

THE MANY INPUTS TO CREATING A SINGLE MOVING FORM, THE V&A SWINGBRIDGE

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Summary

The moving bridges within the V&A Waterfront, Cape Town, South Africa, are a recognised part of its identity and a memorable part of any visitor's experience. One of its moving footbridges, a cable stayed swing bridge was recently replaced with a new wider swing bridge.

The new 4 m wide bridge doubles the previous crossing's capacity and improves access across the cut to the expanding Clock Tower Precinct. Moving bridges are an integration of many functional design requirements and, in the V&A, important experiences and place-makers for visitors. This paper tells the story of how, from the integration of needs and opportunities, the design of the new bridge developed.

The finished form is cable-stayed with a single plane of four locked coil cables connecting to the deck' central, upstand spine beam. A reclining pylon is a continuity of the main central beam and its stiffness transfers the cable loads into the piled substructure. The superstructure rotates on a 3550 mm diameter, internally geared, three-row roller slew bearing that is driven by four hydraulic motors with a maximum output torque of 42 kNm each.

Performing to the same high standards of its predecessor, the new footbridge opens and closes up to sixty times a day, carrying up to 2.4 million people per year. The need to maintain access across the cut meant it was installed and commissioned within one month of the removal of the previous bridge.



Fig. 1. Installation of new footbridge

Keywords: Moving bridge; swing bridge; cable stayed; slew bearing; erection engineering; aesthetics; structural concepts; integrated urban design.