



Media Release

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Australia's top 2008 engineering achievements

Beijing's National Aquatics Centre (Water Cube) took out top honours for engineering excellence for Arup at the 2008 Australian Engineering Excellence Awards (2008 AEEA) gala dinner at the Great Hall of Parliament House Canberra last night, Wednesday 19 November.

The Sir William Hudson Award was presented by Julie Hammer AM, National President of Engineers Australia, and accepted on behalf of Arup by Dr Marianne Foley.

The Chair of the 2008 AEEA judging panel, Ian Pedersen, said, "This world renowned project by Australian engineers exhibited the highest standards of engineering innovation, environmental sustainability and engineering excellence.

"The engineering team made the dreams of the architects and the client come true, and the Beijing water cube has taken its place as one of the world's most iconic and popular structures."

The building was officially opened in January 2008 for the Beijing Olympic Games. Enclosed within the amazing blue bubble ethyl tetra fluoro ethylene (ETFE) walls are the pools for the swimming and diving competitions, along with seating and facilities for 17,000 spectators.

The Water Cube is essentially a structure made from an organic network of steel tubular members – based on the design using the geometry of foam – and clad with translucent ETFE pillows the venue continues to be used as one of Beijing's premier recreation centres.

Australian Engineering Excellence Awards Winners

Dampier Port Upgrade – Sinclair Knight Merz

Western Australia's Pilbara region is experiencing unprecedented expansion of its industry, driven by global demand for iron ore. Sinclair Knight Merz (SKM) found new and innovative solutions during a major resources boom to increase the port capacity by 90% while exporting record tonnages. The \$US1.4B project included a 600m wharf extension, two car dumpers, a stockyard extension, four stackers, a reclaimer, two shiploaders, two Screenhouses and associated conveyors and was completed on budget and ahead of schedule. The project set a benchmark with over five million work man-hours free of lost time injuries, and delivered a world class solution.

Amazon Waterlily Pavilion – Connell Wagner Pty Ltd

The stunning Amazon Waterlily Pavilion sets a new benchmark in Adelaide for innovative structural glass engineering, delighting admirers of modern architecture and botanists alike. The unique glasshouse was constructed as part of the Botanic Gardens' 150th anniversary celebrations and replaces the original Victoria House, designed in 1867. Glass forms the majority of the supporting structure; steel provides lateral support. A steel framework supports part of the canopy roof structure, constructed in a pattern resembling the veins on the waterlily's giant leaves.

The Freedom Wheelchair – Lu Papi & Associates

No wheelchair exists that can be used as an everyday chair, a commode chair, a shower chair and a traveling chair. Wheelchairs are also very heavy causing shoulder, arm and back injuries to disabled users, carers and health professionals. The Freedom Wheelchair has been designed to meet the end user's needs. This required innovative thinking incorporating input from wheelchair users, doctors specialising in spinal cord injuries, bio-mechanical engineers, and professional specifiers. The complex engineering design was design with 3D software and CAE Finite Element Analysis. The result, an axle-less design utilising advanced materials, simplicity of manufacture, for assembly by disabled people that is sold at a reasonable price. It is ultralight, multifunctional and elegant.

AP-3C Tactical Common Data Link (TCDL) – P3 Accord – Maritime Patrol System Program Office, BAE Systems Australia and Australian Aerospace

An upgrade to the RAAF Orion AP-3C Capability System enables crews to provide coalition commanders with valuable real time aerial views of their surrounding environments. The introduction of TC DL technology means that detailed aerial visuals of an area can be beamed to ground troops, day or night, to help identify hostile or suspicious activities. This has never been successfully achieved by a major Australian defence system to date, let alone from an aircraft to individual soldiers.

Wembley Stadium, Arch and Roof – Connell Wagner Pty Ltd

With its stunning arch visible from over 20km, the new A\$1 billion UEFA 5-star Wembley Stadium stands as a landmark on London's skyline. The unique toroidally-shaped rectangular roof, hung from a basket weave lattice arch with a record breaking span of 315m, is an innovative and structurally efficient solution to providing fully covered, unobstructed views to all 90,000 spectators and a shadow – free playing area. With a circumference of 1km, enclosing four million cubic metres inside its wall and under its roof, the stadium's strong architectural statement and excellent facilities make Wembley arguably, the best stadium in the world.

Australian Government Engineering Innovation Award (AusIndustry)

UltraCMOS™ Manufacturing – Peregrine Semiconductor Australia Pty Ltd

Peregrine is producing integrated circuits that are expanding customer options using the unique properties of its UltraCMOS™ silicon-on-sapphire (SoS) technology by providing major advances in speed and power at a lower cost. Peregrine's manufacturing techniques allow the unprecedented combination of high-performance microwave, analogue and digital functions onto a single chip. Peregrine Semiconductor Australia Pty Ltd is the only commercial semiconductor manufacturing operation in Australia and is now making a significant impact on the global electronics economy.

Environmental Engineering Excellence Award (Sponsored by UTS)

Bundamba Advanced Water Treatment Plan (AWTP) – Stage 1A – Thiess Pty Ltd and Black & Veatch

The design, construct and commissioning of this project as the first of three such plants in SE Queensland is part of the \$2.5billion Western Corridor Recycled Water Project, the largest water recycling project in the Southern Hemisphere. The plant, located in Ipswich, QLD, produces 20ML per day of purified recycled water, which has previously discharged into the nearby river a lower quality effluent. This alliance project, including 16km of 800mm pipelines, was designed, constructed and commissioned in less than ten months to international standards using the highest quality materials, equipment and technology.

Presentations to each winner are at <http://www.vervecreativeaustralia.com/EA/video/video.php>
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