World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:9, No:04, 2015

Traditional Values and Their Adaptation in Social Housing Design: Towards a New Typology and Establishment of 'Airhouse' Standard in Malaysia

Authors : Mohd Firrdhaus Mohd Sahabuddin, Cristina Gonzalez-Longo

Abstract : Large migration from rural areas to urban areas like Kuala Lumpur has led to some implications for economic, social and cultural development. This high population has placed enormous demand on the existing housing stocks, especially for low-income groups. However, some issues arise, one of which is overheated indoor air temperature. This problem contributes to the high-energy usage that forces huge sums of money to be spent on cooling the house by using mechanical equipment. Therefore, this study focuses on thermal comfort in social housing, and incorporates traditional values into its design to achieve a certain measurement of natural ventilation in a house. From the study, the carbon emission and energy consumption for an air-conditioned house is 67%, 66% higher than a naturally ventilated house. Therefore, this research has come up with a new typology design, which has a large exposed wall area and full-length openings on the opposite walls to increase cross ventilation. At the end of this research, the measurement of thermal comfort for a naturally ventilated building called ‘AirHouse’ has been identified.

Keywords : tropical architecture, natural ventilation, passive design, AirHouse, social housing design
Conference Title : ICSAUD 2015 : International Conference on Sustainable Architecture and Urban Design
Conference Location : Venice, Italy
Conference Dates : April 13-14, 2015