

BIM-Based Tool for Sustainability Assessment and Certification Documents Provision

Authors : Taki Eddine Seghier, Mohd Hamdan Ahmad, Yaik-Wah Lim, Samuel Opeyemi Williams

Abstract : The assessment of building sustainability to achieve a specific green benchmark and the preparation of the required documents in order to receive a green building certification, both are considered as major challenging tasks for green building design team. However, this labor and time-consuming process can take advantage of the available Building Information Modeling (BIM) features such as material take-off and scheduling. Furthermore, the workflow can be automated in order to track potentially achievable credit points and provide rating feedback for several design options by using integrated Visual Programming (VP) to handle the stored parameters within the BIM model. Hence, this study proposes a BIM-based tool that uses Green Building Index (GBI) rating system requirements as a unique input case to evaluate the building sustainability in the design stage of the building project life cycle. The tool covers two key models for data extraction, firstly, a model for data extraction, calculation and the classification of achievable credit points in a green template, secondly, a model for the generation of the required documents for green building certification. The tool was validated on a BIM model of residential building and it serves as proof of concept that building sustainability assessment of GBI certification can be automatically evaluated and documented through BIM.

Keywords : green building rating system, GBRS, building information modeling, BIM, visual programming, VP, sustainability assessment

Conference Title : ICABCE 2017 : International Conference on Architecture, Building and Civil Engineering

Conference Location : Singapore, Singapore

Conference Dates : May 04-05, 2017