Queensland steelwork's best take a bow


Cooroy Private Art Studio, Cooroy

The winners and highly commended of the ASI Steel Awards – Queensland 2007 were announced at a dedicated evening of fun, food and fanfare at the Hilton Brisbane on 17 August, attended by over 340.

The entries in this year's awards cover a wide array of steel projects, from the modest to the massive, mobilising expertise in design and building that exemplify the many benefits of using steel in construction; providing high strength to weight, the ability to perform a lot of works offsite to ease construction site disruptions, permitting clean modern design, and the adaptability to cater for later building extensions.

The Queensland State Committee of the Australian Institute of Steel Construction (now ASI) began the Queensland Steel Awards in 1990 as a means to recognise university students for their success in structural steel design. In 1995 the Architectural Steel Design Award was added with the Structural Engineering Steel Design Award following in 1999 and the Metal Building Product Design Award in 2002.

This eighteenth year of the state awards program celebrated a wide range of entries from small to large projects in the three major award categories.

Architectural Steel Design Award
Cooroy Studio (Winner) – JMA Architects

Sports Medicine Centre (High Commendation) – Stephen de Jersey architect

SQIT – Block B (High Commendation) - Project Services

Engineering Steel Design Award
Queensland Gallery of Modern Art (Winner) – Bornhorst TTW

Riverlink Eastern Precinct (High Commendation) – Whybird & Partners

Metal Building Product Design Award
Innovation House (Winner) – Bligh Voller Nield

Lilliesmere Lagoon (High Commendation) – PHORM architecture + design

Special Mention – Innovation & Sustainability
Windmills on Show, Toowoomba – Russell Hall Architect & Project Services

Judging Panel

Stephen Carney, Interpole (Fabricator Representative)

Kel Everson, QEI (Steel Detailer Representative)

David Hargreaves, Robert Bird Group (Engineer Representative)

Richard Kirk, Richard Kirk architect (Architect Representative)

Jeff Poultney, QMBA (Contractor Representative)

Architectural Steel Design

WINNER - Cooroy Private Art Studio, Cooroy

JMA Architects

"It's a wonderfully successful piece of architecture that demonstrates ingenuity in construction, detailing and skilful placement - on a unique and dramatic site."
Richard Kirk, Richard Kirk architect – 2007 Judge

Constructed for one of Queensland's most prominent art collectors and located on the ridge of a hilltop beside Mount Cooroy, the building is separated into two pavilions with the services area being hidden or dug into the ground with the studio area seemingly floating on the side of the hilltop like a box kite. A stand-alone steel frame was adopted as the most efficient type of construction to resist the high wind loads of the exposed location. Galvanised steel was used for the structural portal frame, columns floor and roof beams, bracing and awning supports. There are sash-free double hung windows in some of the door leafs for ventilation when all doors are closed. Below the main studio is an art storage, sleeping or service space. Metal cladding was used for the services wing walls and conical roof. Timber flooring, cladding and glazing became the primary non-structural elements creating architectural form to the steel backbone. The building comprises three different bracing systems (cross rods and SHS braces, frame action and cantilevering columns) working together to provide a simple economical solution that met the needs of the architectural form. Three-dimensional modelling helped to minimise the load on the footings, reducing the volume of concrete. The corrugated perforated shading aprons are an innovative way to provide dappled shade and maintain sky views at the same time. The building can be completely self sufficient in terms of water, electricity and sewerage. Tanks of AQUAPLATE® steel provide adequate water storage and solar panels for water heating on top of the awning roof service the bathrooms and kitchen. Custom-made extra-large gutters at the two ends of the main roof maximise rainwater collection from the frequent subtropical storms.

