

Queensland award winners attest steel's versatility

A wholesalers' hub, a beachside 'man cave', a steel wrapped multi-storey carpark and an Olympics standard indoor cyclist venue topped the latest Steel Excellence Awards for Queensland and the Northern Territory, it was announced at the Brisbane Convention and Exhibition Centre on 5 August.

The winner for Buildings – Large Projects, Robina Market Hall is distinguished with a waveform roof with vault forms that allowed repetition of details, location of splices, consistency of angles at intersections and modular erection.

Taking the view that less is more, all steel elements in the Buildings – Small Projects winner, The Boat House at Mission Beach are standard hot rolled and cold rolled sections and its design required few structural elements beyond that needed for a standard square form.

The Steel Clad Structures winner, Sunshine Coast University Hospital Carpark is wrapped by external screens which are fully welded frames comprising RHS sections serving as structural bump rails and for aesthetic enhancement.

Topping the Engineering Projects category is the Queensland State Velodrome which takes advantage of various external cladding systems to meet required performance characteristics and support architecturally critical eaves detail that visually defines the building form and accentuates the meeting of raking walls and roof.

Buildings – Large Projects

WINNER – Robina Market Hall Stages 2A and 2B
High Commendation – Queensland State Velodrome
Shortlisted – 480 Queen Street, Brisbane

Buildings – Small Projects

WINNER – The Boat House
High Commendation – Riverside Vertical Village
Shortlisted – Brisbane Markets Roof

Steel Clad Structures

WINNER – Sunshine Coast University Hospital Carpark
Shortlisted – Canvas

Engineering Projects

WINNER – Queensland State Velodrome
Shortlisted – Queensland Bulk Sugar Storage Sheds Renewal

Third Year Award

Trent Baker (University of Southern Queensland)

Troy Decourcy (Central Queensland University)

Lachlan McNeven (University of the Sunshine Coast)

Brent Manteufel (Queensland University of Technology)

Hong Quan Nguyen (Griffith University)

Edward Smith (University of Queensland)

Kevin Yang (James Cook University)

QUT Fourth Year Elective (*Design and Construction of a Multistorey Composite Steel Framed Building*)

Alexander Capitanio

Ryan Chapman

Leonardo Fernandes Rio

Judging Panel

David Cox (Cox Architects) – Architect representative

Glenn Gibson (idec) – Fabricator representative

Peter Ho (Logicamms) – Engineer representative

Phil Shanks (Steelcad Drafting) – Steel detailer representative

BUILDINGS – LARGE PROJECTS Robina Market Hall Stages 2A and 2B (Winner)



The building's distinctive wave form roof comprises either vaults on UB columns (like a portal) or vaults on primary trusses linked into a partly demolished original Market Hall truss. The vault forms allowed repetition of details, location of splices, consistency of angles at intersections and a modular erection methodology. The configuration of the vaults was reviewed to minimise thrust forces. Design of the transfer trusses/beams was a primary design issue with stiffness critical for deflection of roof vaults. The modular nature of the roof allowed overall stability provided by cantilever columns and trusses to be explored and reviewed to suit program constraints. Construction was achieved within an operating shopping centre and has been delivered in stages with minimal tenant disruption.

PROJECT TEAM

Client: QIC • **Creative Directors/Architect:** Seventh Wave/ACME • **Executive Architect:** The Buchan Group

Interior Designers: Landini Associates • **Structural Engineer:** MPN Consulting • **Head Building Contractor:** ADCO

Steel Distributors: OneSteel Metalcentre, BlueScope Distribution, Southern Queensland Steel • **Steel Fabricators:** AlltypeWelding, Widgee Engineering • **Steel Detailer:** Steelcad Drafting • **Coatings Supplier:** Dulux • **Steel Erectors:** AlltypeWelding, Mulherin Rigging & Crane

BUILDINGS – SMALL PROJECTS The Boat House (Winner)



Taking the view that less is more, all steel elements are standard hot rolled and cold rolled sections. It required few structural elements beyond that needed for a standard square form. The design was refined in conjunction with the structural engineer to ensure maximum efficiency in member sizes and spans and to minimise waste. The main structure is a 250UB portal frame, hot dip galvanized for coastal conditions with 100 'C' section rafters supporting a proprietary coated steel roof. The wave form at the front of the shed comprises prefabricated SHS sections. The bracing is located neatly in bays that balance each other aesthetically from the inside of the shed. The contract documentation included all steel connection details so the fabricator could accurately cost the steelwork.

PROJECT TEAM

Architect: POD (People Oriented Design) • **Structural Engineer:** Thirkell Consulting Engineers

Head Building Contractor: Envisage Building • **Steel Fabricator:** TCI Engineering • **Steel Detailer:** Thirkell Consulting Engineers

Steel Distributor: Tonkin Steel • **Coatings Supplier:** Australian Professional Galvanizing

STEEL CLAD STRUCTURES Sunshine Coast University Hospital Carpark (Winner)



The project provides two carpark buildings comprising a 600-space, five storey carpark and a 2800-space, nine-storey one. The architecture called for modular façade screens that effectively reduce the footprint of each perimeter carpark bay. The external screens are comprised of vertical structural battens and security mesh. They are fully welded frames comprised of RHS sections which serve the dual purpose of structural bump rails and to enhance external aesthetics. They are complimented by multi-coloured soffits that aid wayfinding and invigorate and enrich the façade patterns. The carpark offers direct access to the public hospital via overhead bridge links providing quick and safe all-weather access.

