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## BUILDING INFORMATION MODELLING (BIM) TOWARDS A SUSTAINABLE BUILDING DESIGN: A SURVEY

Esam Alasmari <sup>1\*</sup>, Pedro Martinez-Vazquez <sup>2</sup>, Charalampos Baniotopoulos<sup>3</sup>

<sup>1</sup>School of Mechanical Engineering, University of Birmingham  
Edgbaston, B15 TT, UK  
EXA855@student.bham.ac.uk

<sup>2</sup>School of Mechanical Engineering, University of Birmingham  
Edgbaston, B15 TT, UK  
p.vazquez@bham.ac.uk

<sup>3</sup>School of Civil Engineering, University of Birmingham  
Edgbaston, B15 TT, UK  
C.Baniotopoulos@bham.ac.uk

### ABSTRACT

Environmental sustainability has become common practice amongst design communities due to the need to mitigate the effects of climate change. In such context, BIM provides an efficient tool that integrates various dimensions that underpin the sustainable design performance of civil infrastructure. In its current architecture, BIM subdivides into seven dimensions being the 6th focused on sustainability. BIM is also a platform for interdisciplinary collaboration at all levels, which enables modelling, design, operation and maintenance of systems throughout their life span. Benefits of BIM include time-saving, quicker cost estimation, minimization of processes to implement changes, integrated sustainability and life cycle cost, optimization in the use of energy including through daylight analysis, thermal design, timely detection of human errors, efficient risk management, operations and maintenance, and quantity take-off during the pre-construction phase. BIM therefore enhances conventional design approaches while embedding the sustainability aspect for an improved building prototyping. In the present paper, a survey review develops to quantify the importance of BIM for the creation of environmentally sustainable designs. The investigation also reports on a thorough review of literature to assess its viability and relevance. The scope of this paper is therefore to provide a complete overview of BIM from a research perspective.