous form, glittering, filleted and curvaceous to boot, instantly branding his client in the best possible way.





(below) The totemic scrolled glass newspaper and scythe-like steel canopy are visually earthed on the western flank by a rock garden.

And it offers motorists - some 60,000 vehicles pass daily - front row seats to stimulating roadside design. Alas the fizz lasts for a mere 300 metres along this property's frontage before returning to tilt slab mode.

Viewed from the freeway at 100 kilometres an hour, the structure's south elevation is low slung, rising to a filleted, sweeping canopy glimpsed through a border of eucalypts. The south wall facing the freeway pushes towards the

road, thus reaffirming its dynamic geometry and poetic form.

The appearance is that of a silversmith's mosaic; a computer-aided quilt of steel cladding, pushed, stretched and inclined to achieve a graceful tension.

From a distance, a rolled 32 metre tall steel and glass newspaper and slashing, curved roof signal a sophisticated, purposeful design. Those who know the newspaper's Spencer Street city address, could be forgiven for rubbing their eyes in disbelief upon sighting the new.

When Fairfax was looking around for new printing premises that would be its flagship for at least the next few decades, it found a solution in the most unexpected of quarters - its printing press

supplier - the German manufacturer MAN Roland.

The twist to the tale; the equivalent to The Age's Odd Spot, is that Sowerby's services were offered as an inducement to Fairfax to buy printing presses through Roland's subsidiary Eurographica. In effect the offer went: "Buy our 'engine' and we will design you a Formula One racer - a Ferrari of newspaper publishing".

Sowerby who lives at Trevi, some 100 kms north of Rome, travels the world on assignment designing sustainable architecture.

Current projects include la Serra, a 12 storey, naturally ventilated, atrium office building in Russell Street Melbourne. Its features include ecologically sustainable,

low energy systems, ground level internal piazza and biosphere. Another project on the move is an autonomous, low energy, bi-climatic villa in Bazzano, Italy.

Ken Sowerby returned to Australia for seven months to work on The Age building with the local project consultant team of Hassell, Connell Wagner and Bassett.

Being close to the airport, Sowerby wanted a form highly visible from the air but which would not create radar interference. "The result," he says, "is created by sweeping curves in three dimensions to produce a sculptured 'shed' rather than a response that would specifically stop jumbos landing on the press hall." Other restrictions on building

height and lighting were necessary to ensure aircraft were not inadvertently drawn to the site.

Viewed from the air, the facility glints like a shiny beetle - head and neck extended for take-off and reflecting the linear process of newspaper production. In elevation the structure's inclined dynamic leans south towards the freeway.

The \$220 million, six hectare complex - \$45 million for the building component - comprises a 100 metre long press hall that stands five storeys tall to house a high speed press 80 metres long and four storeys high. There is also a newsprint and storage area, post-press and distribution hall, offices and a staff canteen.

(top) The signature louvred canopy of steel and glass is mirrored by the westward projection and strong horizontal form of the staff cafeteria.



Using steel cladding in a wide palette of patterns and finishes, the architecture achieves considerable texture with a restrained colour scheme.

Some of the plant's statistics and approaches are worth considering:

- The ribbed roof steelwork curves in three directions and covers 19,000 square metres - the same size as the playing area of the Melbourne Cricket Ground
- The building is a horizontal 'skyscraper'. The length of press hall and canopy is the same as the height of Melbourne's Rialto tower.

- The building is constructed entirely of Australian-made materials that were selected for their qualities and characteristics. An Australian equivalent was given priority wherever possible.

The design is a combination of subtle curves, angles and forceful projections. The roof line for instance rises to five levels



on the south, but slopes towards the north, reflecting the internal arrangement of production and offices sloping down for paper reel storage bays.

To the west, a double height cantilevered glass cube projects above the main entry and houses a cafe for staff and visitors. Sowerby's architecture may be rigorous but it remains

intellectually and physically accessible. It also reflects an interest in the publishing process and to this end glazing satisfies voyeuristic interests.

There are views south across the freeway, west towards the canopy, rock sculptures and impressively stark landscaping. There is a totemic solemnity in the Sowerby-designed rock

pillars surrounded by coloured, crushed stone. The pillars rear up, as if borrowed from Easter Island. Sowerby says the expression of earthy materials creates a time-shift from the raw and ancient to the sleek, contemporary.

"The huge curved canopy begins at the rock ensemble and rises to the press hall, thus completing



a link of past, present and future. The project is a model of sustainable design," says Sowerby who has actively campaigned for and consistently demonstrated sustainable design.

"The very process of producing newspapers and printed media in these giant printing facilities calls for considerable consumption of energy and materials," he said when interviewed by The Age last year. "But by careful recycling of ink, water, production and paper waste we can make economical 'repayments' to pay back nature's loan," he said, pointing out that the MAN Roland presses actually recoup dynamic energy as they wind down.

"It is Mother Nature," he says, "that sets us the ethical task of acknowledging her generosity in what we design. This is particularly important when selecting materials, such as those which take less energy to produce or which can be regenerative (biomass) without depleting nature's stock.

According to Fairfax executives a full opening for staff, construction workers, newsagents and public, awaits until some time in the first half of next year. As a result, most of the interior, and most certainly the printing press

rooms, are off limits.

Whatever our expectation of what a publishing facility should resemble, this one stands alone. Factories need not be the lowest common denominator of design. It takes the potentially raw utility of an industrial shed and gives it a good dose of culture. If architecture aims to be anything more than functional, it should be uplifting for the human spirit.

