Sydney International Aquatic Centre

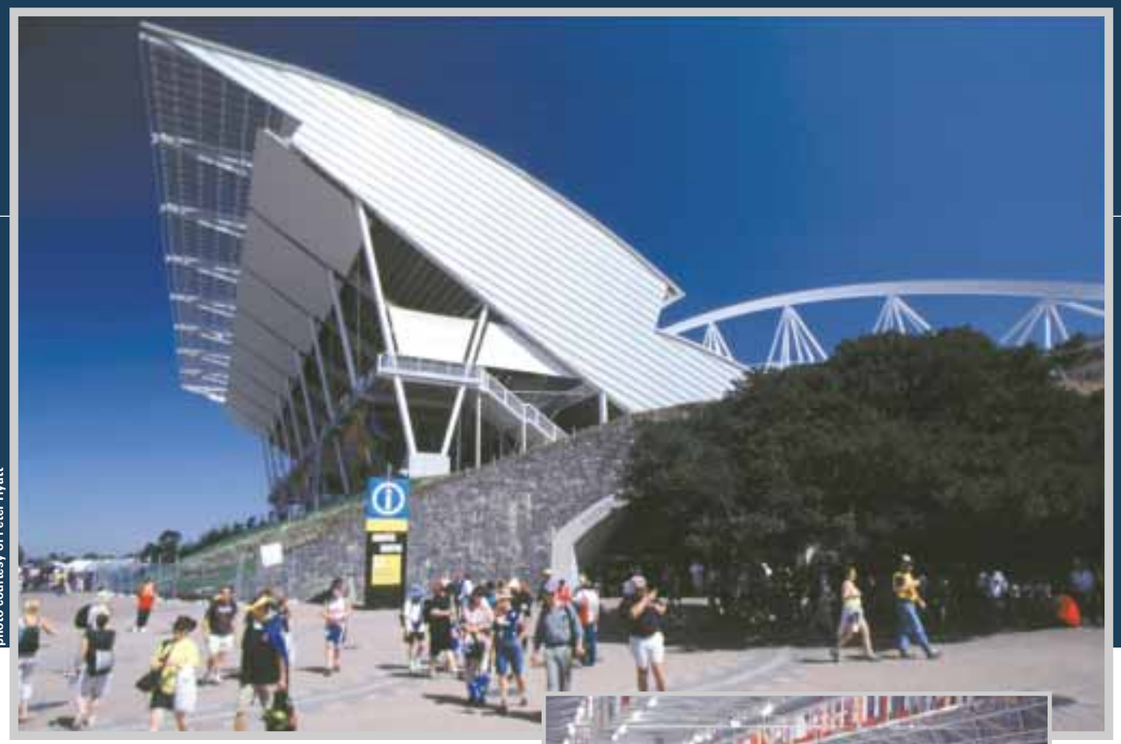

photo courtesy of Peter Hyatt

The Steel Solutions

Robert Perry said steel structure and cladding provided a cost-effective solution for the temporary seating.

"Ecologically Sustainable Development was an important design issue," he said. "The seating extension required swift erection, followed by an approximate life-cycle of 12 months. After this the plan was for the structure to be dismantled and re-used in other areas. Steel provided the adaptability to achieve this."

BHP's Manager of Olympic Projects and BHP Building Products provided technical support to the architects and structural engineers.

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photo courtesy of Peter Hyatt

Steel was integral to the design of the temporary seating extension at the Sydney International Aquatic Centre, which provided an additional capacity for 12,300 spectators during the Sydney 2000 Olympic Games.

BHP Steel

photos courtesy of Peter Hyatt

Facts and Features

The Sydney International Aquatic Centre temporary extension features nearly 3,500 tonnes of structural steel. Robert Perry, director of Scott Carver Architects, said ecologically sustainable development (ESD) was a major driving force behind the decision to use steel as a design solution.

"Steel was selected for its speed of erection, ease of dismantling and reuse, its potential to be recycled or redeployed, and for its cost-effectiveness. The aesthetic quality of the temporary expansion - particularly when viewed from the Olympic Boulevard - was a primary concern and driving force in the selection of suitable building materials."

Mr Carver said the design solution exceeded the requirement for total minimum seating capacity of 15,000, and had also included a more comfortable seating platform depth of 720 millimetres with flip-up seats.

Structural engineer Michael Berriman said steel was the logical choice in view of the fact that the distance between primary supports was 12.6 metres. Nearly 4,200 square metres of roofing made from BHP COLORBOND® prepainted steel, and 1,500 square metres of wall cladding made from BHP ZINCALUME® zinc/aluminum alloy-coated steel, was used.

The upper roof plane covered an area of over 100.8 metres by 40 metres, with Z350 purlins made from BHP GALVASPAN® zinc-coated steel at nominal 1200 millimetre centres.

Mr Berriman said builder Leighton Contractors elected to fabricate the upper roof in sections of 40 metres by 12.6 metres to reduce the amount of work that was to be completed 35 metres above the ground. The panels were assembled in a jig whose curvature matched the roof structure.

The roof was assembled using purlins clad in sheeting made from Off White BHP COLORBOND® prepainted steel. Panels, welded beams and tubular steel roof trusses were all erected using a 400 tonne crane.

Figures

The temporary extension increased spectator numbers to a maximum potential of 17,500.

Project Details

Client Olympic Co-ordination Authority

Architect Scott Carver, **p** (02) 9957 3988

Structural Engineer Connell Wagner **p** (02) 9465 5599

Builder Leighton Contractors **p** (02) 9925 6666

Principal Steel fabricators National Engineering **p** (02) 6382 1499

Roofing installation (cladding) Axis Metal Roofing **p** (02) 9756 1477

Size 4,900 square metres

Cost $24 million

Featured Steel Products (Temporary Extension)

Roof structure Transfer trusses Universal beams and universal columns **Roof trusses** Circular hollow sections; BHP GALVASPAN® zinc-coated steel rollformed into LYSAGHT® purlins

Cladding Roof BHP COLORBOND® prepainted steel in Off-White rollformed into LYSAGHT SPANDEK HI-TEN® **Walls** BHP ZINCALUME® zinc/aluminum alloy-coated steel rollformed into LYSAGHT CUSTOM ORB®

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