

## Stonecutters Bridge – Latest Construction Challenges

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### Summary

Stonecutters Bridge will span 1018m across the Rambler Channel in Hong Kong providing 73.5m high clearance above the busy shipping channel. Construction commenced in early 2004. Upper tower construction from level +175m to +293m combines circular duplex stainless steel skin segments with carbon steel anchor boxes at the core and a concrete infill wall to form the composite structure. The 88m lengths of steel twin-box decks around the towers are over land. Individual deck segments were delivered to site by barge and offloaded using a frame cantilevering from the tower. After segment welding, a Heavy Lift operation is used to raise the 4000T decks by 75m, using strand jacks on temporary works supported from the towers and the concrete back spans. Transverse and longitudinal sliding operations are required for final positioning. Trial assembly of the steelwork components during fabrication in China ensures accurate fit up and geometry control during erection so that site operations are not hindered. Main span cantilevering and installation of the prefabricated parallel wire stay cables will follow.

**Keywords:** cable-stayed bridge; composite construction; lifting scheme; twin-box deck

### 1. Introduction

Stonecutters Bridge will form the centrepiece of Hong Kong's latest infrastructure improvement, the new Route 8 - an alternative road to the international airport link, also providing enhanced access connections into the new container terminal on Tsing Yi Island. The bridge crosses the Rambler Channel at the entrance to Kwai Chung Container Port, one of the busiest in the world. Minimum disruption to the operations of the port was a high priority in the design and construction planning. Detailed design [1] was by Arup and Cowi. The construction contract was awarded to the Maeda-Hitachi-Yokogawa-Hsin Chong Joint Venture, and construction began in April 2004. Mid-2007 sees completion of the Concrete Back Spans and both Lower Towers [2]. This paper describes the complex nature of the current construction activities, including Upper Tower composite construction and the 4000T Heavy Lift to erect the twin steel deck sections around each tower. The bridge is scheduled to open to traffic in early 2009.



Fig. 1 Location of Stonecutters Bridge