Sowerby recalls a story to reinforce the point. Attending the opening of a major public building he designed in Rio de Janeiro he was approached by one of his client's employees.

"What really stayed with me," he says, "was not so much my meeting with the President of Brazil who performed the 'ribbon-cutting', but my meeting with one of the workers. This fellow introduced himself and thanked me for what I had designed. He told me that he loved working in this building so much that he always arrived first and was one of the last to leave. That was very gratifying. That was my pay day."

The Age facility suggests a potential for more of the same.

Peter Hyatt

Project:
The Age Printing Complex, Tullamarine. Victoria

Client:
Fairfax P/L

Design architect:
Ken Sowerby, Trevi, Italy.

Project architect:
Hassell P/L Melbourne

Structural engineer:
Connell Wagner

Steel fabricator:
Alfasi Steel Construction P/L

Builder:
Probuild Constructions

Principal steel cladding:
Wall cladding - LYSAGHT CUSTOM ORB® profile COLORBOND® steel in Mountain Blue and HH Robertson BOLD RIB profile COLORBOND® Metallic steel in Light Blue. Roofing STRAMIT SPEED DECK profile COLORBOND® steel in Light Grey

Size:
19,200 sq.m

Building cost:
\$45 million (building component)

Project cost:
\$220 million

Photography:
Peter Hyatt



Project The Lookout House -
Red Hill, Victoria

Architect David Luck

Builder: David Luck

JOURNEY'S END

Perched on an escarpment overlooking Arthur's Seat on the Mornington Peninsula 70 kilometres south east of Melbourne, this 'object' at Red Hill does not at first sight look like a house. Finished largely in black, the angular structure looks more like an old fashioned box camera, waiting to capture the next image.

For architect David Luck and his partner Robynne, the idea for a retreat, "the lookout house" they now escape to on every opportune weekend, began nearly five years ago.

"We went for a drive in the area and saw an 80 year old timber-getter's shack for sale. Five months later, we drove down and the sale sign was still there on the one hectare block which adjoins a national park," says David Luck.

In the usual order of things when a site is purchased the house design emerges over the next few months. However, in this instance, the design had been on the couple's home/office walls for a couple of years. "I sketch up ideas as they come to me," says Luck, who has mounted many of his schemes in poster-sized frames on the walls of the couple's studio/home, a terrace in South Yarra. "The site immediately suggested this design," he says.

"I always had the idea of a black house in the back of my mind. It fits perfectly into the colours of the woodland where the changing light constantly throws up shadowy black areas.

"We were discussing potential materials when the Ebony colour in COLORBOND®, steel came to mind. The familiar corrugated profile would not have suited what we were trying to achieve, but then we discovered that the material is also produced in 1200mm-wide flat sheets which can be sheared off to any length. It meant the design didn't have to be compromised. It offered flexibility and was easy for an owner-builder."

Located in such dense bushland, it was important to choose a material that resisted fire. "The other benefit was that it doesn't require painting. It's a long term low maintenance finish, which is particularly relevant for a weekender," Luck says.



Black internal surfaces bring the bush outlook into sharp focus.



(this page and opposite) Pod-like rooms open to each other and to the light in the ebony weekenders bushland setting.

Fixing the Ebony sheets of COLORBOND®, steel at 200mm intervals also created tension in the cladding material. This translates into a quilted look that draws the eye and provides one of the few immediate hints that shelter lies within.

Taking up Glen Murcutt's "Touch The Earth Lightly" theme, steel legs support the house as it

cantilevers above the ground. Hollow 50mm square section steel legs give the house a structural strength. "Using large masonry piers wouldn't have allowed the house to visually float," Luck comments.

While the perched home appears to hover lightly over the scrub below, its structure is strongly bound to the earth.

Four floor levels and a ramp have been broken across the contours of the land.

Luck sees the ramp as the culmination of the journey from the city, with various pavilions built on top to determine spacial flow and serving as a kind of enclosed verandah, linking and opening up to the functional rooms on the east and closing

down to the heat of the sun from the west.

"I wanted to prevent shadows under the house so that we could actually grow things under it. I also didn't want to disturb the bird and animal activity," he says. Great care was taken to ensure the native bushland setting wasn't disturbed when the house was built (not one

tree was removed to make way for the house). It was designed within centimetres of the nearest tree. The ten-square home focuses on the bush through large picture windows/doors.

Across the walkway to the entrance and through the large glass front door, the colours of the bush create a striking chord. The colours of the tree trunks, the blacks, charcoals





The Lookout House design blurs the division between indoors and outdoors, but netting keeps the insects at bay.

and greens are only interrupted with the colour of bright red sap, occasionally dripping from the bark.

Red appears in the lounges/day bed units designed for the living area. On casters, and designed

to separate into two lounges and a coffee table, this modular setting (above) adds an inner glow to the shell. The module units, designed by David Luck, and one of the few pieces of furniture in the house, can be

moved around. "When guests stay over, they can turn the unit around for privacy. If we want to reduce the light, the units can be positioned in front of the windows. They're like curtains," he says.

Designed on a gradient of ten percent, the angled internal ramp follows the slope of the site to a number of pod-like rooms. Opened to each other and carefully angled to the views and the light, there are few divisions in this home. The bathroom, one of the few enclosed rooms, features a large sand blasted glass door.

