

Automated BIM Analysis to Support Automation in Wood Construction

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Categories:

- Civil Engineering
- Computer Technology

Keywords:

- BIM
- building information modelling
- Civil Engineering
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- Construction Technology

Researchers at Purdue University have developed a methodology for the automated analysis of industry foundation classes (IFC)-based building information modeling (BIM) design models. This analysis method is intended to help designers, engineers and manufacturers of wood-framed construction who need further analysis of the building components during the lifecycle of the building. This technology also reduces the manual efforts needed to complete this analysis as well as reducing reliance on proprietary BIM formats. Overall, this technology has the potential to offer improved analysis accuracy with greater time efficiency than previous methods of BIM analysis.

Advantages:

- Reduction of manual analysis needed by engineers/designers
- Increased accuracy and time efficiency
- IFC-based system

Applications:

- Enterprise resource planning
- Construction management (quantity takeoff, design review, construction planning)
- BIM analysis
- Construction automation simulation

Technology Validation:

To test this technology, one BIM model was used for development and 4 models were used for validation. The experimental results ranged from 60.61% to 100% in precision and from 90.30% to 99.59% in recall.

Related Publications:

Wong Chong, Oscar, and Zhang, Jiansong. "Logic representation and reasoning for automated BIM analysis to support automation in offsite construction". <https://doi.org/10.1016/j.autcon.2021.103756>. <https://par.nsf.gov/biblio/10275270>.

People:

- Zhang, Jiansong (Project leader)
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Intellectual Property:

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