

Achieving a Safer Construction Environment with BIM for Safety Framework

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Chapter

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Abstract

The current research aims to provide a general framework of a BIM-based safety system. The safety verification system intends to improve the safety status in the construction field. This study provides the main components of the current approach. Background: Among the high-risk industries, the construction industry bears many fatalities and injuries each year. Thus, to have a practical site inspection, monitoring, and training, the AECO (Architecture, Engineering, Construction, and operation) is gradually integrating new digital technologies such as building information modelling (BIM), automatic rule checking, Augmented and Virtual Reality (AR/VR). Method: The Framework is divided into two main approaches, a fully automated and a fully manual method, adopting Automated rule checking and AR/VR, respectively. Following international standards and regulations. Results: Digital technologies can help with safety prevention, inspection, monitoring, and training from the design phase to the operation and management. The integration of the digital tools in a standardised manner could ease the adoption of the framework. The owner will gain more control over the safety aspects of the project, identify specific tasks for each stakeholder, and involve safety measures from the beginning of the project. Conclusion: limitations are found in implementing new tools since every tool represents a standalone solution. The digital tools are not involved in the standards and regulations. Workers and safety professionals lack the experience of using such tools, low demand from the owners, incompatibility of software and data format exchange, especially between different appointed parties, and the time spent preparing the BIM model.

Keywords

Building Information Modelling Automated rule checking Augmented reality
Virtual reality Construction Occupational health and safety

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Notes

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