"At night, if we do want some privacy, we can swing the bathroom door towards the front entry. It becomes a screen for the interior," says Robynne. The main bedroom, with mosquito net enclosing the bed, is only defined by a change in floor level and yellow polished plywood flooring contrasted against the black yellow tongue ramp. "On warmer nights we leave the door open, hence the net to keep the mosquitoes out," says Robynne.

An eight metre long laminate bench, which acts as both the kitchen and dining room table, is functional and streamlined. Its speckled granite basin is defined only by black tapware.

"We were planning a banquet style of seating for the kitchen, but decided the view to the bush was more important. It's now an additional space for reading newspapers and magazines and sleeping," says David.

Enclosed in a glass box, the kitchen's fragility is emphasised by the external guy wires anchoring the structure to the ground. "The wires keep the structure stable," says David. As the internal walls in the house have no cross bracing, the steel wires also protect the structure in strong winds.

The main living area at the northern end of the house was designed as one large outdoor deck. Surrounded by full-length glass doors, it can be completely opened up during the warmer months. However, during the colder months, the focus is towards the potbelly heater. "The shape of the house and the heater both suggest Ned Kelly's helmet. The views to the bush can be seen through his eyes," David Luck says.

The roof is clad in COLORBOND®, steel using the KLIP-LOK profile in Slate Grey. The main roof structure is clad in continuous 13 metre lengths of the material, to eliminate any chance of leaks on the low pitch. Trimmings, fascias and internal columns are also finished with COLORBOND® steel in Slate Grey.

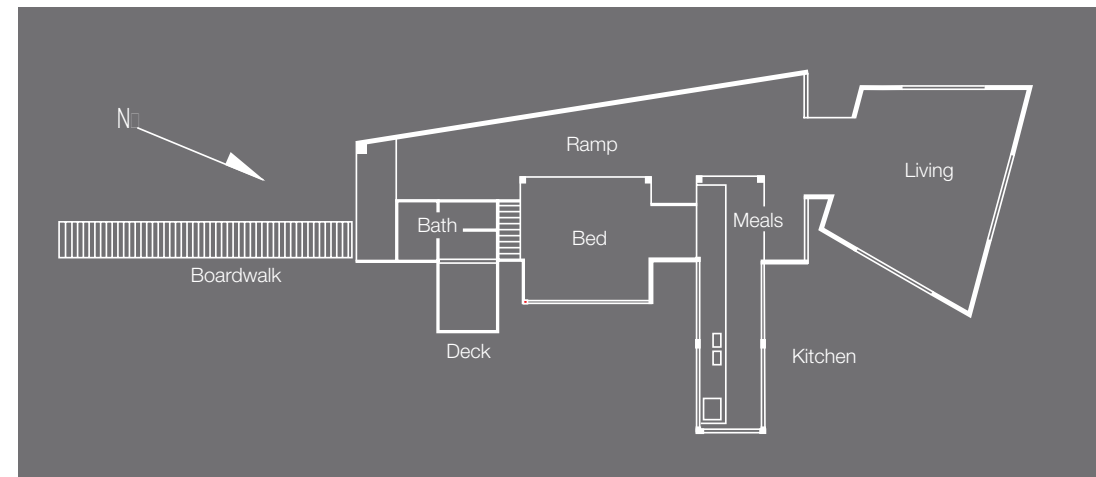
The use of steel to finish the internal columns further blurred the division between the indoors and outdoors.

The lookout house was an opportunity to create a prototype

Architect's Statement

The journey to this house begins in the centre of metropolitan Melbourne. To reach the house, one drives for an hour through the flat eastern suburbs and is rewarded with a slow rise up into Red Hill. Across the Arthur's Seat escarpment, the car journey stops in a gravel and leaf strewn driveway.

The lookout house unites the ancient landscape with modern Australia. A tatami proportioned bedroom cantilevers out to the east with ceilings, bed canopy



from one of many designs on the couple's studio wall. Elevated above the terrain, it is sensitive to its unique bushland setting. From the road, it is difficult to identify the house - it could just be another charred trunk, yet native animals and birds can still find their way underneath it. Shadows and light play against the south-western wall. The reflection of the shadowy outline of the trees against the steel walls continually changes. "The western wall appears like crushed velvet. At sunset, it literally glows in oranges and reds," says Robynne. And for a moment, in this bushland setting, it seems almost possible to see the world through Ned Kelly's eyes.

Stephen Crafti

and bed laying space to the scale of the sleeping body. Gently sliding doors delineate the platform edge against the native grasses and wildflowers outside. An eight-metre long glass box kitchen becomes an aquarium workspace for dwelling and releases the senses out under the tree canopies. This is a Miesian modernist device that secures against coldness and insects. At the end of the ramp is the main room with mixed living, dining, bedroom, and terrace functions that twists off axis back towards the centre of Melbourne.

Outside, the black walls are like shadows strung between the charcoal edged bark of the stringy barks. By night absolute blackness of the landscape merges with the inside black walls.

014

Project: Regional Research HQ for
Novo Nordisk A/S
Enzyme Business,
Kuala Lumpur, Malaysia

Architect: Skaarup and Jespersen (M) Sdn Bhd

Design Team: John Bulcock and
Hans Carl Jacobson

Main contractor: Hoe Seng Construction Works

TROPICAL DANISH

When Danish company Novo Nordisk decided to build a new Southeast Asian Regional HQ in Kuala Lumpur's Taman Teknologi Malaysia (TTM) the principal design constraint of the detailed brief was that all the accommodation should be on one level and reflect the non-hierarchical management structure of the organisation.

