

Wide project array wins Queensland Awards '09



Noosa Visitor Information Centre

The winners of this year's ASI Steel Design Awards 2009 for Queensland well represented the wide array of important public uses which structural steel excels – a tourism centre, a sports complex, a bridge and a museum.

The winners were presented at a cocktail reception at the Tattersall's Club in Brisbane's CBD on 27 August by ASI State Manager – QLD & NT, **John Gardner**.

Now in its 20th year and as the ASI's most established annual award program, it was one of the few awards functions held by the Institute in 2009 as it focuses on the core business of industry and professional development during the Global Financial Crisis (GFC).

Mr Gardner said that despite limitations imposed by the GFC, the awards program was well subscribed.

"The response to this year's program has showed once again that many associated with Australia's building and construction sectors understand the material's ability to bring to life stunning robust structures," he said.

"This year's winners exemplify the speedy, straight-forward, sustainable, safe and stylish benefits steel contributes to modern development projects."

The awards were presented in the four categories of Architectural Steel Building

Design, Structural Engineering Steel Building Design, Engineering Projects Structural Engineering Steel Design – Infrastructure and Mining, and Steel Clad Structures Building Design.

Architectural Steel Building Design Award
Noosa Visitor Information Centre (Winner) – Bark Design Architects

QAS Recovery and Rehabilitation Centre (High Commendation) – PDT Architects

Structural Engineering Steel Building Design Award
Queensland Tennis Centre (Winner) – Sinclair Knight Merz

19 Corporate Drive (High Commendation) – S² Corporation

Engineering Projects Structural Engineering Steel Design Award – Infrastructure and Mining
Springfield Link Bridge – Darra to Springfield Transport Corridor Project (Winner) – The Horizon Alliance

Steel Clad Structures Building Design Award
Hinkler Hall of Aviation (Winner) – Fulton Trotter Architects

Stockmans Hall of Fame (High Commendation) – Woodhead Architects

Mulwith, Loretto College (Special Mention) – Fairweather Proberts Architects

Judging Panel

As in previous years, a steel distributor, engineer, detailer, architect and fabricator made up the Judging Panel for the awards.

Jeff Attewell: Southern Qld Steel – Steel Distributor representative

Les Miethke: Opus Qantec McWilliam – Engineer representative

Phil Shanks: Steelcad Drafting – Steel Detailer representative

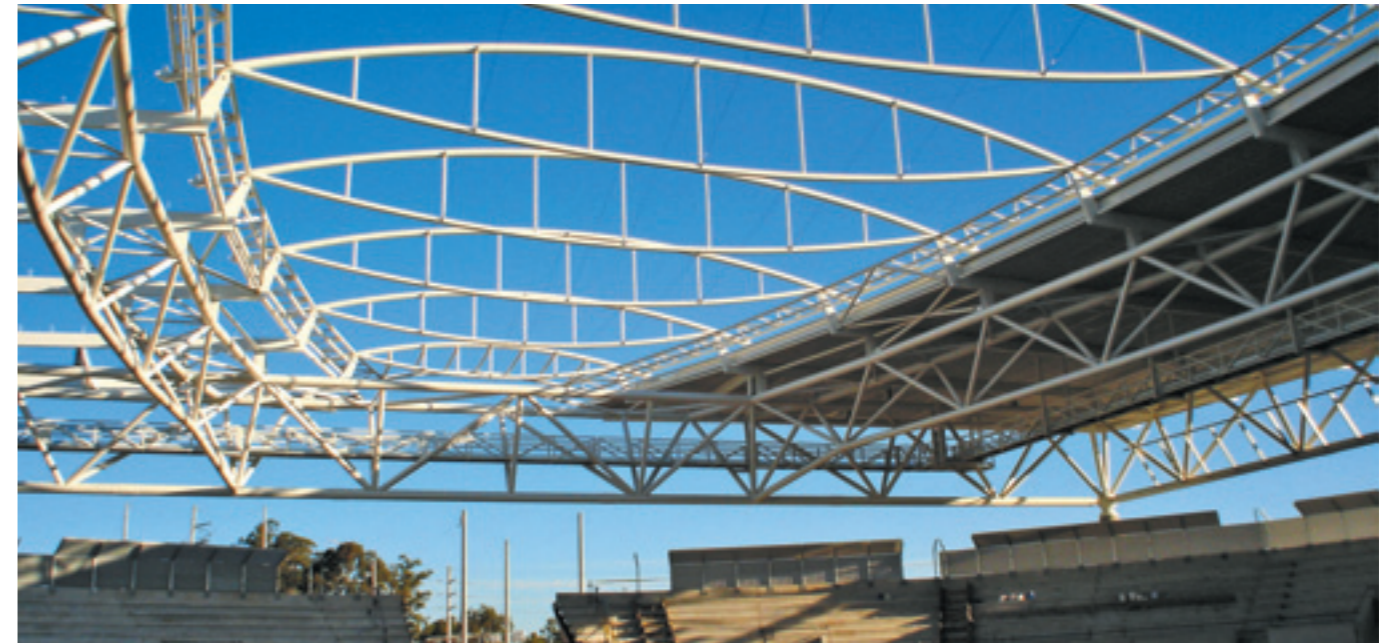
Brian Steendyk: Brian Steendyk Architects – Architect representative

