

GUEST EDITORIAL PREFACE

Special Issue on Building Information Modelling (BIM) and Housing

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Building Information Modelling (BIM), in broad terms, can be defined as a process or a system which facilitates management, communication, and exchange of information during the construction processes from the feasibility studies through to design, construction, handover, operation, and demolition. BIM is capable of producing parametric interconnected 3D models which can be used simultaneously by all stakeholders including architects, engineers, contractors, facility managers, and end users at different stages of the lifecycle of the building. BIM has several claimed advantages including improved efficiency, productivity and quality as well as reduced environmental damages thanks to the more efficient use of materials, energy, and resources. BIM is mostly used in large and complex construction projects offering notable improvements in the design and construction processes; however, the relevance of BIM to house building, where projects are relatively smaller, simpler, and more repetitive, is less understood and documented.¹ Yet, there are several examples where BIM has been successfully used in small, medium, and large housing

projects. To this end, this special issue intends to address the aforementioned issues to clarify advantages and barriers of broader application of BIM in the housing industry.

The first paper of this special issue by Abanda et al. discusses the challenges facing BIM in Cameroon as a developing country. It highlights the high costs of BIM software licences and small projects; limited availability of literature and lack of in-depth research in the area as well as insufficient use of BIM in governmental and sustainable construction projects as the major barriers towards broader application of BIM in the country. The authors recommend a comprehensive research that involves different stakeholders to study the reasons and views of those who do not use BIM in the first place.

The second paper by Hashemi looks at offsite manufacturing as a potential answer to the current housing shortages in Iran. Evaluating the current practices in architectural SMEs, the author identifies frequent and extensive design changes as well as defective communication between different stakeholders as the key issues

which increase the risks of offsite manufacturing in Iran. Hashemi argues that BIM and integrated design could greatly improve the current situation increasing the productivity of the Iranian housing industry. He concludes the paper with some recommendation for successful adoption of BIM and offsite construction methods in the Iranian construction industry.

Morton discusses the application of BIM in delivering mass customised affordable housing in the UK. A case study is used to evaluate and demonstrate the adoption of BIM in affordable mass customised housing which complies with the standards set by the Code for Sustainable Homes and Lifetime Homes. Morton identifies the initial time required for developing BIM systems and sub-systems as a major issue which needs to be addressed. However he believes that mass customisation could address some of the current issues of the affordable housing industry such as the lack of involvement of the end users at early stages of design and their limited design options.

The final paper is by Jrade & Jalaei studies the application of BIM to assess the costs and advantages of adopting sustainable universal design in Canada to make houses more accessible and safer for older people. The paper presents a methodology to assimilate sustainability, universal design and BIM in order to assess

different design alternatives in terms of costs and advantages of sustainable energy efficient universal houses. The research intends to facilitate decision making in early stages of design. A software has been developed to compare and use appropriate components and materials according to their costs and sustainability characteristics in early design stages based on the clients' and/or designers' requirements.

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ENDNOTES

- ¹ NHBC (2013). Building Information Modeling: An introduction for house builders (NF 49), Published by BSRIA on behalf of the NHBC Foundation.