Novo Nordisk A/S is one of the world's foremost biotechnology companies, with offices in 55 countries and manufacturing facilities in nine. It is the world's largest producer of industrial enzymes and the leader in insulin and diabetic products.

Conceptually the research headquarters is a circular drum partially buried into the sloping site on a prominent corner. At the core of the structure is a circular open-to-sky garden. All the functions of the building radiate from and in many cases look into this central space. The plan form of the 1100 square metres of offices and laboratories is somewhat akin to a crustacean partially buried on a beach.

There are management offices, research laboratories, formal meeting rooms and a small cafe and terrace for approximately 20 staff, and linking all these is a circulation route which skirts the inner circumference of the drum. The inner zone has an all-pervasive silence - which is remarkable given that it is located in a busy technology park. Managers, scientists and technicians move quietly about their work in the tranquil

enclosed environment. Internal walls of clear glass look into the central space and there is visual contact between various offices although this does not appear to be intrusive. The circular form suggests the removal of demarcation between industrial functions and the idea of democracy in the workplace .

The inspiration for the circular form of the building was apparently a small copse of trees that originally stood on the site. Although they did not survive the construction process they have been replaced by a group of saplings arranged in a geometric pattern.

To compare this new facility for a progressive biotechnology company with a tomb may not at first seem appropriate or complimentary. Nevertheless my initial response to the central courtyard was that it surfaced vivid memories of a visit I made two decades earlier to Carlo Scarpa's Brion family cemetery at S. Vito d'Altivole near Treviso in





(above) The roof structure consists of exposed steel beams supported by circular concrete columns.

Italy. Obviously it was not the function of the building that triggered this response, but the tactile experience of materials, the quality of suffused sunlight, the fusion of the building with nature and the combination and precision of steelwork and concrete details that combined to stir emotions and memories of Scarpa's seminal building.

The aspect that is most reminiscent of the Brion Vega tomb is that it is a calm space for contemplation and for reflection. The architects' search for an appropriate 'mood' for the building is clearly evident in the numerous conceptual sketches.

The inward looking form celebrates nature. In the monsoon season rainfall cascades into the central court through continuous slots in the oversailing roof and

thence to large drains covered by timber walkways. Shafts of sunlight slant obliquely into the circular courtyard through the trees. Tropical lianas are beginning to engulf the concrete walls.

Two footpaths intersect at the centre of the courtyard and groups of seats create opportunities for chance encounters and conversations between researchers. The panopticon form of the building is explicitly designed for communication. The architect has a strong underlying philosophy regarding the symbiotic relationship between architecture and nature and this is evident in the care which has been taken to integrate natural elements and to merge the building with the topography.

When approaching the entrance on foot, or arriving at the car

porch, there are glimpses of the internal garden through layers of glass in the foyer. The building is entered on an axis which bisects the corner of the site and continues to the rear where it emerges as a narrow external staircase ascending four metres to the higher ground level, between concrete retaining walls which bear the marks of the construction formwork. At this point the building becomes almost entirely submerged in the ground with only the roof parapet visible.

The different functions and structural spans of the building are expressed with mono-pitch roofs of varying heights radiating outwards from the centre. The junctions of the exposed steel members and the industrial glazing are remarkably accurate and are complemented by the smooth tactile surfaces of the timber flooring and the textured,



(above) CUSTOM ORB® profile steel roofing radiates outwards from the centre.

(left) A central garden is surrounded by the glass walls of offices and laboratories.

(below) Continuous slots in the ZINCALUME® steel roofing shed monsoon season rain into pebble drains.



board-marked concrete. Clerestory lighting permits daylight to enter the interior at high level without causing glare.

To achieve the precision profile he required for the roof of the building, project architect John Bulcock specified steel roofing made from ZINCALUME® steel in CUSTOM ORB® profile, with a double side lap and self adhesive closed cell metal strips. The roofing material is laid on 102mm x 51mm channel purlins, with 100mm thick, 40 kg per cubic metre insulation slabs supported on wire mesh and a soffit of the

same CUSTOM ORB® profile. This is fixed to a roof structure consisting of exposed steel beams supported by circular concrete columns.

The contractor, Hoe Seng Construction Works, expressed doubts at the initial site meeting as to whether the level of precision demanded by the architects was achievable, but far exceeded expectations.

A building that attracts admiration and superlatives from other architects, the Novo Nordisk HQ has been described by one Kuala



Lumpur based architect/critic, Jon Ignatowicz as, "A gorgeous fusion of Scandinavian and the tropical, a real gem ..." For me it represents an evolving transcultural architectural language which successfully combines principles of modern architecture and innovative technology with traditional responses to climate.

Although it is a relatively small building it is one of the most inspiring architectural projects to emerge in Malaysia in recent years.