Pius Studer: DWW Engineering – Fabricator representative

Architectural Steel Building Design

WINNER: Noosa Visitor Information Centre
Bark Design Architects

The roof inspired by a simple leaf allows northern light and winter sun through the space and onto the footpath whilst the roof cantilevers over the streets and together with high level clerestory glazing, allows visitors to look up and out. The maximum amount of glazing to enable the leaf canopy to float was achieved by minimising solid bracing walls that would have been required with other structural materials. Steel was chosen specifically for its purity of expression, speed of construction, rigid bracing connections and to create a physically and visually strong



Queensland Tennis Centre

skeletal series of portal frames and cantilevered canopy roof. The structural steel frame was completed onsite over three days by four people. A large proportion of the steel primary structure can be unbolted, dismantled and recycled.

Project Team

Client: Sunshine Coast Regional Council and Tourism Noosa

Architect: Bark Design Architects

Structural Engineer: Blakeney Munns Consulting Engineers

Head Building Contractor: Hutchinson Builders

Steel Distributor or Manufacturer: OneSteel

Steel Fabricator: Cooroy Engineering

Steel Detailer: JBD Steel Detailing

Coatings Supplier: Industrial Galvanizers

"Steel was employed in a sophisticated manner to create expansive openings at ground level that allowed both visual and physical access to the information centre and its staff." – **Brian Steendyk**

HIGH COMMENDATION: QAS Recovery and Rehabilitation Centre
PDT Architects

The Centre was constructed as a stand-alone building to complement the existing 'sports science' precinct within the 'QE2' stadium at Nathan. The main pool hall incorporates an articulated steel frame 'exoskeleton' with an under-slung semi-translucent polycarbonate shell. The exoskeleton facilitates freer air flow and minimises steel corrosion while reducing coating specification and providing evenly distributed natural daylight without glare. The built-in artistic component of the project was implemented by way of powder coated

steel mesh sunshades which were designed by a local Brisbane artist who worked closely with PDT and Arup to ensure the initial vision of the blades was met through fabrication and erection. All connections were treated and left visible to allow for future maintenance as required.

Project Team

Architect: PDT Architects

Structural Engineer: Arup

Head Building Contractor: Hindmarsh Constructions

Steel Fabricator: MC Engineering

Steel Detailer: RMS Drafting

Coatings Supplier: Watty

"The architects showed innovation by excluding the structure from the more corrosive interior of the pool facility and achieved a bracing system for the building within the primary structural members leading to an efficient use of structural steel." – **Les Miethke**

Structural Engineering Steel Building Design

WINNER: Queensland Tennis Centre
Sinclair Knight Merz

Exemplary structural engineering services delivered the stadium under budget and in time for the inaugural Brisbane International in January 2009. The facility features the world's first fixed roof for an outdoor tournament court open at the sides to bathe the centre court in natural light through translucent polytetrafluoroethylene (PTFE) fabric. The structure comprises an upper central eye lens-shaped fabric clad steel roof, a lower metal acoustic sandwich panel clad steel roof, triangular trusses and a structure

which supports the upper and lower roofs. Four perimeter trusses and two internal curved trusses support the fabricated rectangular box rafters and lenticular trusses over the centre court. The concrete seating plates are supported by structural steel universal beam rakers and steel columns.