Project Team

Architect: JMA Architects
Structural Engineer: QANTEC
McWILLIAM consulting engineers
Head Building Contractor:
Mark Bain Constructions
Steel Fabricator: Precision Welding & Fabrication
Steel Detailer: Pacific Drafting
Coatings Supplier: Industrial Galvanizers
Metal Building Contractor:
Dynamic Roofing
Water Tanks: Gill Tanks & Gill Sheet Metal

Sports Medicine Centre, Thuringowa

Stephen de Jersey Architect

A group of young podiatry, physiotherapy, exercise and sports medicine professionals united to order construction of new commercial premises in the CBD of Townsville's twin city Thuringowa, to provide flexible space for their diverse allied health practices. The cantilevered corner creates an identifiable


Sports Medicine Centre, Thuringowa

entrance and memorable detail to the building. The building is sorted to suit the various tenants with much of the space requiring cellular enclosed consulting rooms. The various receptions and waiting areas are located along a glazed veranda front edge, which provides an open and interrelated space that may be divided for security purposes by large pivoting doors. The building has been developed around a series of building elements, those being concrete pods (containing consulting rooms), plasterboard furniture (private staff work areas), the roof, glazed walls and concrete entrance pathway. Each of these elements is fashioned in various ways to fulfil the programmed objectives of the building. For example, the roof folds to adjust to the scale of the various areas, to act as the rear boundary wall and to provide an identifiable entrance. Structural steel was imperative to this project, specifically in achieving the folded and cantilevered roof form along with the required open areas.

Southern Queensland Institute of TAFE (SQIT) (Block B), Toowoomba

Project Services

Block B is a three storey, steel framed, multi-purpose facility adding specialised training rooms, an upgraded and extended canteen and library spaces in the SQIT's Toowoomba campus. Repetition and exposure of the structural steel framework gives the building an aesthetic sense of unity and rhythm. The building houses a diverse range of student facilities including training rooms for respite, aged and child care, computer classrooms, student administration and the new library of more than double the size. A high proportion of the three storeyed structure is steel framed. Wall framing includes paired channel columns doubling as framing for refractive glass block windows, multiple cruciform columns and roof beams to double height, external foyers like hypostyle halls and high-ceiled verandas for winter sun penetration as well as a double height reading room. The building is closely integrated with its sloping site to provide entrances and sunny, sheltered landscaped courtyards at Level Two while maintaining the former on-site parking capacity on the lower ground floor. Reduced environmental impact and improved sustainability is achieved through multiple mode ventilation, rainwater harvesting (for non-potable internal use) and enhanced daylight penetration through the use of refractive glass blocks. Steel offered the flexibility of design to provide large open spaces with minimal support points and potential for future change of use without impacting the structure.

Engineering Steel Design

WINNER - Queensland Gallery of Modern Art, South Brisbane

Bornhorst TTW

"Given the challenging constraints placed on the structural engineers by the architectural requirements of this landmark project, we were impressed by how the engineering team proved once again that steel was the only solution."
Kel Everson, QEI – 2007 Judge

The Queensland Gallery of Modern Art is a part of the State's premier arts precinct on the southern bank of the Brisbane River. Structural steel is used throughout this public building, but it is the roof plate which gives it an iconic status. Designed to appear very thin at the edges, a 300 by 300 exposed steel angle was used around the perimeter of the roof, with depths varying from 300 to 1200mm. The roof cantilever is elegantly supported by the concrete formwork and three external slender steel columns, 22 metres high. Over the main gallery, 2.4 metre high trusses with a 24 metre span support the roof plate. The roof was also analysed for vibration using loads obtained from a model in a wind tunnel. The roof had to be designed to take hanging loads over the galleries and this required coordination of the structure and the ceiling and rigorous analysis of structural loads. Shrinkage, creep, vibration and construction techniques of the large spans had to be considered during the design because of the size of the building. The design of the façade was complex and required careful attention to details, especially where the mullions and transfers were exposed. The joints had to be designed to have minimum exposure. The building had to achieve finishes and quality appropriate for a building with large public visitation within the confines of a tight budget compared with similar buildings. The completed building has over 10,000sqm of gallery and a total floor area of 24,000sqm and is four storeys high.


