



The Stonecutters Bridge is the world's second longest cable stayed bridge with a span of 1018m and crosses the entrance to the Rambler Channel in Hong Kong - one of the busiest waterways in the world. The design was the winning entry in the international design competition held by the Hong Kong Highways Department in 2000.

The design features a twin spine deck with a curved soffit for an optimum streamlined aerodynamic design. The deck is concrete in the side spans to balance and stiffen the lightweight steel main span sections. Stay cables are at 21m centres and comprise pre-fabricated locked coil ropes which have a small diameter to reduce overall wind loads on the structure. The simple single leg towers are in concrete up to a level of 185m and steel above to the top height of 290m. A navigation clearance of 73.5m is provided.

The site is susceptible to strong typhoon winds, and the aerodynamic behaviour was a major factor in the development of the twin deck design solution. In particular, the stability of the 509m long cantilevers during construction required special consideration in the design. In addition, there are restrictions on lifting deck units from the water during bridge erection because of the busy marine traffic, and the twin deck design enabled the units to be brought out along the deck as the cantilever construction progressed.

The construction programme is very tight, and all features had to be designed with rapid on-site erection in mind. The construction of the towers is simplified by the fact that there are no crossbeams or transoms to slow down the progress of casting the tapering circular concrete shaft, and the pre-fabricated steel top sections can be erected quickly with the stay anchorages already fitted.

Architectural feature lighting is an integral part of the design, and the bridge forms a gateway to the city, providing a striking new landmark on the well known Hong Kong skyline in both day and night time views. Construction started in 2004 and was completed and opened to traffic December 2009. Detailed design was undertaken by COWI as part of the Arup Group.

Client:

Highways Department Hong Kong

Location:

Hong Kong, China

Service Dates:

2000-2001

Alliance Team:

Dissing + Weitling Architects, Halcrow Partnership and the Shanghai Municipal Engineering Design Institute

Services:

Long Span Bridge Design

Awards:

- IStructE Supreme Award 2010
- IStructE Transportation Award 2010