"Everyone involved has 'served' up an iconic stadium." – **Jeff Attewell**

Project Team

Structural Engineering: Sinclair Knight Merz

Architectural Services: Populous and Mirvac Design

Construction Services: Mirvac

Building Services: Lincolne Scott

Civil Services: Maunsell

Acoustic Services: Ross Palmer

Fire Engineering Services: Arup

Steel Fabricator: Beenleigh Steel Fabrications

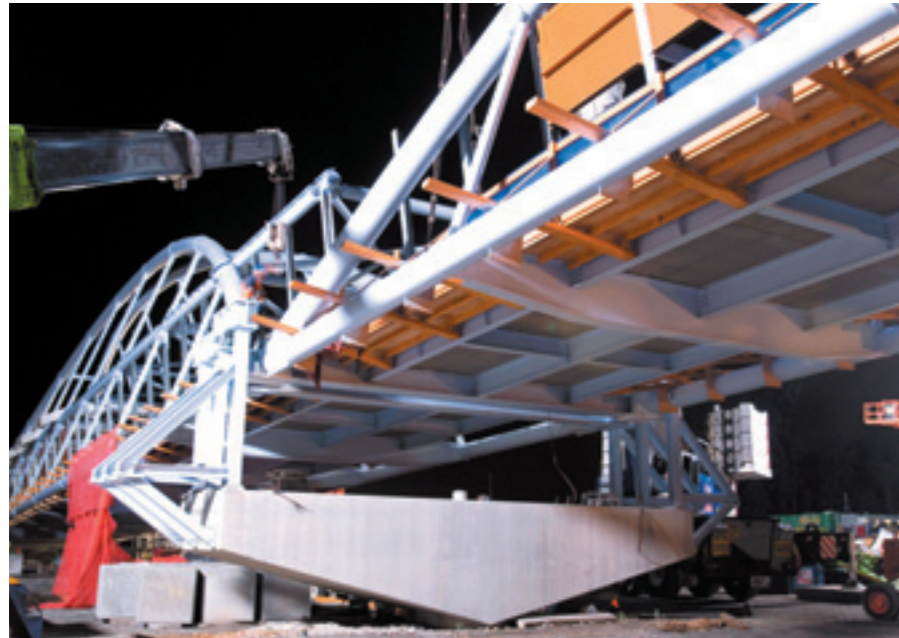
Steel Detailer: TD Drafting

Coatings Applicator: Transblast

Coatings Supplier: International Paints

HIGH COMMENDATION – 19 Corporate Drive
S² Corporation

This project incorporates approximately 6900sqm of office space across two levels and a basement car park. The structural steel design incorporates a free-spanning post-tensioned floor truss system up to 27.5 metres long, regarded as an Australian first in size and scope. Coupled with a hidden arched truss design for the roof exceeding 36 metres clear span, the building provides vast areas of column-free-space on the upper and lower floors. The building allows for unparalleled flexibility of tenure where partitioning of the space can occur in any



Springfield Link Bridge

number of ways to optimise tenancy. The post-tensioned steel solution saved up to 40 percent in overall steel weight when compared to a conventional design of the same span.

Project Team

- Architect:** Ceccato Hall + Associates
- Structural Engineer:** S² Corporation
- Head Building Contractor:** Hutchinson Builders
- Steel Supplier:** OneSteel Australian Tube Mills
- Steel Fabricator:** Coolamon Steel Works
- Steel Detailer:** CadTech Australia
- Coatings Supplier:** Allied Protective Coatings
- Metal Cladding Contractor:** Gold Coast Metal Roofing

"The client's requirement for significant clear spans in this office building was innovatively achieved by the use of a post-tensioned tubular truss system which efficiently utilises the strengths of structural steel cost effectively." – Les Miethke

Engineering Projects Structural Engineering Steel Design – Infrastructure and Mining

WINNER: Springfield Link Bridge – Darra to Springfield Transport Corridor Project The Horizon Alliance

Two equal steel bridge spans of 58 metres each were a smart alternative to three or four spans of concrete of unequal length.

A tied-arch structure was adopted as the arch did not impose a great cost penalty compared to the truss option and looks much better. Each bridge span consists of two symmetrical arches which are inclined in the vertical plane towards each other at a slope of about 20 degrees. The vertical rise of the arches over the entire span is 10 metres to ensure the bridge is strong and rigid. Connections were predominantly bolted to provide flexibility in erection of the structure and minimise site welding. The bridge was designed to allow it to be lowered after the new road and rail alignments are constructed under the bridge through adopting a 'through' structure and temporary supporting frames.

Project Team

- Clients:** QR Limited and Queensland Department of Transport and Main Roads
- Architect:** The Horizon Alliance – GHD and KBR
- Structural Engineer:** The Horizon Alliance – GHD and KBR
- Head Building Contractor:** The Horizon Alliance – John Holland
- Steel Fabricator:** John Holland SMP Division
- Steel Detailer:** John Holland SMP Division
- Coatings Supplier:** International Protective Coatings

The Horizon Alliance comprises QR Limited, Queensland Department of Transport and Main Roads, John Holland, GHD and Kellogg Brown & Root (KBR).

