

Title: Pembangunan program tropic untuk simulasi pembolehkan bumbung terhadap
keselesaan dalaman di Malaysia

Author: Muhammad Syarif Hidayat

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Master / PhD : Ijazah Doktor Falsafah

Abstract:

Building simulation program developed still refers to the research purpose. So, it is difficult for architects to evaluate their buildings, especially for naturally ventilated buildings. The main aim of this study is to develop building simulation program, which can be used in naturally ventilated buildings. In the first part of the thesis, the principles of passively controlled indoor temperature through building envelope are explained. The principles of heat gain calculation of each part of the building are also explained. The new computer programming, TROPIC, which is simplified, faster in process, required less input, and produce specific output to building envelope design, is produced. This program is validated with the other computer programming, ARC HIP AK, where root mean square for attic space is 0.1 °c and for living room is 0.04 0c. Sensitivity analysis indicates that attic temperature is sensitive to roof colour, but not to roof orientation. This new program is expected to help architects and designers in evaluating their design in the preliminary design stage, so that the thermal indoor conditions would be better.