



Characterization of traditional raw materials used in housing construction in Huambo region – Angola

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The sustainability of buildings associated to the use of raw earth has motivated the studies and the development of techniques and methods in the context of this type of construction. In the region of Huambo, Angola, these construction techniques are widely used, especially for low-income families who represent the majority of the population. Much of the buildings in Huambo province are built with adobe. Due to the climate in this region, subtropical, hot and humid, with altitudes above 1000 meters and extensive river system, these buildings are particularly vulnerable to the action of water and develop, in many situations, early degradation. The Huambo Province is located in central Angola, has 36 km² area and approximately 2 million inhabitants.

This work aims to evaluate, by conducting in-situ tests, physical and mechanical properties of adobe blocks typically used in the construction of those buildings. The methodology is based on field campaigns where in-situ expeditious tests were performed in soils (smell test, color, touch, brightness, sedimentation, ball, hardness, etc.) and tests on adobes blocks made with traditional procedures, particularly in terms of durability and erodibility (erosion test at Geelong method; evaluation test of wet / dry cycle, applying the New Zealand standards 4297: 1998; 4297: 1998 and 4297: 1999).

The results will contribute to the characterization of the geomaterials and methods used in construction with earth in Huambo Province, contributing to the improvement of these sustainable solutions, with a strong presence in this region. The results of this study will also contribute to the proposal of constructive solutions with improved performance characteristics, comfort, safety and durability.