



Structural Detailing of Bridges, Making Use of the BrIM Methodology (Bridge Information Modeling), through the Creation of Parametric Models and As-Build Plans

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Abstract

Within a project related to the area of bridges, we work with different tools and between this information is usually managed through the use of CAD drawings made basically in 2D.

Today, a new concept of BIM applied to bridges called Bridge Information Modeling (BrIM), which well implies being a methodology with different uses and being the solution in helping the different parties to work more collaboratively, effectively and simultaneously.

This paper presents the experience of applying one of these uses in the phase of analysis and structural diagnosis of ten bridges in Chile, which demonstrates that this technology becomes a valuable tool for information management through the virtual model worked between the different parties involved in the maintenance and operation of a project.

Keywords: bridge; BIM; BrIM; modeling of bridges; modeling projects.

1 Introduction

Around the world, many ancient and historic bridges are still in operation. Deterioration and failures have increased in already aged bridges due to various factors throughout their service life. Therefore, the importance of bridge management systems has increased to ensure operational safety through good maintenance [1]. At the international level, research has been developed for the implementation of new technologies that allow the full management of specific projects related to the area of bridges. Making these recent technological improvements a great contribution to this problem [4].

These investigations result in methodologies focused directly on the integration of all parties involved in a bridge project, ranging from design

and construction to the maintenance and operation of the structure. This process of generation and management of data during the life cycle of the bridge is known as BrIM (Bridge Information Modeling), this concept that emerges from the term BIM (Building Information Modeling), applied to buildings.

The use of BrIM is based on the generation of an intelligent representation of the components of the structure that host detailed and necessary information of all stages of the life cycle of the bridge.

As a case study, in Chile more specifically in the city of Viña del Mar, ten bridges were affected by the earthquake of February 27, 2010, however, they also had previous damage due to lack of maintenance [2]. This is how the project "Analysis and Structural Diagnosis of Viña del Mar Bridges"