# UNIVERSITI TEKNOLOGI MARA

# $PM_{10}$ CONCENTRATION OF PRIMARY SCHOOLS IN KUALA SELANGOR

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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 "$PM_{10}$ Concentration of Primary Schools in Kuala Selangor" 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. Farah Ayuni Bt Shafie. 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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# ACKNOWLEDGEMENT

*In the name of Allah, The Most Gracious, The Most Merciful.*

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# ABSTRACT

In recent indoor air quality studies, people tend to concern of indoor air quality in schools especially in elementary schools. This was because schools had high density of occupants and majority of them were children. Children were more susceptible to air pollutants and easy to fall sick compared to adults due to their immature organs and developing immune system. This study was focusing on $PM_{10}$ and its impacts to building occupants of selected primary schools. Two schools in Kuala Selangor were selected to conduct the study. The equipment used for the study was Qtrak and Dustrak to measure particulate matter ($PM_{10}$) and carbon dioxide ($CO_2$). Meteorological data including relative humidity and temperature were also estimated in this study. The data collected five hours of school time period in 21 classrooms and 4 educational rooms. Natural lighting for each class was measured in monitoring light exposure in the selected classrooms and compared to Uniform Building by Law 1984. The average particulate matter reading level for school A and B were 33.69µg $m^{-3}$ – 92.74 µg $m^{-3}$ and 28µg $m^{-3}$ – 116.63µg $m^{-3}$ which were lower than RMG and NAAQS but exceed the threshold limit of WHO. The range for relative humidity during the study conducted was 63.8% – 81.9% and the range for temperature was 27.6 ºC – 31.1 ºC. A set of questionnaires adopted from ICOP 2010 were also given out to teachers for both schools. Evaluation of this activity was related to the presentation of Sick Building Syndromes (SBS) in both schools. The comparison in these schools might identify any classrooms with higher particles level and recommendations steps can be applied as to improve the microenvironment thus serve healthier place for building occupants of the schools.

(*Keyword: particulate matter, lighting, temperature, relative humidity*)