



Photography by Scott Burrows

<p>Architect: Populous Structural Engineer: Arup Head Building Contractor: Watpac Steel Fabricator: Beenleigh Steel Fabrications Steel Detailer: TD Drafting Services Steel Processing: BSF Metal Centre Profile Cutting: Pipe Profiling Services</p>	<p>Hot Induction Bending (CHS): Inductabend Protective Coatings: Tranzblast Coating Services Coatings Supplier: International Protective Coatings, Industrial Galvanizers Steel Distributors: BlueScope Distribution, OneSteel Steel & Tube Steel Manufacturers: BlueScope Steel, OneSteel Manufacturing</p>
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Metricon Stadium, Carrara QLD

QLD STATE WINNER: Buildings - Large Projects,
QLD STATE WINNER: Engineering Projects

This 25,000-seat facility is the new home for the Gold Coast Suns AFL team and the main stadium for the 2018 Commonwealth Games. The stadium was designed to be primarily shop fabricated and bolted together to minimise material use and waste and enhance construction speed. The project team met a tight budget and fast tracked the construction program with a precast and steel framed stadia incorporating lightweight curved form membrane roof supported via curved Circular Hollow Section (CHS) members supported via simple planar CHS trusses on a large 12-14m grid. The structure achieves benchmark steel weights for a roof of this kind of around 40kg/sqm. The stadium bowl and Western Grandstand are entirely steel framed from top of pile cap to tip of roof for better constructability and to speed erection. Standard steel sizes were used throughout for swifter fabrication and site delivery. It was designed to accommodate an additional 15,000 patrons for the Commonwealth Games with the lower bowl of precast terraces on the northern end designed to be removable to enable extension of the pitch. A three-coat polysiloxane paint was applied to enhance long-term performance of the steelwork and the steel, installed below ground or where inaccessible to maintenance, was hot-dip galvanized.

JUDGES COMMENTS: Large projects

The project involved an exposed innovatively designed steel structure that is both architectural and structural in form. All of the significant structural building components were exposed to view that added to the overall aesthetics of the project. The utilisation of the lightweight steelwork with a membrane roof cladding created an innovative, lightweight and efficient steel roof structure.

JUDGES COMMENTS: Engineering projects

It stood apart from other engineering projects due to its project-specific design criteria. This included scale model wind tunnel testing of the steel roof structure, expert roof membrane design input and impact assessment of faceted solar arrays.



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Credit:

OneSteel appreciates the contribution of the ASI in making the text and photographs available for use in the preparation of this article.