

Repair and Strengthening of Damaged Adobe Structures



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ABSTRACT

Adobe structures have been widely used in many parts of the world for thousands of years due to their natural, economical, and sustainable characteristics. In Türkiye, particularly in rural areas, these structures constitute an important part of the building stock and also represent a significant component of cultural heritage. However, the low tensile strength, brittle behavior, and sensitivity to water of adobe materials make these structures vulnerable to various types of deterioration and damage over time and under earthquake effects. Cracking in walls, separations at wall intersections, out-of-plane failures, and partial or total collapses are among the most common types of damage.

In this study, the structural characteristics and causes of damage in damaged adobe structures are examined, and repair and strengthening methods applicable to different types of damage are evaluated. The importance of interventions determined by considering the material properties, damage level, and structural behavior of the existing building is emphasized in terms of improving structural safety and preserving adobe structures that constitute part of the cultural heritage.

KEY WORDS:

Adobe structures, strengthening, repair, cultural heritage, earthquake damage.