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A PROPOSED MODIFIED ADOBE BRICK TO ENHANCE VERNACULAR CONSTRUCTION TECHNIQUES FOR ECOTOURISM IN EGYPT:
CASE STUDY OF JABAL ELGEZERAH ELHAMRA, MARSA ALAM

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Abstract

Egypt, has high potential attractions for ecolodges. There are a wealth of natural beauty and natural materials, which have already been used in ancient and traditional vernacular architecture, where there was a coexistence and compatibility with the surrounding natural environment, and is achieved by the concept of thermal comfort inside the housing unit and the effective use of energy, thus achieving sustainable development. This paper aims concerned with introducing new adobe mixture that, could enhance the durability and compression characteristics of the building block. This mixture could be used in areas where eco-friendly building techniques are desired in order to achieve sustainability as well as aesthetic values of methods and natural building materials, specifically in Alqusyir and Marsa Alam Cities on the Red Sea Coast in Egypt.

Due to the nature of the region and the abundance of materials used in the construction, which is based on " Silt of stream segments ", to product of adobe brick by natural materials, with the possibility of adding a natural binders, and treatment of these materials to be able to withstand the pressure and tensile strength and water permeability in order to be a sustainable brick. Through analytical and laboratory study for those materials such as Sugar Cane (Bagasse) from sugar industry waste and (Molasses) bagasse, without including Cement. This mix is environmentally and suitable for the climate nd local economy and social conditions.

To ensure the durability of building materials and their cohesion in addition to protect the roofs and walls from rain , and it can be used efficiently in areas of development in Egypt and the ecolodge projects and in nature protected areas, which has the materials environmentally friendly and can be recycled. It will preserve the identity of the vernacular architecture in Egypt, which requires protecting and raising architectural and urban value in the comprehensive urban environment that integrates social and develop ecolodges.

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