UNIVERSITI TEKNOLOGI MARA

THE ASSESSMENT OF PARTICULATE MATTER 2.5 IN NEW AND OLD STUDENT'S RESIDENTIAL BUILDINGS

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Project submitted in fulfillment of the requirements for
the degree of
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DECLARATION BY STUDENT

Project entitled "The Assessment of Particulate Matter 2.5 in New and Old Student's Residential Buildings" 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, Mr. Megat Azman Bin Megat Mokhtar. 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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ABSTRACT

Student's residential building in UiTM Selangor, Puncak Alam Campus were exposed to particulate matter 2.5 because it consist of new and old buildings. There was certain building age or type will give an impact on the occupants' exposure to the particulate matters (Fadilah and Juliana, 2012). The level of indoor air quality (IAQ) is the one of the guidance or indicator for determining the quality of air in Hostel at the institutional environment in terms of the capacity and effectiveness of ventilation system, hence major concern of exposure to the fine particles through inhalation. Study was performed to determine and compare the level of $PM_{2.5,}$ temperature, carbon dioxide and relative humidity in Dahlia (new building) and Rafflesia (old building). The results indicate there was a violation of $PM_{2.5}$ concentration for both building as set by the ICOP and WHO 2005 guidelines, however, the old buildings has low $PM_{2.5}$ concentration level compared to the new buildings with range 43.98µg/m3 and 88.98µg/m3 respectively. Based on this, the ratios of exposure assessment of $PM_{2.5}$ concentration between old and new buildings was calculated (1.3 and 2.5 respectively) which above an acceptable risk. The temperature in the old building is significantly higher compared to the new building with median 30.04°C and 29.37°C. The relative humidity shows significantly higher in new building than the old building with 71.48% and 66.43% respectively, carbon dioxide also estimate the higher value in new building compared to old building with 424.68ppm and 394.8ppm. Both buildings discovered with higher $PM_{2.5}$ which indicate to facilitate the recommendation and action taken to improve and minimize the exposure of fine particles among students which occupied the hostel building.

Keywords: *Particulate matter, hostel building, exposure assessment, indoor air*