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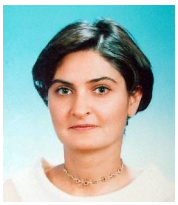
CONSIDERATION OF EARTH CONSTRUCTION TECHNIQUES IN THE CONTEXT OF EARTQUAKE RESISTANCE



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ABSTRACT

Earth is the first structural element shaped by human beings. Rooting back to the 7th century B.C., Anatolian adobe construction technique is gradually diminishing. Despite the fact that our country hosts a large number of adobe structures, evidently researches on the subject are not sufficient. It is obvious that the 'Regulations about Structures to be Built in Regions Affected by Disaster' and the Turkish Standards currently in force do not include recent developments. It is common fact that earth structures have two weaknesses in addition to their quiet many advantages. These weaknesses are their poor resistance to water and earthquake effects. This study has been conducted in order to determine the point achieved in earthquake resistance issues and how our standards may be developed. Data are accessed using literature survey method; three different earth construction techniques by *"adobe blocks", "rammed earth wall"* and *"compressed earth blocks"* are studied under the main titles *material properties, building structure* and *geometric form*, which are effective in earthquake resistance. It is observed that the Turkish Standards contain adobe material and construction technique, describing only cement and straw as additives, and perpendicular cornered structures as building forms. However, studies indicate that buildings with circular form and/or chamfered corners are much more resistant to earthquake loads. In addition, according to mechanical resistance gypsum-stabilized adobe is more sufficient for use. The study states that timber should be preferred for supporting the basic structural system just as in the past and in the contemporary concept of sustainability. Within this context, the outcome is that the existing Turkish standards need some revisions. The conclusion part of the study puts the criteria and parameters that should be incorporated in the revisions.

KEY WORDS :

Adobe, Earth Construction Techniques, Earthquake Resistance, Turkish Standards.