PROJECT TEAM

Architect: Sunshine Coast Architects • **Structural Engineer:** Aurecon Group • **Head Building Contractor:** Lendlease
Steel Distributors: OneSteel Metalcentre, BlueScope Distribution • **Steel Fabricator:** Steel Fabrications Australia
Steel Detailer: Steel Fabrications Australia • **Coatings Suppliers:** National Galvanising Industries, International Paint, Allied Coating Services • **Steel Erector:** Mulherin Rigging & Cranes

ENGINEERING PROJECTS Queensland State Velodrome (Winner)



To provide the required planning flexibility with world-class spectator and user amenity, the arena roof of the facility has clear spans up to 118 metres between inclined perimeter supports, making it one of the largest free-span roofs in Australia. Extensive use of parametric design techniques and shared models allowed rapid development and assessment of large numbers of framing options and drove optimisation of the selected form. Much of the external cladding systems involved steel cladding or sub-framing such as the architecturally critical eaves detail that visually defines the building form and accentuates the meeting of raking walls and roof. Configuration of roof framing allowed it to be supported during erection by a small number of simple temporary props.

PROJECT TEAM

Architect: Cox Rayner Architects • **Structural Engineer:** Arup • **D+C Contractor:** Watpac • **Steel Fabricator:** Beenleigh Steel Fabrications
Construction and Temporary Works Engineer: Construc • **Steel Erector:** BSF Mobile Cranes • **Steel Detailer:** Online Drafting Services
Steel Distributor: BlueScope Distribution • **Steel Manufacturer:** BlueScope (plate) • **Surface Treatment:** Tranzblast
Coatings Supplier: PPG Industries

Entrants

BUILDINGS – LARGE PROJECT ENTRIES

- Arup** (Queensland State Velodrome)
- Aurecon and Grocon** (480 Queen Street, Brisbane)
- Bornhorst & Ward** (155 Queen Street, Brisbane)
- BridgeFAB** (Repco Distribution Centre)
- Fulton Trotter Architects** (St. Mary's College, Riverside Precinct)
- Gay Constructions** (Joint Logistic Unit Expansion, Amberley)
- I3 Consulting** (QGC Upstream Operations)
- MPN Consulting** (Robina Market Hall Stages 2A and 2B)
- Spaceframe Buildings** (QUBE Distribution Centre, NT)
- Steel Fabrications Australia**
(Buildings for New Generation Rolling Stock)

BUILDINGS – SMALL PROJECT ENTRIES

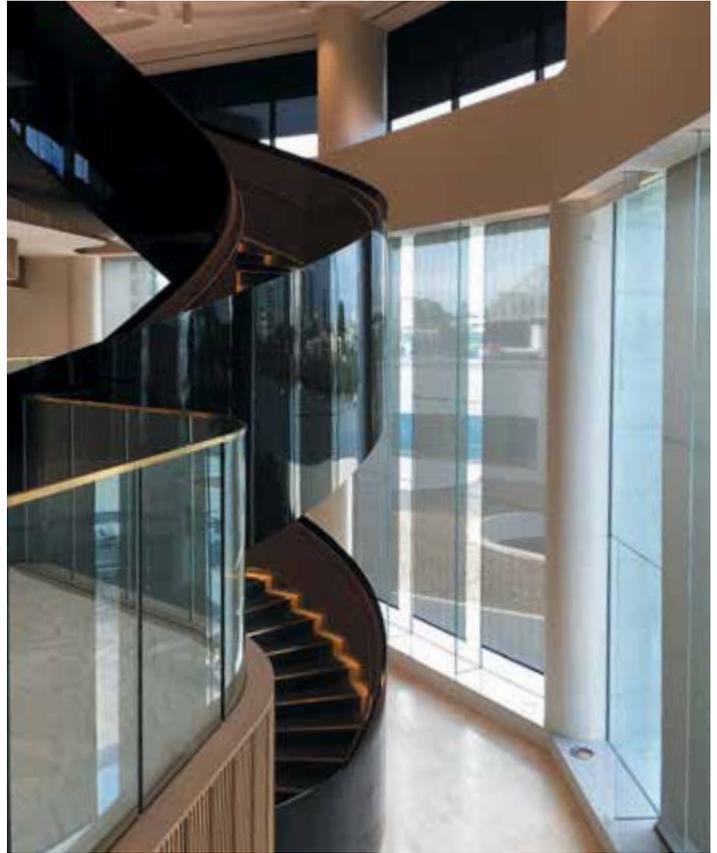
- Arup** (Riverside Vertical Village)
- BridgeFAB** (IMHU Courtyard)
- Cox Rayner Architects**
(St. Lucia Lakes Link, University of Queensland)
- ETS Architects** (The Rural Residence)
- pentArchi** (Reflection House)
- People Oriented Design** (The Boat House)
- phorm architecture + design** (House in Hamilton)
- Steel Fabrications Australia** (Brisbane Markets Roof)
- Robinson Architects** (Platypus Bend House)

STEEL CLAD STRUCTURE ENTRIES

- Barron Builders and Opus Architecture** (Canvas)
- pentArchi** (Reflection House)
- People Oriented Design** (The Boat House)
- Robinson Architects** (Platypus Bend House)
- Steel Fabrications Australia**
(Sunshine Coast University Hospital Carpark)
- Stramit Building Products** (Trinity Anglican School)

ENGINEERING PROJECT ENTRIES

- Arup** (Queensland State Velodrome)
- Aurecon and Queensland Sugar Ltd**
(Queensland Bulk Sugar Storage Sheds Renewal)
- BW Architects** (Victoria Bridge Abutment Link Connection)
- Steel Fabrications Australia**
(Sunshine Coast University Hospital Carpark)



Riverside Vertical Village



Queensland Bulk Sugar Storage Sheds Renewal

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