

Research on Construction Informatization of Railway Steel Bridge Based on BIM in China

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1 Abstract

The construction informatization of railway bridges is becoming a significant feature of "intelligent manufacturing" in China's high speed railway (HSR). In order to explore the implementation of "Internet plus steel bridge construction" and further improve the quality and efficiency of construction, digitization and informatization of steel bridge construction have been studied. The overall framework of digital construction of railway steel bridge construction based on the internet of things (IoT) and BIM technology is proposed after analyzing the key process of quality control during the construction of railway steel bridge. And then the virtual reconstruction of railway steel bridge is presented based on the advanced digital technology. Taking the pre-assembly in fabrication stage and the bolted connection in erection stage of steel bridges as two representative examples, the virtual reconstruction information system has been developed and tested in some HSR railway bridge projects in China, which verifies the feasibility and efficiency of digital control virtual reconstruction strategy. The research is meaningful to the future application and development in intelligent construction of railway steel bridges.

Key words: Railway steel bridges; Construction informatization; Digital fabrication; IoT; BIM

2 Introduction

In-depth application of "Internet Plus" and "Intelligence Plus" in different industries in recent years has gradually changed the traditional way of production, providing opportunities for upgrading of the traditional industries. In order to embrace the development trend, CHINA RAILWAY has

made great efforts in the application of informatization and intelligence in the construction of railway infrastructures. And a lot of research achievements and applications have been made especially in high speed railway, developing towards a new era of intelligent construction.

The biggest feature of high speed railway in China is the application of numbers of bridges instead of subgrades. Bridge makes