Robert Powell

Client:
Novo Nordisk A/S
Enzyme Business
Architect, Interior Designer and Landscape Designer:
Skaarup and Jespersen (M) Sdn Bhd
Design Team:
John Bulcock and Hans Carl Jacobson
Civil and Structural Engineer:
Rahulan Zain Associates
M&E Engineer:
Intertec Contracting Sdn Bhd
Quantity Surveyor:
Intracost Consult
Main Contractor:
Hoe Seng Construction Works
Photographs by:
Robert Powell and K.L. Ng

*Architectural steel innovation with BHP Steel Limited **number 80, october 2002***

018

Project: Kangaloon House
Architects: Peter Stronach, Tom Dash,
Tim Alison
Builder: Turland Building Company

INSIDE OUT

The setting for the Australian blockbuster 'Babe' was no backlot mock-up. The film's producers chose the emerald outskirts of Robertson, 100kms south of Sydney, for their heroine's snouty adventure.

Almost a decade after the cute little pork chop grunted her way into the hearts and minds of audiences, neighbouring Kangaloon is the setting for another example of rebellious enterprise.

On this, his first farmhouse, architect Peter Stronach the veteran Sydney to Hobart sailor has already made waves. "When you look out across the countryside what buildings look like they belong here?" he says. "It is the steel sheds and barns. The rest look like they come from Mars."

Steel clad farm buildings are frequently tough, gritty objects, often utilitarian and not much else. Architects such as Peter Stronach harness this rural vocabulary and retain the essential grain. Glenn Murcutt has achieved this less than a kilometre away with his Bowral Farmhouse (Steel Profile 79).

A similar effect is achieved here and it gives a legitimacy and authenticity lost on developers of project and period housing. Plenty of properties in the region aspire To The Manor Born. Stronach describes these as (expletives deleted) "brick veneerals..... a disaster."

"Many of the locals who live in brick veneerals call Glenn's and our house 'chook sheds'. They simply don't know any better. It is a prejudice that really reflects ignorance – that only brick, paint and render have value," he says.

Stronach has stacked a second storey onto his bush pavilion in his bid to optimise energy efficiencies. With temperatures plummeting to as low as minus six Celsius in winter and up to 40 Celsius in summer, the house faces climatic extremes.

He resolved to design this retreat 'inside out' and stacked to benefit from the blindingly obvious - heat rises. Using steel cladding as a sculptural skin evokes the rural vocabulary, but behind the corrugated steel 'skin' is Astrofoil reflective insulation. Internally grey polished block work replaces the usual paint and plaster.

"This inside-out quality puts the masonry inside where it better holds the desired temperature. Externally steel, with the help of Astrofoil is deflecting and rapidly dissipating solar gain in summer. In winter you have this tough, beautiful skin," he said.

Designed across a series of five metre square grids, this mathematical simplicity maximises materials and cuts wastage. Plywood ceilings throughout echo this uniformity and economy of steel, timber and masonry blocks.



(above and below) With a strong emphasis on environmental sustainability, the Kangaloon Residence blends romantic modernity with energy efficiency. Steel cladding contributes an authentic rural vernacular and wraps the package in a high performance 'inside/out' structure.





The interior speaks of an eclectic combination of classic furniture from the '50s and '60s. Harry Bertoia, Eames, Arne Jacobson and Knoll are just some of the collection that reflects Stronach's romantic modernity.

"The house is a model of designing around first principles rather than arriving with a pre-conceived idea of achieving a certain look," says Stronach. "I hate skews and angles and all the wobbly stuff. We wanted a house that dealt with very environmental climatic conditions and that was low maintenance. This requires no painting or plaster," he says of the design's robust simplicity.

Although a self-confessed 'city slicker' and serious yachtsman who has competed in 10 Sydney to Hobart races, Stronach has made an impressive debut with the rural weekender on his 100 acre 'ocean' of rolling pastures and rainforest. Like Glenn Murcutt, he is no stranger to the town planning appeals court. One of his most celebrated cases involved a design for a weekender at Mackerel Beach

north of Sydney (*Steel Profile* no. 10, 1984) which he went on to successfully defend after a challenge to its off-white steel cladding.

As managing director of the 70 strong Allen Jack and Cottier, Peter Stronach, and partner Tim Alison, have had to script

and direct their own production at Kangaloon. Managerial roles in architecture often become a straight-jacket and such small housing projects are a chance for architects to re-connect with hands-on design work. For Stronach and Alison, it also meant being client and architect.



Designing houses is a tough business for most architects. The emotional economies of scale can be utterly disproportionate and debilitating. It's a reason why many larger practices refuse to become tangled in this most risky and potentially rocky of relationships. Stronach says residential work is a conundrum.

Of his Kangaloon House he says, "It has no icing." The structural elements and new finishes are fully exposed. Apart from a small splash of green paint in one room, the result is monochrome throughout. A collection of classic furniture includes Knoll, Eames, Hansen and Bertoia which all nod deferentially to the magisterial presence of the Swedish designed, British built AGA oven and cook top.

Steel tubing of the mezzanine is finished in an egg yolk yellow as if to remind occupants of the sunny double height volume. The rest are muted greys and silver that allow the structure and cladding to be both backdrop and star performer.

"I don't see why you couldn't do this sort of house in Sydney. Why wouldn't you? Surely there is a logic in having the lightweight stuff upstairs where thermal mass isn't so important," Stronach challenges.

As with all architecture where nature is worthy of exploration and appropriate response, design is suitably organic. The result is one of submission rather than dominance. It is design rooted in, but light on, the land. From its lofty position, views are available south and east towards Robertson and beyond towards the mighty Illawarra Escarpment. A small swatch of blue beyond the sheer cliff tops links the house to the Pacific.

The result is clear cut; sleek, tuned and clothed in steel. Few projects so successfully combine the unlikely soulmates of restraint and invention.