Queensland Gallery of Modern Art, South Brisbane

Project Team

Client: Queensland Department of Public Works
Architect: Architectus
Engineering (Structural, Civil, Façade): Bornhorst TTW
Engineering (Mechanical, Electrical, Hydraulic): Lincoln Scott
Construction Management: Bovis Lend Lease
Steel Subcontractor: Gay Constructions
Quantity Surveyor: Rider Hunt (up to design documentation)

Riverlink Eastern Precinct, Ipswich

Whybird & Partners

Riverlink is a new major retail facility in Ipswich, 40 minutes west of Brisbane. The complex features an undercover car park that provides spaces for 485 cars and has a floor plate of 18,000sqm. Built on the banks of the Ipswich River, the engineering design of the complex was driven by the site. Retail floors of Riverlink were created on elevated platforms ensuring their safety from potential flood waters. As such, the undercover parking has unusually high clearance. The seven-metre elevated installation created issues for conventional formwork, including high costs, difficulty in delivery and high safety risks. The installation of LYSAGHT BONDEK® decking resolved all these issues and drastically reduced site waste. Two-person teams were able to achieve structural steel decking installation rates of over 1000sqm per day, two to three times quicker than conventional formwork.

Metal Building Product Design

WINNER – Innovation House, Kawana Waters

Bligh Voller Nield

"With extensive use of external metal clad walling, supported by non-visible cold formed steel, the designers have achieved an aesthetically pleasing outcome when viewed from any direction."
Kel Everson, QEI – 2007 Judge

Innovation House is a mixed use office complex, designed to present a strong, contemporary, sub-tropical form and character to the new technology park, Kawana Business Village. The combination of a simple, refined colour palette and the use of matt finish silver cladding delivered a robust building form that is highly identifiable. Horizontal strips of cladding help to minimise the visual bulk of the building. The building has been oriented to maximise the occupant's access to natural light, adjacent lake and distant ocean views. The building is designed to engage with the streetscape and add a vibrant and articulated building form into the business village. The building had to comply with the strict Kawana Business Village design guidelines and is built to an exceptionally tight budget with relatively conventional techniques.


Innovation House, Kawana Waters

Project Team

Architect: Bligh Voller Nield
Structural Engineer: Cardno MBK
Head Building Contractor: Evans Harch Construction
ASI Distributor or Manufacturer: Stramit
Metal Building Product Contractor: Evans Harch Construction

Lilliesmere Lagoon, Ayr

PHORM architecture + design

Lilliesmere Lagoon is a modern, semi-remote residence located amid the cane fields of North Queensland. Perched on the edge of a body of water, the outline and building materials are more reflective of surrounding agricultural buildings than a residence. The COLORBOND® cladding provides a low-maintenance solution to the constant littering and staining of the building from the soot of the sugar cane fires at harvest times. Compositionally, the building learns from the clustering of associated work buildings commonly found within the cane fields of North Queensland. Elongated structural steel fasçias and ridgelines reflect the drawn horizontal lines of the site. The house is ultimately located along two principal axes; one set by the prime vertical element within the landscape (the monumental stacks of the Kalamina Mill) and the upstream vista over the cane train bridge.

SPECIAL MENTION – Innovation & Sustainability

Windmills on Show, Toowoomba

Russell Hall Architect and Project Services

"In keeping with the man-made environment with which we have all grown up, the project team has captured this heritage and preserved it for the next generations thanks to the lasting qualities of the metal building product." ***Kel Everson, QEI – 2007 Judge***

Windmills on Show is a public art installation at SQIT's Toowoomba campus. It celebrates the designs of Australian steel windmills and recognises the achievements of Australian manufacturers. The installation comprises six windmills - one new and five refurbished. The refurbished windmills were retrieved from farm paddocks, a creek bank and rural dumps across South East Queensland. They were reconstructed according to the original designs and involved forming new sheet metal blades, repairs and replacement of damaged structural steel members and re-galvanising the towers. With a long term operational cost half that of petrol or solar water pumps, this installation highlights the exceptional environmental performance of steel windmills. More importantly, it has taken an Australian outback icon to a new generation.

Project Team

Architect: Russell Hall Architect
Engineer: Project Services
Building Contractor: Gray Developments
Steel Fabricator: Ripple Iron Curving Company
Steel Detailer: Russell Hall Architect
Metal Building Contractors: Gray Developments and Ripple Iron Curving Company

Student awards

Student awards were presented to the following people for excellence in structural steel design subjects undertaken in 2006 as part of their Bachelor of Engineering degree.

Edward Greig (University of Southern Queensland)
Ruelas Martinez (Central Queensland University)
Daniel Stephenson (James Cook University)
Bruce Street (Queensland University of Technology)
Adam Ward (University of Queensland)
Richard Woollard (Griffith University)