

**THE EFFECTIVENESS OF EXHAUST FAN IN REMOVING CO AND CO₂
IN SOME SELECTED CLASSROOM IN FACULTY OF APPLIED
SCIENCE, UiTM SHAH ALAM**

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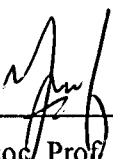
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ABSTRACT

THE EFFECTIVENESS OF EXHAUST FAN IN REMOVING CO AND CO₂ IN SOME SELECTED CLASSROOMS IN FACULTY OF APPLIED SCIENCE, UiTM SHAH ALAM

Having good quality of indoor environment in classroom is very important because students spend more than five hours per day inside classrooms. In this project work, the concentrations and the values of some Indoor Air Quality parameters were investigated inside some selected classrooms in the Faculty of Applied Science, UiTM Shah Alam. The parameters are the contents of carbon monoxide (CO), carbon dioxide (CO₂), air temperature and relative air humidity. These parameters were measured using Direct Sense IAQ Monitor. The equipment was placed 1.0 m above the floor and was set up for 8 hours from 8.30 am to 5.30 pm. The data collected then was downloaded and analyzed using Microsoft excel. The measurement was carried out for one month. It was found that the contents of CO in all classrooms were very much lower than the allowed maximum value according to the international IAQ standard for health and safety reasons. However the values of CO₂ were found higher than the maximum value set in the standard which is 1000 ppm especially when the rooms are fully occupied. The air conditioning system helps to maintain the temperature within the comfort range, thus providing good thermal comfort. Unfortunately the circulation of air seems to be not sufficient in removing CO₂ from the interior space. From this study it was observed that using exhaust fan throughout the day along with the air conditioning system could be a good approach to reduce the air contamination due to high concentration of CO₂ in classroom. By temporarily switching off the exhaust fan when the rooms are not occupied would save electricity energy. Unfortunately, by doing so, CO₂ is trapped inside the room when the exhaust fan is turned off.

CHAPTER 1

INTRODUCTION

1.1 Background

Indoor Air Quality, (IAQ) is defined as the quality of the air in an office or the building environments especially as it relates to the health and comfort of building occupants. It has been identified as one of the most critical global environmental problems (WRI, 1998). It is represented by the concentration of pollution and thermal (temperature and relative humidity) conditions that affect the health and comfort of occupants (Brookhaven National Laboratory, 2009). The previous study revealed that poor Indoor Air Quality will lead to sick building syndrome. Sick Building Syndrome which simply describes situations in which buildings occupants experience acute health and comfort effects that seem linked to time spent in a building, but no specific illness or cause can be identified, according to the US Environmental Protection Agency.

Outdoor Air Quality is also commonly referred to the ambient air. Until the late 1960s, attention to air quality was primarily focused on the outdoors because, by the time, many adverse health effects (Zhang, 2005). People spend most of their time indoors and institutional buildings, such as classrooms, represent a significant fraction of the day (Yip et al., 2004) and since people spend more than 90% of their time indoors, good indoor air quality is very important to us. The