

**A MICROCLIMATE STUDY OF FSPU,
UiTM SHAH ALAM**

DISEDIAKAN OLEH:

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ABSTRACT

A field study was conducted in classrooms in Malaysia which were either mechanically ventilated by fans or air-conditioned, to assess their thermal conditions during the day. Samples of occupants were asked to answer a survey on their perception of the comfort level while thermal comfort variables were measured simultaneously.

Data analysis of the mechanically ventilated classrooms showed that all classrooms had thermal conditions that fell outside the comfort zone of ASHRAE Standard 55. However, the occupants found the warmer thermal conditions acceptable. Meanwhile, half of the air-conditioned classroom had thermal conditions that were within the comfort zone of ASHRAE Standard 55. The other half had thermal conditions that are higher than the ASHRAE comfort zone but the occupants found the thermal conditions acceptable.

Results of this study suggested a higher thermal comfort range for Malaysian compared to the thermal comfort range proposed by international standard, i.e., ASHRAE Standard and ISO 7730 which indicated that Malaysians are acclimatised to much higher environmental temperature. Therefore adopting the international standards for interior comfort conditions for the Malaysian hot-humid tropical climate may lead to overcooling and energy waste. The result of this study is also in line with the current revisions to ASHRAE Standard 55 that will include a new adaptive comfort standard (ACS) that allows warmer indoor temperatures for naturally ventilated buildings in warmer climates.

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1.0 INTRODUCTION

1.1 Introduction

Malaysia is a hot and humid tropical country that lies between 1° and 7°N and 100° and 120° E longitude. The capital city, Kuala Lumpur is situated at latitude 3° 7' above the Equator and longitude 101° 33'. Being close to the Equator, the hot and humid conditions are emphasised with heavy rainfall and sunshine throughout the year (Malaysian Meteorological Service, 2002). Malaysia has a yearly mean temperature of 26 - 27°C and relative humidity (RH) of 70 - 90% throughout the year. Thermal conditions in Malaysia fall outside the ASHRAE standard 55-92 (ASHRAE, 1992) comfort zone throughout the year.

The hot and humid climate may have an impact on occupants' comfort indoors although previous studies have shown that occupants were able to adapt to the climate by behavioural adjustments and acclimatisation.

However, it is interesting to find out how students at a university in Malaysia coped with the thermal conditions in fan ventilated (FV) classrooms. While occupants of homes and offices can adjust their clothing and activities in response to thermal stress in their environment, students in crowded classrooms have limited freedom to adjust their clothing due to the strict dress codes imposed at the university. It would also be interesting to find out the actual thermal conditions in airconditioned (AC) classrooms and the acceptability level of its occupants.