

Building Information Modeling-Based Approach for Automatic Quantity Take-off and Cost Estimation

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Abstract : Architectural, engineering, construction and operations (AECO) industry practitioners have been well adapting to the dynamic construction market from the fundamental training of its discipline. As further triggered by the pandemic since 2019, great steps are taken in virtual environment and the best collaboration is strived with project teams without boundaries. With adoption of Building Information Modeling-based approach and qualitative analysis, this paper is to review quantity take-off and cost estimation process through modeling techniques in liaison with suppliers, fabricators, subcontractors, contractors, designers, consultants and services providers in the construction industry value chain for automatic project cost budgeting, project cost control and cost evaluation on design options of in-situ reinforced-concrete construction and Modular Integrated Construction (MiC) at design stage, variation of works and cash flow/spending analysis at construction stage as far as practicable, with a view to sharing the findings for enhancing mutual trust and co-operation among AECO industry practitioners. It is to foster development through a common prototype of design and build project delivery method in NEC Engineering and Construction Contract (ECC) Options A and C.

Keywords : building information modeling, cost estimation, quantity take-off, modeling techniques

Conference Title : ICBIMP 2022 : International Conference on Building Information Modeling and Planning

Conference Location : Paris, France

Conference Dates : November 14-15, 2022