Builds for tricky sites top South Australian stakes

Developing new metropolitan-scale clear-span meeting space atop nine operational railway lines and a large intricate recreational structure erected on deep sandy ground took out the top honours in the latest Steel Excellence Awards for South Australia.

Buildings – Large Projects

WINNER – Adelaide Convention Centre West Building Redevelopment

High Commendation – Flinders University Student Hub

Engineering Projects

WINNER – Skymate

Judging Panel

David Bell (OneSteel)

Dr Peter Key (ASI National Technical Development Manager)

Nazareno Manuele (CADRAW)

John Merrick (ARCADIS)

Graeme Smith (ex-Rice Daubney)

BUILDINGS – LARGE PROJECTS

Adelaide Convention Centre West Building Redevelopment (Winner)

This project involved construction of a new multipurpose facility adding over 4000sqm of column-free flat floor space and integrated internally with the existing Convention Centre with provision to link to a future eastern wing. Structural steel provided the only way to construct the building atop nine operational railway lines that limited support locations and required complex interfaces with the aged rail infrastructure. The final structure comprises two primary steel trusses on individual central supports spanning the rail corridor with both designed to accommodate loss of that support in the event of a train derailment and both designed to fit within the façade and pre-function wall, but still facilitate column-free spaces.

PROJECT TEAM

Architect: Woods Bagot
Structural Engineer: Aurecon
Head Building Contractor: Lendlease
Distributor/Manufacturer: OneSteel
Steel Fabricator: SA Structural
Steel Detailer: Samaras Group
Coatings Suppliers: Jotun, PPG Industries

Flinders University Student Hub (High Commendation)

The design of the new building was required to form a central hub for a range of student activities and provide a transparent link between internal and external plaza spaces with structural steel framing facilitating a relatively lightweight structure with minimal visual obstruction. The structural design response utilised three-storey steel portal sway frames in the east-west direction comprising large, square hollow section columns with a similar roof beam forming the single pitch roof slope. Composite pre-cambered WB floor beams were used to clear span the full width of suspended floors to minimise structural beam depth. Frame connections were all designed to be bolted onsite to facilitate ease of transportation and erection.

PROJECT TEAM

Architect: Woods Bagot • **Structural Engineer:** Wallbridge & Gilbert • **Head Building Contractor:** Lendlease

Distributor/Manufacturers: Brice Metals, BlueScope, OneSteel • **Steel Fabricator:** SA Structural • **Steel Detailer:** SA Structural

Coatings Supplier: International Protective Coatings

ENGINEERING PROJECTS Skymate (Winner)

This aerial adventure park consists of 54 'sky pod' activity stations over four levels with only six actually touching the ground and the rest fully suspended and tied together with platform rings and structural cables. Its modular design also allows for flexible arrangement of the 100 activities. To achieve the long, slender spans of the pedestrian bridges between the activity pods, the simply supported steel beams were each stiffened with a tension rod to effectively form a truss. As no part of the steel structure is hidden from sight, the fine and delicate appearance of the structure greatly depended on deft detailing of the steel and bolted connections. As the site consists of deep loose dune sand, steel screw piles were used to provide an economical foundation structure which also sped up construction.

PROJECT TEAM

Architect: TouchCloud • **Structural Engineer:** Partridge Event • **Head Building Contractor:** Envirostruct Project Management

Distributor/Manufacturers: BlueScope, OneSteel, Orrcon Steel, Southern Steel • **Steel Fabricator:** Codmac Engineering

Steel Detailer: Codmac Engineering • **Coatings Supplier:** Galvatech • **Metal Building Contractor:** TouchCloud Global