No gasping angles, lurid colour schemes or gimmicks. The design hook is inherent rather than applied.

"The cladding looks beautiful and a carpenter can do the whole thing with tin-snips in a few days. We were down here one weekend with just the frame and when we returned the next, it was almost at lock-up," Stronach enthuses.

In plan and to the east is a 'sittingroom', on the north a sunroom and services/storage area, the kitchen is central, between the staircase, and to the west, a living/drawing room.

Above are three bedrooms and two bathrooms. The central void created by mezzanine, assists heating and cooling through the entire house. Dormer style windows along the north echo the 19th Century without the usual

tree consequences. Eaves and louvres to the north and west perform an obvious role and, despite large glazed areas at ground level, direct summer sun is restricted to first and last light. In the cooler months solar loading contributes to the thermal mass performance of the concrete slab.

"In a cold climate such as this you have to touch the ground firmly. Upstairs is entirely different. You hardly require any mass. The ratio of glass to solid area is quite small above. The dormer windows are a bit 19th Century romantic," says Stronach, "but they seem right for this place overlooking the croquet lawn," his one concession to a very British past-time. "We have a 'mob' around for lunch or dinner and often play on under the stars."

Peter Hyatt

Project:
Kangaloon House
Architects:
Peter Stronach, Tom Dash, Tim Alison
Tel:
(02) 9311 8222
Landscape architect:
James Pfeiffer
Structural engineer:
Taylor, Thomson Whitting
Steel fabricator:
Turland Building Company
Builder:
Turland Building Company
Size:
352 sq.m
Building cost:
\$400,000
Photography:
Peter Hyatt



Architectural steel innovation with BHP Steel Limited number 80, october 2002

Project: University of the Sunshine Coast Innovation Centre
Architect: Bligh Voller Nield
Structural engineer: Ove Arup & Partners
Services engineer: Bassett Consulting Engineers
Builder: Evans Harch

The University of the Sunshine Coast has a new star in its suite of campus buildings. The latest addition - an Innovation Centre - uses simple, understated materials to create an up-beat statement for new technology ventures. The result shines inside and out.

INTELLECTUAL PROPERTY

Queensland's Sunshine Coast has earned an enviable reputation for distinguished regional architecture. The credit for this cultural force is largely due to Gabriel Poole, John Mainwaring and Clare Design - practices that have so raised the sense of self belief and confidence during the past two decades that now anything seems possible. With others actively contributing to the process, the body of work grows. Despite the best efforts of large scale development, the Coast generates work of passion and flair.

Such is the quality of building design that the University of the Sunshine Coast is emerging as a leader in the "best looking" stakes in addition to being one of the most innovative tertiary institutions. The University's library (John Mainwaring and Lawrence Nield 1997) and sports/recreation building (Lindsay and Kerry Clare 1997) set such a standard that decline could easily have followed.

Designer of USC's Innovation Centre, Bligh Voller Nield (BVN) Brisbane is connected enough physically, and in spirit, to bring much more to its site visits than frequent flyer points. There is a

terrific energy about these sort of buildings that appear to be more informed by aerofoil than house-brick. And it is generating buildings that respond to breezes, light and shadow - those often overlooked and sometimes intangible qualities difficult to illustrate, or sell, to clients with computer software packages.

There is a certain irreverence about buildings that press softly on the land. Many clients and architects appear to consider their buildings by weight thus confusing quantity with quality. In this regard project architect BVN respects the Sunshine Coast tradition to deliver a

filleted building, seemingly weightless and entirely fit for climate.

This is architecture in suitable attire. Light, loose and comfortable, the building form is expressed as a series of light layers to provide the necessary shelter from sub-tropical sun and storm.

On a more prosaic level, restraints typical of institutional projects remained and included low maintenance materials and finishes, an extremely tight budget (\$1050/sq.m), and in particular, a very short program (36 weeks design, documentation and construction).





Shane Thompson of BVN says the design brings different elements of the program under one roof to achieve an economy of means and building form which did not compete with other highly articulated campus buildings. "What was sought in contrast to the campus architecture was a building which related to the larger open landscape and the greenfield site."

Thompson says the centre is one of the new generation of low-cost flexible buildings for business and education. "It demonstrates how innovative design, ESD principles and strict financial controls can produce an original and exciting building.

"The \$6.2 million centre forges a physical and symbolic link between the university and the proposed Sippy Downs town centre. It combines innovative technical design and state-of-the-art sustainable design principles.

"While the centre is designed to have its own distinct identity it is also designed to act as a bridge between the University and local communities.

The project's siting on the northern edge of the university entrance sends an unambiguous signal to visitors, staff and students. Long, low and monochrome without any overblown graphics, the architecture sits subordinate in the landscape. Sculpture signage rising from a grassy knoll to the north west frontage provides a creative touch without overwhelming the structure.

Siting was determined by aligning the colonnade with a direct 'desire-line' or axis, between the proposed new town centre opposite the University, with the heart of the campus - the library stairs. The south edge of the centre then aligns with the university grid.

Innovation Centre Director, Colin Graham enthuses about the project: "It provides a stunning opportunity for technology ventures. It offers a logical stepping stone and connection for commerce, industry and the local community".

Head-hunted from a similar role at the Robert Gordon University in Aberdeen, Scotland, Graham says the quality of the architecture contributed to the decision to join USC. "It really declares a very progressive attitude. It is very difficult to reconcile fact with fantasy if you operate from a building that is dumb and dull. Intelligent architecture is a definite attraction. It says plenty about the culture of the university that ideas are fostered and put into practice.

