

APPLICATIONS OF BIM TECHNOLOGY FOR THE WATERFRONT COMMERCIAL DISTRICT – JUNCTION 9 PERGOLA BRIDGE

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Abstract:

The applications of Building Information Modeling (BIM) technology have become an indispensable tool in the construction industry. A 3D model of a structure with relatively complex geometries can be developed from reference 2D plans. Thus, eliminating costly errors in the development of the structure geometry, estimating, and the detailing process to be considered in the actual construction. However, most BIM platforms are still limited when it comes to their capabilities and would also require experienced operators to fully maximize its potential.

In this paper, the actual application of a BIM-based procedure will be presented, using different software platforms and tools, to aid in the construction of the Waterfront Commercial District – Junction 9 Pergola Bridge at Lusail City, State of Qatar. The Junction 9 bridge infrastructure has a complex decorative reinforced concrete pergolas with an arc-shaped concrete supports for the intersecting roadways above the underpass.

The BIM product model, developed using different software platforms, was integrated into the construction process with the objective of generating detailed working 3D model which includes the structure's concrete shell and steel reinforcements.

This paper will provide a summary of the challenges and the seamless outcomes from the implementation of the project when it comes to the use of BIM technology for the construction of complex structural geometries.



Figure 1: 3D Render View of the Junction 9 Pergola Bridge

Keywords: *Building Information Modeling (BIM), reinforced concrete detailing, INFRASTRUCTURE, Complex Geometry*

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