

UNIVERSITI TEKNOLOGI MARA

**INDOOR AIR QUALITY AT BUS TERMINAL AND
THEIR INFLUENCE ON HEALTH**

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

Faculty of Health Sciences

July 2019

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Declaration by students

Project entitled “Indoor Air Quality at Bus Terminal and Their Influence on Health” is a presentation of our original research work. Whenever contributors of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgment of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Mr Razi Ikhwan bin Md Rashid. 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 and Most Merciful.

Alhamdulillah, and all praise to Allah for the good health and wellbeing that were necessary to complete this beautiful and yet a tough study journey. First and foremost, we have to thank our supervisor, Mr Razi Ikhwan bin Md Rashid for his supervision and constant support. We are extremely thankful to him for his valuable guidance and encouragement extended to us in completing our study.

Apart from that, we would like to thank our dedicated lecturers from Environmental Health and Safety Department for teaching us and sharing their immense knowledge. Not forgotten, our appreciation to the laboratory staff, Mr Azwad Abdullah and Mr Shahrizan Miskan for their co-operation regarding to the equipments and laboratory procedures.

Next, we would like to express our sincere thanks to management of Terminal Bersepadu Selatan (TBS), Kuala Lumpur for giving us the opportunities to conduct this study. We would like to express our deepest gratitude to our family members especially our parents for their endless supports, encouragement and attention.

Lastly, we wish to convey our sense of gratitude to one and all, who directly or indirectly have lent their hands in this study.

ABSTRACT

Over the most recent couples of decades, indoor air quality (IAQ) has gotten expanding consideration from the community. The quality of indoor air has a significant bad impact on human health. According to the previous studies, it has been evaluated that most individuals do invest about 90% of the energy staying indoor. A building's management department is usually responsible for improving the quality of the indoor environment by providing good service and boosting productivity and satisfaction for the building's occupants. Thus, a salient point of this study is to determine the indoor air quality at Terminal Bersepadu Selatan Kuala Lumpur and their influence on health. The objectives of the study are (i) to determine the concentration on indoor air pollutants (CO, CO₂, and NO₂) during weekdays and weekends, (ii) to identify the concentration of particulate matter PM₁₀ and PM_{2.5} during weekdays and weekends, (iii) to measure the concentration of heavy metals (Pb, Mg, Fe, and Cd) in the particulate matter collected between weekdays and weekends and (iv) to determine the association between indoor air quality parameters and sick building syndrome. For these reasons, monitoring of air quality was carried out using Environmental Monitoring Equipment EVM-7 to identify levels of CO, CO₂, NO₂, and PM₁₀ while PM_{2.5} was measured using DustTrak II Aerosol Monitor Model 8520. The particulate matter was collected using an air sampling pump GilAir5. 40 workers in the departure hall were randomly selected for the health survey during the monitoring period, using questionnaire to identify the SBS. The result showed that weekends have a higher reading compared to weekdays; the concentration level of CO, CO₂ and NO₂ was below the corresponding American Conference of Governmental Industrial Hygienists' (ACGIH) standards under normal operating conditions. Next, the concentration level of particulate matter PM₁₀ and PM_{2.5} complies with a permissible limit of 150µg/m³ by Industrial Code of Practice on Indoor Air Quality 2010. Therefore, in this study, all the indoor air quality parameters are compiled to the required permissible limit. However, the terminal bus workers still do experience sick building syndrome such as headache and cough. Thus, there is an association between indoor air quality parameters and the sick building syndrome among the bus terminal workers.

Keywords: Indoor air quality, sick building syndrome, bus terminal