

Exploring the Potential of Modular Housing Designs for the Emergency Housing Need in Türkiye after the February Earthquake in 2023

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Abstract : In February 2023 Southeastern Türkiye and Northwestern Syria were hit by two consecutive earthquakes with high magnitude leaving thousands dead and thousands more homeless. The housing crisis in the affected areas has resulted in the need for a fast and qualified solution. There are a number of solutions, one of which is the use of modular designs to rebuild the cities that have been affected. Modular designs are prefabricated building components that can be quickly and efficiently assembled on-site, making them ideal to build structures with faster speed and higher quality. These structures are flexible, adaptable, and can be customized to meet the specific needs of the inhabitants, in addition to being more energy-efficient and sustainable. The prefabricated nature also assures that the quality of the products can be easily controlled. The reason for the collapse of most of the buildings during the earthquakes was found out to be the lack of quality during the construction stage. Using modular designs allows a higher control over the quality of the construction materials being used. The use of modular designs for a project of this scale presents some challenges, including the high upfront cost to design and manufacture components. However, if implemented correctly, modular designs can offer an effective and efficient solution to the urgent housing needs. The aim of this paper is to explore the potential of modular housing for mid- and long-term earthquake-resistant housing needs in the affected disaster zones after the earthquakes of February 2023. In the scope of this paper the adaptability of modular, prefabricated housing designs for the post-disaster environment, the advantages and disadvantages of this system will be examined. Elements such as; the current conditions of the region where the destruction happened, climatic data, topographic factors will be examined. Additionally, the paper will examine; examples of similar local and international modular post-earthquake housing projects. The region is projected to enter a rapid reconstruction phase in the following periods. Therefore, this paper will present a proposal for a system that can be used to produce safe and healthy urbanization policies without causing new aggrievements while meeting the housing needs of the people in the affected regions.

Keywords : post-disaster housing, earthquake-resistant design, modular design, housing, Türkiye

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