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A Fuzzy Decision Support System for Selecting the Roof and the Type of Structure of Buildings

Designing structures with sufficient resistance to loads with minimal human and financial losses are the duties of structural designers. However, various diaphragm systems have been proposed to cover the roofs of structures, and each of these types of roofs is suitable for one type of structure. Therefore, choosing the type of structure and roof of the structure is very important. The main purpose of this study is to use the decision support systems to provide a model for structural designers, contractors and other construction experts to select the roof and structure of the building. In this paper, hierarchical analysis and fuzzy Vickor techniques are used to solve this problem. The data collection tool in this research is a questionnaire and the results show that for conventional The results of this study show that buildings with reinforced concrete joist and reinforcement concrete frame structures are the most suitable and the masonry building with jack Arch roofs are the worst choice from the point of view of experts to choose the roof and the type of the frame structure. One of the most important reasons for this result is the ease of implementation and reasonable cost of Reinforcement Concrete joist and Reinforcement Concrete frame structures.

Keywords: decision support system, fuzzy Vickor techniques, structural design, selecting the type of structure, selecting the type of roof.

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Received 05 December 2020, Revised 01 January 2021, Accepted 05 January 2021.

DOI: 10.22091/cer.2021.6321.1219