Evaluation of the Quality of the Bricks in the World Heritage Site of Takht-e Soleymān Based on Compressive Strength Test and Water Absorption Test

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Abstract

In most of the archaeological studies of Iran, the ancient buildings have been mostly studied from an architectural structures and functional points of view, but less attention has been paid to them from an engineering perspective. Historical buildings are not exempted from approach. One of the most important aspects in connection with the investigation of an ancient building is the structural analysis of that work. Conducting structural analysis in connection with computer simulation and finally structural analysis of the building in question is very important. One of the important aspects of structural analysis is the recognition and investigation of materials used in buildings. In this regard, addressing the importance of Takht-e Soleymān world heritage site due to the existence of Azargoshnasb fire temple and the complex of interconnected buildings, the time period, the availability and the remaining of a significant part of the buildings and materials of this complex, we have investigated this site. This research is based on (1) library studies, (2) field investigations, and (3) laboratory studies in a descriptive-analytical way. Laboratory studies include compressive strength tests and water absorption tests, which were carried out on four brick samples of Takht-e Soleymān site. In the subject of structural studies, the compressive strength test and water absorption test are among the most important criteria for evaluating the quality and determining the strength and stability of bricks. The results of compressive strength and water absorption tests and comparing it with similar tests in countries such as Italy and Greece indicate the relatively high quality of the bricks used by the architects of this ancient site.

Key Words: Architecture, Takht-e Soleymān site, Brick, Compressive strength test, Water absorption test.

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