

THE IMPACT OF BUILDING MATERIAL ON THERMAL
PERFORMANCE OF RESIDENTIAL BUILDING IN TROPICAL
CLIMATE

NOR SANIA MUNIR SATAR

BACHELOR OF SCIENCE (Hons.) PHYSICS
FACULTY OF APPLIED SCIENCES
UNIVERSITI TEKNOLOGI MARA

MAY 2009

**THE IMPACT OF BUILDING MATERIAL ON THERMAL PERFORMANCE
OF RESIDENTIAL BUILDING IN TROPICAL CLIMATE**

NOR JANNAH MUHD SATAR

**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Physics
in the Faculty of Applied Sciences
University Teknologi MARA**

MAY 2008

ACKNOWLEDGEMENT

First and foremost, I would like to express my full gratefulness to Allah the Almighty for blessing throughout of this project.

My deepest appreciation goes to my supervisor, Dr. Nor Zaini Ikrom Zakaria for her guidance, concern and encouragement in the preparation of this project. I also would like to forward my appreciation to Cik Zakiah Mohamed as my co-supervisor.

Special thanks to my beloved family, who pray, understand, motivate and give their full support to me in every way I needed.

Last but not least, to all my friends and many others who are not stated here, thanks for their contribution and cooperation.

Nor Jannah Muhd Satar.

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ABSTRACT

IMPACT OF MATERIAL ON THERMAL PERFORMANCE IN RESIDENTIAL BUILDING IN TROPICAL CLIMATE

The residential buildings in Malaysia are not thermally comfortable due to climate, building design, building materials and energy consumption. This study was carried out to evaluate the impact of construction material on thermal performance in residential building. The objectives for this study are to measure the thermal environmental data of residential building at tropical rainforest of Taman Negara Pahang, to measure the thermal environmental data of residential building with conventional construction at urban area of Shah Alam and rural area of Pendang Kedah, and to analyze and compare the impact of building materials on selected residential building. Nine houses were taken as a sample. There are two conventional construction of heavyweight house at Bukit Jelutong, two heavyweights and one lightweight house at Taman Negara, and two mix weights, one heavyweight and one lightweight house at Pendang. Data were logged using data logging equipments. Some data were collected consecutively and some data were collected simultaneously. Data were analyzed for temperature, temperature difference, relative humidity, light intensity, thermal comfort hours and decrement factor. In conclusion, findings show that lightweight residential building is hotter up to 1.9 °C during day time and cooler up to 0.9 °C during night time. Heavyweight residential building recorded different affect that is the house is cooler during day time and hotter during night time.