

Reproduction of Local Building Knowledge: Adobe Production and timber-frame (hımış) systems Application in Sansarak Village



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ABSTRACT

Adobe has long been used as one of the primary building materials in rural Anatolian architecture. However, with the widespread adoption of industrial construction materials, traditional production techniques and the associated local knowledge have been disrupted in many settlements. This transformation has not only reduced the use of the material itself but has also weakened the intergenerational transmission of the construction knowledge related to it. This study examines the reproducibility of such construction knowledge through field practice and material analysis.

The research was conducted within the scope of a restoration project carried out in Sansarak Village, located in the İznik district of Bursa. During the repair process of a traditional masonry timber frame (kâgir–hımış) building dating back approximately 60 years, adobe production long discontinued in the village was reintroduced. Based on interviews with local craftsmen, traditional production methods were reconstructed. In this process, a mixture prepared using local soil, straw, and water was applied in accordance with traditional proportions (approximately a 3:2 soil–straw ratio), and the production process was systematically documented. Within this framework, approximately 3,000 adobe bricks were produced and used as infill material between the wooden structural frame.

The production and implementation processes were carried out by a collective and participatory team consisting of architects, engineers, academics, and students. This collaborative structure enabled the re-production and documentation of traditional construction knowledge through practice. Furthermore, the knowledge generated during the process, the experiences gained, and the production stages were shared with broader audiences through seminars held at architecture faculties and research centers of several universities, as well as through social media platforms. In this way, the study aimed to increase awareness of adobe as a building material and to contribute to the dissemination of its construction technique. Laboratory analyses of original and newly produced adobe samples revealed that the two sets of materials were largely similar in terms of fundamental material properties, although certain differences were observed in aggregate composition and straw size.

The study demonstrates that a small-scale restoration intervention can function not only as a physical repair process, but also as an effective method for the re-production, validation, and transmission of local building knowledge among different actors. In this respect, it proposes a practice-based approach for the preservation, transmission, and re-evaluation of local knowledge within the field of earthen architecture.

KEY WORDS:

Adobe, timber-frame (hımış) system, restoration, reproduction of building knowledge, sustainable materials