

UNIVERSITI TEKNOLOGI MARA

**INDOOR AIR QUALITY IN UiTM PUNCAK
ALAM RESIDENTIAL BUILDING**

MOHD KHAIRULLAZWAN BIN KHAIRULLANUAR

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Declaration by Student

Project entitled "Indoor Air Quality In Uitm Puncak Alam Residential Building" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Dr Subramaniam A/L Karuppannan as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

Student's Signature



.....
(Mohd Khairullazwan Bin Khairullanuar)

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Date: 11/7/14

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Abstract

INDOOR AIR QUALITY IN UiTM PUNCAK ALAM STUDENT'S RESIDENTIAL BUILDING

Mohd Khairullazwan Bin Khairullanuar

The study was conducted to evaluate Indoor Air Quality (IAQ) in UiTM's Hostel rooms. The study also compared IAQ between Block Angsana (old hostel building) and Block Casuarina (new hostel building). One hundred rooms (n=100) are selected for parameter measuring. Fifty rooms were Angsana hostel (n=50) while another fifty rooms were collected from Casuarina rooms (n=50). Each room was measured for five parameters include Total Volatile Organic Compound (TVOC), Carbon Dioxide, room temperature, air velocity, and relative humidity. In addition, comparing with Industrial Code of Practice for Indoor Air Quality 2011, there were no violation against all parameter measured except for room temperature and relative humidity. The result showed that all rooms (n=100) are not compliance for room temperature within the standard guidelines while sixteen rooms (n=16) are not compliance for relative humidity standard guidelines. The study also found that there were significant different ($p < 0.05$) between old building and new building for air velocity ($p = 0.000$), TVOC ($p = 0.000$) and CO_2 ($p = 0.003$) concentration Casuarina (new building) had higher concentration. However there was no significant difference ($p > 0.05$) between the new building and the old building for relative humidity and temperature. Statistical analysis for correlation between TVOC and CO_2 showed fair significant thus proving that if CO_2 increased TVOC also have tend to be increased. As the room temperature is high, it is not good in terms of thermal comfort thus few recommendations had done to control temperature such as installed overhang, tree planting, and promoting good behavior. Besides that for TVOC emission control and relative humidity reduction, isolation for laundry rooms are suggested, maintenance check on mechanical ventilation and health promotion towards awareness of chemical compounds in households. In addition, high temperature and high humidity caused mold growth in building. Mold growth can give adverse health effect to human such as allergic and respiratory problem. Thus, the authorities must responsible in preventing mold growth in building. It is suggested that anti mold paint and material should be used in building and also controlling level of temperature and humidity.

Keywords: Indoor Air Quality (IAQ), Total Volatile Organic Compound (TVOC), Carbon Dioxide (CO_2), relative humidity, Industrial Code of Practice (ICOP) for Indoor Air Quality.