"This is a forward-thinking, well engineered and executed project." – Jeff Attewell

Steel Clad Structures Building Design

WINNER: Hinkler Hall of Aviation Fulton Trotter Architects

The steel detailing was inspired by connections used in the construction of older airplanes and the overall building is reminiscent of a hangar. Structural steel was selected for its spanning qualities, visual lightness, prefabrication ability and low maintenance qualities. The internal building program required large clear spans to allow maximum flexibility for the interpretive design. The ability to resist cyclonic wind loadings also worked to steel's favour. The primary space has a clear span of 16 metres that accommodates five historic planes. Having one subcontractor responsible for the shop drawings and fabrication helped to tighten communication in this critical process.



Hinkler Hall of Aviation

Project Team

- Architect:** Fulton Trotter Architects
- Structural Engineer:** GHD (Formerly Leddy Sergiacomi & Associates)
- Head Building Contractor:** Jeff Lennox Builder
- Steel Distributor or Manufacturer:** BlueScope Steel
- Steel Fabricator:** Caneland Engineering
- Steel Detailer:** Caneland Engineering
- Coatings Supplier:** Dulux
- Metal Cladding Contractor:** Jeff Lennox Builder

"The architects have taken an innovative approach to the use of steel cladding to achieve an aesthetically pleasing outcome on a building which otherwise could have lacked impact." – Les Miethke

HIGH COMMENDATION: Stockman's Hall of Fame Woodhead

Set in the remote landscape of outback Queensland, the Stockman's Hall of Fame is one of Australia's most iconic references to our outback pioneering heritage. The bones of the building comprise structural steel ribs connected to the ground at the perimeter. The structure then gathers together at the apex in a column-free connection. Natural light splinters through this apex and uplifts the largest 'big ass fan' available. Product research ensured that innovative solutions like the seven metre diameter fan and coloured glazing system were integrated into the design. Collaboration with the structural engineer ensured the steelwork and shop drawings were carefully controlled so that logistical problems were minimised.

Project Team

- Architect:** Woodhead Architects
- Structural Engineer:** Cardno
- Head Building Contractor:** T F Woolam
- Steel Distributor or Manufacturer:** BlueScope Distribution
- Steel Fabricator:** Pierce Engineering
- Steel Detailer:** Pierce Engineering
- Coatings Supplier:** International Protective Coatings
- Metal Cladding Contractor:** Capricornia Plumbing and Drainage

"Continuing a theme with a great steel product" – Jeff Attewell

SPECIAL MENTION: 'Mulwith', Loreto College Fairweather Proberts Architects

The 'Mulwith' building at the College in the Brisbane suburb of Coorparoo consists of a basement level car park, storage for art materials, rainwater harvesting facilities and a lift allowing full access to all floors for the disabled. An important element in the project is a steel screen that provides sun shading to the west, safety for students and an engaging presence. Each facet of the screen

is accented by a notch at the change of direction which also acts as the weld and galvanising point in the continuous vertical members. Each of these members runs from the roof edge beam to ground level attaching only at the concrete floor slabs for a clean internal screen absent of unsightly additional structural supports. These slab connections allow tolerance vertically and horizontally for onsite slide bolt adjustment whilst maintaining tolerances allowable for the screen.

Project Team

- Architect:** Fairweather Proberts Architects
- Structural Engineer:** Lambert & Rehbein
- Head Building Contractor:** Badge Constructions
- Steel Fabricator:** Hosken Site Steel
- Steel Detailer:** Hosken Site Steel
- Coatings Supplier:** Industrial Galvanizers

"The use of simple galvanised profiles repeated along the western façade enlivened the edges of the school campus and appropriately conveyed the function of the new Mulwith Arts Centre." – Brian Steendyk

Undergraduate Structural Steel Design

- Joseph Gattas** (University of Queensland)
- David Hughes** (Queensland University of Technology)
- Darryl Evans** (University of Southern Queensland)
- Trent Graham** (James Cook University)
- Melissa Parsons** (Griffith University)

Queensland Fourth Year Student Award

This is a new award for the highest achieving student project team at the Queensland University of Technology in the fourth year elective, *Design and Construction of a Multi-storey Composite Steel Framed Building*.

David Hughes, Elizabeth Oxford and Raymond Yau comprised the winning team.

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