

EMBODIED ENERGY IN VERNACULAR HOUSES: CASE STUDY OF GORAI SETTLEMENT, MUMBAI; INDIA

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The paper is based on overview of vernacular architecture of Greater Mumbai. There are numerous vernacular settlements in Greater Mumbai. Their territory can be distinguished in different parts according to the peculiar socio-cultural and economical elements acquired during the centuries and to the natural aspects that make each place unique. Nowadays the old settlements are mostly abandoned and new houses are not responsive to local conditions leading to destruction of ecological balance and affecting the environment of the place.

The aim of the paper is to analyze the main characters of the vernacular architecture in the old settlement named Gorai pointing out both the typological and the technological aspects (local material! and construction processes), focusing on their environmental sustainability. Energy density of vernacular house and contemporary house is compared. Due to the complexity of the size, structure and construction of various houses, comparison of the main components of each building, instead of taking the house as a whole is preferred. Data and conclusions are the result of quantitative analysis. A house is composed of three main components: roof, wall, and floor. This analysis gives the general understanding of the embodied energy and omInpiral value of our vernacular

architectural heritage and need to search for a more sustainable method of development. Through re-assessing our traditional dwellings under an ecological perspective, we appreciate the wisdom embodied in the vernacular architecture in its relation to nature and its distinct advantage in low energy architecture.

Keywords:

Vernacular architecture, Energy density of houses, Gorai settlement, Mumbai,