"It is difficult to appear convincing in this field of work if you operate from drab or inappropriate headquarters. What we have provides

(far left and below)
The Innovation Centre is flexible and adaptive with office 'modules' and communal technical resources. A cost efficient structural and cladding system provides an adaptable business 'incubator' environment.





plenty of substance and a brilliant image for dynamic start-up companies making their way in the world.

“The centre aims to attract and select around seven new ventures each year. In return it will offer benefits that include shared reception, two informal meeting rooms, a board room, resource centre and, if required, management advice - all of which enable small companies to tap into big company facilities,” says Graham.

The sheer ‘materiality’ of the building is specific and unequivocally steel. ZINCALUME® steel in LYSAGHT CUSTOM ORB® profile creates a lustrous - and by night luminous - package that reinforces the idea of floating ‘bright ideas’. Running along a north-east, south-west axis, the building offers 600 sq. m. of space across two levels for up to 15 start-up companies. Phase two - already built and housing

an International Teaching Centre - comes into operation at the end of 2003 and provides a further 600 sq. m. of high tech space.

Three translucent bonnets, or light chimneys, articulate the promise of the light play created internally, through screened skylights. The existing floor plan has the three separate uses - the Innovation Centre and English Language Centre - with similar floorspace and the 2200 seat flat floor auditorium.

The north-west elevation comprises offices and administrative functions. This is a relatively introverted element, shaded by awnings and louvres in the style of the traditional ‘Queenslander’. Extensive glazing at each end provides plenty of scope to keep in visual touch with university life. Perforated steel screens along the northern end perform dual roles of solar shading and privacy from the main road

frontage. The main entry elevation and south east facade reinterprets the tradition of the grand colonnade so successfully created by the Mainwaring and Nield library.

A walkway with fly-over bisects the building and links to the rear car park and ground floor amenities including cafe and toilets. Corrugated fibreglass sheeting picks up the rhythms of the steel cladding as well as contributing high levels of natural light into lower levels.

Office spaces line the edges while the central spaces are communal to encourage interaction and the sharing of ideas. The first floor level combines additional offices, presentation areas and footbridge links between mezzanine work zones.

Clad with ZINCALUME® steel in LYSAGHT CUSTOM ORB® profile, the building features a toroid roof with a major radius

of 1,000 metres and a minor radius of 175 metres. The large radii enabled the two way curve to be achieved without curving any of the structural steel except for the exposed eave beams. Purlins were strung down on site and the tray roof deck twisted to subtle curves. Importantly, the production of the two way curve through the utilisation of standard steel construction met both the considerable restraints of the program and budget. The ‘pod’ roof to the side of the building takes the twisting two-way geometries further to wrap the roof down to the ground.

The centre’s engineered passive ventilation system incorporates three large thermal chimneys and internal flow-through systems which, assisted by extensive sun-shading, cools the building without the use of air-conditioning. Clad in translucent fibreglass, the chimneys draw hot air up and out of the building, creating a subsequent flow of cooler air through the centre. At night the internally lit chimneys act as a beacon,

again drawing community focus to the university campus.

The Sunshine Coast is one of those rarest regions where a definable and specifically Australian architecture has evolved in its context. In the age of globalisation, architecture pays a hefty price for the transfer of technology and ideas. It is often subsumed by the latest and most expedient, only later to reveal the transplant has failed. This is why such architecture, even if not entirely original, bristles with enough thoughtful ideas to make it hugely relevant for its place and purpose.

Peter Hyatt

Architect’s Statement

The brief for the building strongly emphasised that the centre has an identity distinct from the rest of the campus and a public face to the main road and proposed town centre opposite. The brief also called

for a building symbolic of the University’s aspirations to support innovation and enterprise in the local community.

The design revolves around a large roof which simultaneously achieved minimum roof falls, kept wall heights down for economy, reduced the perceived scale of the 100 metre long building, and importantly transformed what is basically a big cheap shed into an evocative form which met the University’s brief for an iconic building.

ZINCALUME® steel produces a consistent materiality which works the roof to create an enigmatic form which nestles into the landscape leading to multiple associations - bio-morphic/ space-age vehicle etc.

The Innovation Centre is a fine example of what can be achieved through the use of sophisticated three-dimensional visualisation and analysis software, and through close collaboration between architect and structural engineer. The design rationale for

(left and below) A vibrant colour scheme contrasts the neutral ZINCALUME® cladding that lines the interior/exterior. A structurally open interior uses a mezzanine to facilitate informality and allows a wash of indirect natural light to penetrate evenly throughout.





(above) Although clearly apart from the landscape in colour, the low slung linear form viewed from the south east elevation moulds successfully into the landscape.

the building depended heavily on devising ways of quickly and economically constructing a large, doubly curved roof. An innovative approach was required for the design process, steelwork design and steelwork detailing and to achieve this the architect and the structural engineer jointly developed and then worked in parallel on a single three-dimensional virtual model of the building. This model was used for structural analysis, for design drawings, for architectural visualisation and detailing, and finally by the shop detailer to generate workshop drawings.

Design and detailing of the steelwork incorporated several innovations, including the use of straight roof purlins sprung to the curve of the torus roof

shape, and the widespread use of thin gauge steel sections as both structural members and building skin components.

