



Design and Construction of the West Kowloon Cultural District Artist Square Arch Footbridge

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Abstract

The West Kowloon Cultural District Artist Square Bridge (ASB) is a part of Hong Kong's new art and cultural district development. It forms a primary pedestrian link between the adjacent MTR station and the new development. ASB is a design-and-build project consisting of a 78m clear spanning, 8m wide footbridge, an access lift tower and a 30m long staircase and escalators. The footbridge is a covered, dual steel arch and Vierendeel truss footbridge, that crosses an existing flyover, connecting the station shopping mall to the new development. During construction of ASB, very limited space was available on the new development site to accommodate the construction of ASB. These posed engineering challenges to the design and construction team. This paper presents the design of the ASB structures with particular focus on the main footbridge, and the challenges encountered during the design and construction of ASB and how incremental launching solution was developed to tackle these challenges.

Keywords: arch footbridge; incremental launching; erection analysis; modular construction; steel design.

1 Introduction

The West Kowloon Cultural District (WKCD) is one of the largest cultural development projects in Hong Kong. Its vision is to create a vibrant new cultural quarter for Hong Kong on the approximately forty hectares of reclaimed land located alongside Victoria Harbour in Hong Kong. The district will feature the new museum of visual culture "M+", several theatres including the Lyric Theatres Complex, Artist Square, concert halls and other performance venues under the management

of West Kowloon Cultural District Authority (WKDA).

The Artist Square Bridge project is a design and build project consisting of a footbridge crossing the existing Austin Road West flyover and roads, an access lift tower and a staircase and escalators. The project was funded by the Civil Engineering Development Department of Hong Kong (CEDD) and managed by WKDA. The completed footbridge is maintained by Highways Department of Hong Kong (HyD). The objective of building ASB is to provide barrier free connection from the MTR Kowloon Station through Elements Mall to WKCD.