

Developing Integrated Model for Building Design and Evacuation Planning

Authors : Hao-Hsi Tseng, Hsin-Yun Lee

Abstract : In the process of building design, the designers have to complete the spatial design and consider the evacuation performance at the same time. It is usually difficult to combine the two planning processes and it results in the gap between spatial design and evacuation performance. Then the designers cannot complete an integrated optimal design solution. In addition, the evacuation routing models proposed by previous researchers is different from the practical evacuation decisions in the real field. On the other hand, more and more building design projects are executed by Building Information Modeling (BIM) in which the design content is formed by the object-oriented framework. Thus, the integration of BIM and evacuation simulation can make a significant contribution for designers. Therefore, this research plan will establish a model that integrates spatial design and evacuation planning. The proposed model will provide the support for the spatial design modifications and optimize the evacuation planning. The designers can complete the integrated design solution in BIM. Besides, this research plan improves the evacuation routing method to make the simulation results more practical. The proposed model will be applied in a building design project for evaluation and validation when it will provide the near-optimal design suggestion. By applying the proposed model, the integration and efficiency of the design process are improved and the evacuation plan is more useful. The quality of building spatial design will be better.

Keywords : building information modeling, evacuation, design, floor plan

Conference Title : ICBMDIG 2017 : International Conference on Business Model Design, Innovation and Globalization

Conference Location : London, United Kingdom

Conference Dates : February 16-17, 2017