The speed with which the building's steel frame and steel cladding was detailed, fabricated and erected is a clear demonstration that practical considerations were paramount in the design of the building. Examples include the main auditorium roof supports, where simple planar steel trusses with site bolted splices were used to span up to 40m while supporting operable walls. Full scale testing was used to verify that the theoretical acceptability of springing straight purlins to large radius curves could be translated into practice, as could be the application of simple web cleat end plate connections for the majority of the steel roof beams.

Project:
University of the Sunshine Coast Innovation Centre

Location:
University of the Sunshine Coast, Sippy Downs Drive, Sippy Downs

Architect:
Bligh Voller Nield

Project Director :
Shane Thompson

Project Architect:
Chris Bligh

Project Team :
Chris Clarke, Noel Park, Luc Jouy, Ann Sulinski, David Kelly, Andrew Bock, James Grose.

Structural engineer:
Ove Arup & Partners

Services Engineer:
Bassett Consulting Engineers

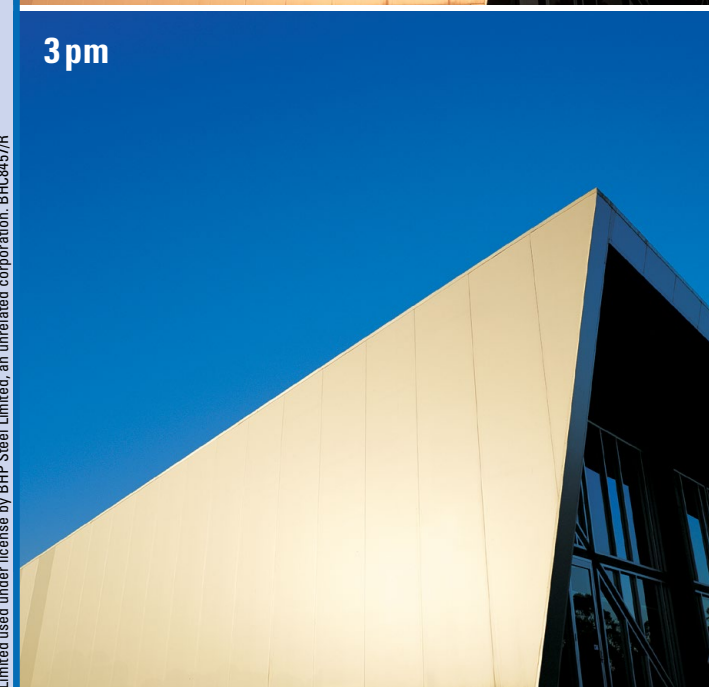
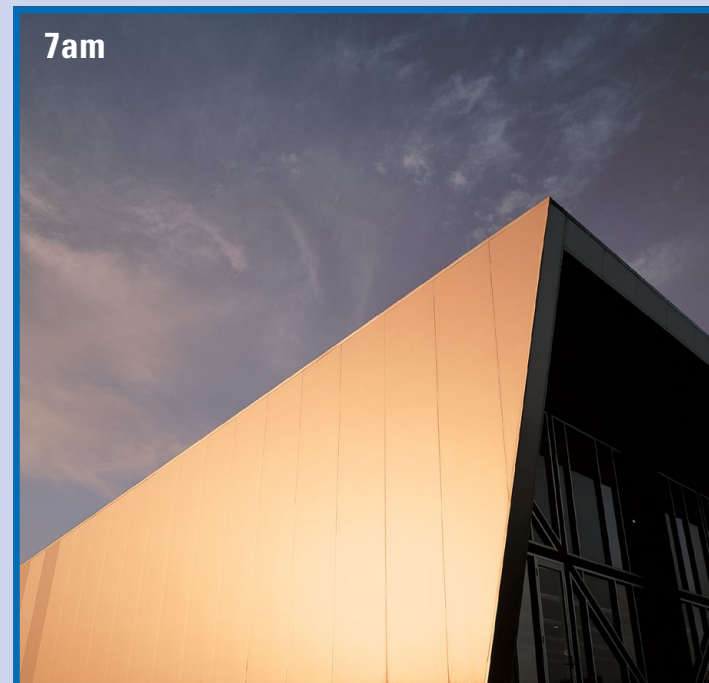
Builder:
Evans Harch

Steel fabricator:
Principal steel components:
ZINCALUME® steel cladding in LYSAGHT CUSTOM ORB® profile

Cost
\$6.2 million

Photography:
Peter Hyatt

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IFC, Geelong. Architects: BSA - Sinclair Knight Merz.

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My inspiration

In 1965, as a second year UNSW architecture student, I found myself in Bruce Rickard's design group for all of that year. Bruce was one of those laid-back teachers who talked of Frank Lloyd Wright's architecture the way evangelists talk about religion. At the beginning of the year Bruce took us all to the Kokoda Avenue, Wahroonga house that he had designed for himself.

Seeing that house in 1965 as a nineteen year old I was just blown away. The spaces, the materials, the light, the relationship to the site - it was just unbelievably beautiful.

From that moment I was inspired to excel in architecture and hang off everything Bruce had to say. I also made sure I always got the best and toughest design tutors and eventually would only work for the best



firms. When I graduated in 1970 I just walked into Allen Jack + Cottier and asked (begged/demanded) Keith Cottier (who had just won the Blacket award for Clubbe Hall) for a job. I've been there ever since.

Peter Stronach

