

Mudbrick and Heat



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ABSTRACT

Cyprus is an island where the inhabitants travelled by sea and settled during the pre-neolithic age, circa 12000 yrs BC. In order to live healthy at this age, they have built their homes with an emphasis on natural heating and thus taking into account the sun light and the wind directions. By the Bronze Age house building with courtyards commences. A good example to this style is the farm house at Alambra village built during the early Bronze Age. This house has two rooms and two doors facing the south courtyard. Moreover the construction system and materials of this house is considered to be the first example of Cyprus traditional rural houses. A careful observation of the traditional house building of Cyprus shows that the natural climatization has been taken into account. In this work measurements carried out in three houses constructed with different materials and open atmosphere (in shade) has revealed that even if mud brick houses are built without any care for natural climatization and without using any particular air conditioning system, there was at least 3 degrees Celsius difference between the internal and the external atmosphere of the houses. This feature is attributed to building materials, i.e. buildings with concrete reinforced materials moisture absorption capacity is low while mud bricks absorption capacity is higher and faster. In spite of the previous observations and studies showing a good heat regulation capacity of mud brick, there are comments opposing the house building with soil (mud brick). This is, of course tolerable for the multi store high buildings. However, in rural areas house construction with traditional mud and straw mud bricks and/or bricks produced by using gypsum and mud still is possible. The data collection period this paper is in between 1st and 30th of April 2013, by using a temperature and moisture measuring device (Ebro Electronic Gmb H&Co., Model (EBL 20-TH)). The data is collected from two houses constructed by different materials; say soil plus gypsum mixture bricks and concrete, and the second one with traditional mud bricks, at the Dilekkaya village located in semi arid Mesarya region of Cyprus.

Keywords: Mudbrick, heat, Cyprus.