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Typology Assessment of Burnt Clay Roof Tiles: A Case of Ancient Burnt Clay Technology in Sri Lanka

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Abstract

The ancient circular clay roof tiles with the radiocarbon dating of 2250 BP, found in archaeological excavation in Citadel in ancient city Anuradhapura in Sri Lanka. Artefacts prove that the ancestors' rich clay technology revolution and dramatically improving of: the shapes and dimensions; properties improvement; advancing of production; and burning process during this era. However, their technological approach was disappeared to the present generation and selected as the research gap to fill the void based on the good conditions of artefacts found in year 1999 and collected sample from museum for research purpose. This research aim focuses to decode samples in order to reveal ancestors' knowledge on clay technology together with their developed strategies in order to incorporate for current building application and selected objective was the physical characteristics/ performance test on artefacts. The research methodology was the laboratory testing of artefacts and evaluation under the content analysis method. The synthesis analysis proved that ancestors had adopted the Nature Inspired Solution/ biomimetic design application to shape up the tile and focused on dimension proportioning scientifically during the forming of the ancient circular roof tile. The adjustable roof structure frame work is used to identify a clay roof tiles installation pattern and two approaches found as possible application. The physical plum tests were carried out and proved that tiles were even suitable for vertical application as well. The formation of hole in the top of tile also proved as a scientific approach by our ancestors. The artificial formed rain was conducted and the proposed pattern on roof tile laying was identified as the correct approach, which can establish the ancestors' scientific approach as rich on roof tile design and could compete against with modern instrumental application.

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