UNIVERSITI TEKNOLOGI MARA

INDOOR AIR QUALITY AND PREVALENCE OF SICK BUILDING SYNDROME BETWEEN DIFFERENT AGED BUILDINGS OF WISMA PERSEKUTUAN ALOR SETAR, KEDAH

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Project submitted in fulfillment of the requirements for the degree of
Bachelor in Environmental Health and Safety
(Hons.)

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DECLARATION BY STUDENT

Project entitled "Indoor Air Quality and Prevalence of Sick Building Syndrome Between Different Aged Buildings of Wisma Persekutuan Alor Setar, Kedah" is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Dr. Shantakumari Rajan. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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In the name of Allah the most gracious and the most merciful, first and foremost.

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ABSTRACT

This study purpose is to analyze the relationship between indoor air quality, relative humidity, temperature, air movement, carbon dioxide concentration, carbon monoxide, total volatile organic compound and particulate matter with the prevalence of Sick Building Syndrome (SBS) among workers in different aged buildings of new and old building of Wisma Persekutuan Alor Setar, Kedah. This cross-sectional study involved of 30 respondents and 33 respondents from 44 years aged building and 9 years aged building respectively. A set of questionnaires by the Department of Occupational Safety and Health Malaysia (DOSH) Industry Code of Practice in 2010 Indoor Air Quality was used to determine the presence of symptoms and prevalence of SBS among respondents. Statistical analyses of data involved both descriptive and inferential. The result shows that only carbon monoxide and temperature indicated significant difference because of p value < 0.05 (p=0.00). Meanwhile other parameters such as air movement, carbon dioxide, total volatile organic compound, particulate matter and relative humidity indicated that no significant difference with p value (0.840, 0.604, 0.407, 0.129 and 0.775) respectively. The results show that there are no significant difference for SBS symptoms among both buildings. Chi-square tests also were used to compare the SBS prevalence among both building and it shows that there is a significant association with $p < 0.05$ ($p = 0.001$). From Pearson Correlation statistical analysis, air movement was found to be significant with headache ($r = 0.307$, $p = 0.015$) while carbon dioxide was significantly related with irritated, stuffy nose ($r = 0.299$, $p = 0.017$). Meanwhile Total Volatile Organic Compound was found to be significant with skin rash/ itchiness ($r = -0.433$, $p = 0.000$) and irritation of the eyes ($r = -0.0541$, $p = 0.000$) p value < 0.001).

Keywords: *air movement, carbon dioxide, carbon monoxide, total volatile organic compound (TVOC), Sick Building Syndrome (SBS*)