

Influence of Roofing Material on Indoor Thermal Comfort of Bamboo House

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Abstract : The growing desire for better indoor thermal performance with moderate energy consumption is becoming an issue for challenging today's built environment. Studies related to the effective way of enhancing indoor thermal comfort had been done by approaching in numerous ways. Few studies have been focused on the correlation between building material and indoor thermal comfort of vernacular house. This paper analyzes the thermal comfort conditions of Bamboo House, mostly located in a hot and humid region. Depending on the roofing material, how the indoor environment varies will be observed through monitoring indoor and outdoor comfort measurement of Bamboo house as well as occupants' preferable comfort condition. The result revealed that the indigenous roofing material mostly influences the indoor thermal environment by performing to have less effect from the outdoor temperature. It can keep the room cool with moderate thermal comfort, especially in the early morning and night, in the summertime without mechanical device assistance. After analyzing the performance of roofing material, which effect on indoor thermal comfort for 24 hours, it can be efficiently managed the time for availing mechanical cooling devices and make it supply only the necessary period of a day, which will lead to a partially reduce energy consumption.

Keywords : bamboo house, hot and humid climate, indoor thermal comfort, local indigenous roofing material

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