

Sydney Superdome



photo courtesy of Peter Hyatt

The Steel Solutions

Project architect Russell Lee said the lightweight nature of steel helped make the cable-stayed domed roof solution possible.

"Steel emerged as the only economically feasible solution after investigations of a number of alternatives led to the adoption of the tensioned structural system," said Mr Lee.

"The hi-tensile ZINCALUME® steel used for the exterior roof cladding delivered optimum strength without a hefty weight penalty. We believe the SuperDome sets a benchmark by which all future work will be judged, and we're already starting to see the spin-off from the achievements created out of the Sydney Olympic projects," he said.



photo courtesy of Peter Hyatt

Australia's largest indoor sports and entertainment venue sets new benchmarks for column-free performance space. The imposing steel and glass Sydney SuperDome offers uninterrupted views for up to 21,000 spectators under a clear-span steel roof.





Figures

■ The Sydney SuperDome is the major component of a \$280 million package of works including a 3,500 space multi-storey car park and the northern part of Olympic Plaza. The 48 metre by 78 metre event floor is much larger than other entertainment venues, with flexible seating that can be arranged in several modes for concerts or indoor sports.

Facts and Features

■ The lightweight steel dome roof made from BHP ZINCALUME® zinc/aluminium alloy-coated steel is the standout feature of the SuperDome, an elegant cable-stayed design suspended from 18 steel masts positioned around the building perimeter.

The strength and lightweight nature of steel made the roof design possible, giving the SuperDome the flexibility and acoustic properties to present everything from operatic concerts with Luciano Pavarotti to indoor sports such as basketball and stadium motocross.

The outer doughnut section of the dome was partially constructed in segments on the ground. The segments were lifted into place and supported on towers, allowing for surrounding sections to be completed alongside in the air. Once the roof was in place and the cabling fixed, the whole structure was tensioned by lowering the towers away from the completed structure.

The interior ceiling of the dome is clad in a perforated corrugated steel profile incorporating heavy insulation to enhance the acoustic performance of the venue.

Corrugated sheeting is used extensively to cover sections of the exterior facade of the building.



Project Details

Client Olympic Co-Ordination Authority

Architect Cox Richardson Architects (in association with Devine de Flon Yaeger, USA) p (02) 9267 9599

Structural Engineer Taylor Thomson Whitting p (02) 9439 7288

Principal Construction Contractor Abigroup p (02) 9449 3344

Principal Steel Fabricator Transfield p (02) 9273 8600

Principal Roofing Contractor Axis Metal Roofing p (02) 9756 1477

Featured Steel Products

Roof Structure Universal Beams and Circular Hollow Sections; specially designed Lysaght purlins fixed back-to-back.

Masts Box sections

Roof Sheeting BHP ZINCALUME® zinc/aluminium alloy-coated steel rollformed into LYSAGHT KLIP-LOK 406® profile.

Ceiling BHP COLORBOND® prepainted steel in Off White rollformed into LYSAGHT CUSTOM ORB® perforated profile.

Walling BHP COLORBOND® prepainted steel in Armour Grey rollformed into LYSAGHT SPANDEK HI-TEN® and BHP ZINCALUME® zinc/aluminium alloy-coated steel rollformed into LYSAGHT MINI ORB®.