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REHABEND 2020

**CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND
HERITAGE MANAGEMENT**

(8th REHABEND Congress)

Granada (Spain), March 24th-27th, 2020

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ISSN: 2386-8198 (printed)

ISBN: 978-84-09-17871-1 (Printed Book of Abstracts)

ISBN: 978-84-09-17873-5 (Digital Book of Articles)

Legal deposit: SA - 132 - 2014

Printed in Spain by Círculo Rojo

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CODE 300**USE OF BUILDING INFORMATION MODELING IN BUILDING MANAGEMENT
RETROFITTING PROJECTS: CASE STUDIES****Pinto, Rodrigo¹; Oliveira, Rui²; Lopes, Jorge³**

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KEYWORDS: BIM; building information modeling; building retrofitting; construction management; SWOT.

ABSTRACT

The retrofitting works of buildings is a different practice of the new construction works, involving the previous characterization of the existing elements and their conservation conditions. All existing data collection, project analysis and project management might be in a dimension where non-digital handling is a difficulty factor for the project. That could contribute losing important data related to technical support and for stakeholder's decision. The Building Information Modelling (BIM) technologies are known to be an excellent choice handling information for new projects. However, its usage and potential in retrofitting works may remain unknown or not utilized for several reasons.

The main goal of this research is to determine, using SWOT analysis tool, for the various phases of building retrofitting projects connected to the potential of BIM. In addition, it is expected to determine whether this technology is a feasible solution for these cases and what constraints are involved. Through data collection in design phase and interviews after the research and BIM analysis, three different retrofitting works case studies were analysed. At the same time of the BIM analysis, SWOT methodology was applied aiming to understand the reasoning, constraints and to identify opportunities. The BIM methodology was applied to three design projects studied in 3D and 4D spheres. The 3D analysis aimed to detect incompatibilities among the various disciplines of the projects and information related to the existing elements. The 4D analysis consisted in associating all the building elements with the construction-scheduling plan in order to analyse the activities sequencing behaviour.

The use of BIM prove the existence of several flaws and incompatibilities between the different projects disciplines of each building studied, which being difficult to detect them without this uses. These failures generate problems in the construction phase, whose interviews expect demystify. On the other hand, BIM application at an early stage of the project leads to the resolution of some of these problems that arise posteriorly.