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Earthen (Adobe) Structures as Cultural Heritage: Conservation, Adaptive Reuse and Sustainability

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ABSTRAC T

Adobe is one of the oldest building materials in human history, produced by combining earth, water, and organic additives. Its local availability, low energy requirements for production, and recyclability make it highly significant within the framework of sustainable architecture. Adobe structures provide thermal comfort through high heat storage capacity, while also creating healthy indoor environments by enabling natural ventilation and humidity regulation. Moreover, their thick wall construction and plasticity allow flexible design solutions adaptable to various climatic conditions. In this respect, adobe should be considered not merely as a traditional building material, but as a system with the potential to contribute to contemporary sustainable architectural practices.

The use of adobe dates back to prehistoric times and has been widely observed across different geographies worldwide. In regions such as Mesopotamia, Anatolia, the Middle East, North Africa, and Central Asia, adobe has served as a primary construction material for settled communities. It has been utilized in a wide range of structures, from defensive buildings to dwellings, and from religious to public spaces, with techniques varying according to climatic and geographical conditions. Although its use declined with the widespread adoption of more durable materials such as stone and fired brick, adobe has continued to exist, particularly in rural areas and traditional settlements. Today, it is regaining attention within the context of sustainability debates and is being reconsidered as an alternative material in ecological architectural approaches.

This study aims to evaluate adobe structures within the framework of cultural heritage in terms of their conservation, adaptive reuse, and sustainability potential. The research is based on a literature review and selected case studies, analyzing the material properties, deterioration processes, and current conservation approaches of adobe structures. In addition, the contribution of adaptive reuse practices to the preservation of these structures and their advantages in terms of sustainable use are discussed. The study seeks to reveal the environmental, economic, and cultural sustainability potential of adobe structures and to contribute to the development of holistic and applicable strategies for their conservation.

KEY WO RDS:

Sustainability, Adobe, Adobe Buildings, Architectural Heritage.