MACINTOSH ISLAND PEDESTRIAN BRIDGE, QUEENSLAND, AUSTRAILA

Judges' comment

"Five month design/build with impressive results"

Technical medium span: HIGHLY COMMENDED

Commissioning authority:	Gold Coast Motor Events Company
Principal designer:	Arup
Architect:	Cox Rayner Architects
Principal contractor:	Ark Construction Group/Austress Freyssinet JV
Opened:	October 2007

The bridge, on Australia's Gold Coast, crosses the Nerang River linking the island to the surf beaches, and the bridge will also play a key role during the annual Gold Coast Indy 300 motor race. The existing bridge was closed due to safety concerns, and needed replacing before the next Indy event, leaving only five months for the design and construction. The winning bidder was the only one which offered to meet the client's requirement of a cable-stayed bridge within the very short time frame. The design incorporated extensive precasting and off-site fabrication; procurement of all of these components had to start long before design completion. Stay cables were ordered just two days after the start of detailed design and precast driven piles two days later. In addition to the time constraint, risk mitigation was a key issue, the solution being to erect the deck on temporary supports to carry a full pedestrian live load, allowing the bridge to be opened early if necessary without the towers or cables should these be delayed by weather or other constraint. Another challenge was the aggressive salt spray environment for which a highly durable and well-detailed bridge was essential. *(Photo: Christopher Frederick Jones)*

OOSTERDOKS SWINGBRIDGE AMSTERDAM, THE NETHERLANDS

Judges' comment

"Careful detailing, showing the technical strengths of steel at its optimum use"

Technical medium span: HIGHLY COMMENDED

Commissioning authority:	Ontwikkelingsbedrijf Gemeente Amsterdam
Principal designer:	Gemeente Amsterdam Ingenieursbureau
Architect:	Kerste-Meyer
Principal contractor:	Hillerbrand
Opened:	May 2005

The Oosterdoks swing bridge was designed to connect the city centre with the shores of the IJ, and it crosses one of the busiest navigational routes in Amsterdam. The bridge opens around 5,000 times a year, hence a drive with two engines was chosen for reliability.

It was designed to be as elegant as possible, which is why a stiffening, curved top chord was necessary. There are no connections with partitions, endplates or nuts in sight – the stiffening chord is connected to the deck by a frame, with the path on both sides. The top chord of the framework is a steel circular pipe with a diameter of 500mm, and the braces have an oval diameter and are oriented in such a way as to appear narrowest when seen from the transit. The east access ramp is partly situated above a traffic tunnel, and the foundation piles near the tunnel had to be placed without vibrations.

Polystyrene foam was used to minimise the increase in load on the tunnel. The total length of the bridge is approximately 125m and the deck has a height of 400mm and consists of a rectangular bottom chord and orthotropic steel plates that have an epoxy wearing course.