UNIVERSITI TEKNOLOGI MARA

PARTICULATE MATTER (PM2.5) AND SICK BUILDING SYNDROME AMONG LIBRARIANS AT OLD AND NEW LIBRARIES

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Project submitted in fulfillment of the requirements for the degree of

Bachelor (Hons.) in Environmental Health and Safety
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Declaration by Student

Project entitled "Assessment Of Particulate Matter (Pm2.5) And Sick Building Syndrome Among Librarians At Old And New Libraries" is a presentation of my original research work. Wherever conttribution of others are involved, every effort id made to indocate this clearly, with due reference to the literature, and acknowladgement of collaborative reserch and discussions. This project was done under the guidiane of Mr Razi Ikhwan Bin Md.Rashid as prject supervisor and Mr Megat Azaman Bin Megat Mokhtar as Co-supervisor. It has been submitted to the Faculty in Environmental Health and Safety (Hons).

Student's Signature

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ABSTRACT

PARTICULATE MATTER (PM2.5) AND SICK BUILDING SYNDROME AMONG LIBRARIANS AT OLD AND NEW LIBRARIES

Nur Afzanizan binti Masri

Introduction: The investigation of indoor air quality (IAQ) important to study because IAQ is not new issue in Malaysia. This study aimed to determine the relationship of particulate matter ($PM_{2.5}$) with Sick Building Syndrome symptoms (SBS) among librarians in two different libraries (old and new building) in UiTM. There are three sampling points selected which have similarity both libraries which consists of recovery room, office and receptionist. 26 librarians from PTAR Shah Alam and 14 librarians from PTAR Puncak Alam were selected to answer the questionnaire. Questionnaire based on Industrial Code of Practice, 2010 was performed to record prevalence of SBS.

Methodology: Cross-sectional comparative study designs were used in this study to asses on indoor air quality in two different libraries in Selangor which is old and new libraries at PTAR UiTM and also conduct the survey of Sick Building Syndrome among selected librarian at both libraries. This study involved 40 librarian consists of 26 librarians from PTAR UiTM Shah Alam (old library) and 14 librarians from PTAR UiTM Puncak Alam (new library). The SBS symptoms were assessed by questionnaire of Industry Code of Practice on Indoor Air Quality (2010). IAQ were monitored by using Q-trak (TSI Model 7575) and Dust-trak II aerosol monitor (TSI Model 8531).

Results: There was significant higher prevalence of SBS among old building and new building (X^2 = 55.441,p< 0.000). Mann Whitney test showed there were significant higher indoor air pollutnts in old building compare to new building : Office; for $PM_{2.5}$ (z=-1.966, p<0.049), CO_2 (z=-0.288, p<0.773), Temperature (z=-2.515, p<0.012), Relative humidity (z=-9.71, p<0.331) : Recovery room; $PM_{2.5}$ (z=-19.052, p<0.000), CO_2 (z=-18.801, p<0.000), Temperature (z=-2.501, p<0.012), Relative humidity (z=-9.961, p<0.337) : Receptionist $PM_{2.5}$ (z=-19.195, p<0.000), CO_2 (z=-18.799, p<0.000), Temperature (z=-5.544, p<0.000), Relative humidity (z=-2.433, p<0.015).

Conclusion: This study suggested that increasing $PM_{2.5}$, CO_2, temperature and relative humidity may influence the occurrence of SBS among librarians. A future study is suggested to identify the risk of exposure IAQ level and relationship of SBS.

Keywords: Indoor Air Quality (IAQ), Particulate Matter 2.5($PM_{2.5}$), new building, old building, Sick Building Syndrome (SBS), CO2, Temperature, Relative Humidity