



Application of HBIM as a Research Tool for Historical Building Assessment

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Abstract

The benefits and challenges posed by Building Information Modelling in documenting the existing buildings comes from the development of the digital support to the needs, compatibility and interoperability of applied technologies and at the same time of the available knowledge and skills to use a wide range of necessary technologies. Within the scope of Heritage Building Information Modelling, the use of 3D views has become a common practice, often hindered by complex geometry and layered time changes of constructive systems. Implementation of BIM for heritage buildings is developed through the procedures of designing parametric objects and selecting compatible technologies to create a rich information model. The paper presents the application of the 3D BIM approach in researching, documenting and interpreting the historic building of the baroque Palace of the Slavonian General Command in the historic core of Osijek, Croatia. Applied recording technologies, laser scanning, and thermal scanning, as support for HBIM, have been chosen according to selective research goals of the Palace of the Slavonian General Command. The method of simulating non-existent constructive elements from assumptions and analogies is presented as the preceding procedure of creating a HBIM library that opens the possibility of the broader dissemination of information on the explored heritage. The results point to the advantages of the model building approach for valorisation and interpretation of constructive changes over time, through the modelling logic, closely relating to the logic of construction.

Keywords: HBIM; Genesis Modelling; Digital Library; Palace of the Slavonian General Command; Osijek.

1. Introduction

Construction industry is changing towards digital manipulation of building information, communication improvement, use of innovations in projects aimed at reducing resource consumption. Simultaneously the society evaluate historical buildings according to their meanings and identity generation. The application of Building Information Modelling (BIM) in the field of architectural heritage was introduced by architectural information modelling [1, 2], where joining of architectural features provides a new set of information on individual elements in the virtual space. In [3] British Standard PAS 1192-2:2013, BIM is defined as "the process of designing, constructing or operating a building or infrastructure asset using electronic object-oriented information." Since sequencing of projects has been identified as one of the causes of irrational project management, responses are being reconceptualised in the new integrated process. A legislative

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